REPORT

INTERNATIONAL BOUNDARY COMMISSION

REESTABLISHMENT OF THE BOUNDARY BETWEEN THE

UNITED STATES AND CANADA

NORTHWESTERNMOST POINT OF LAKE OF THE WOODS TO LAKE SUPERIOR



DEPARTMENT OF THE INTERIOR

1931



Photograph by Royal Canadian Air Force

TYPICAL SECTION OF TERRAIN TRAVERSED BY THE INTERNATIONAL BOUNDARY FROM THE NORTHWESTERNMOST POINT OF LAKE OF THE WOODS TO LAKE SUPERIOR. LOON LAKE AND LAC LACROIX

INTERNATIONAL BOUNDARY COMMISSION

JOINT REPORT

UPON THE

SURVEY AND DEMARCATION OF THE BOUNDARY

BETWEEN THE

UNITED STATES AND CANADA

FROM THE NORTHWESTERNMOST POINT OF LAKE OF THE WOODS TO LAKE SUPERIOR

IN ACCORDANCE WITH THE PROVISIONS OF ARTICLE V OF THE TREATY SIGNED AT WASHINGTON, APRIL 11, 1908, AND ARTICLE I OF THE TREATY SIGNED AT WASHINGTON, FEBRUARY 24, 1925

HIS BRITANNIC MAJESTY'S COMMISSIONER

W. F. KING, 1908–1916
J. J. McARTHUR, 1917–1924
J. D. CRAIG, 1925–1931
NOEL J. OGILVIE, 1931–

UNITED STATES COMMISSIONER

O. H. TITTMANN, 1908–1915
E. C. BARNARD, 1915–1921
E. LESTER JONES, 1921–1929
JAMES H. VAN WAGENEN 1929–

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THE INTERNATIONAL BOUNDARY
COMMISSIONERS

LETTER OF TRANSMITTAL

WASHINGTON, *October 27, 1931.*

The Honourable
The MINISTER OF THE INTERIOR OF CANADA,
Ottawa.

The Honourable
THE SECRETARY OF STATE OF THE UNITED STATES,
Washington.

Sirs:

We have the honour to submit herewith our printed joint report upon the reestablishment of the section of the international boundary between Canada and the United States from the Northwesternmost Point of Lake of the Woods to Lake Superior, together with a volume of triangulation sketches and an atlas of thirty-six signed joint maps of the boundary as now established in accordance with the provisions of Article V of the treaty between Great Britain and the United States signed at Washington April 11, 1908, and Article I of the treaty between His Britannic Majesty in respect of Canada and the United States signed at Washington February 24, 1925.

This report is the fourth of a series of seven reports being prepared by the International Boundary Commission under the provisions of existent boundary treaties. The seven reports, together with their accompanying maps, will cover the survey and demarcation of the entire boundary between Canada and the United States and between Canada and Alaska, with the exception of that part of the boundary through the St. Lawrence River and the Great Lakes which was reestablished and reported upon by the International Waterways Commission under the special provisions of Article IV of the treaty of April 11, 1908.

The signed originals of the report and the originals of each of the thirty-six boundary maps have been prepared in quadruplicate and two originals of the report and two sets of the original maps, bound in atlas form, are transmitted herewith to each Government.

Very truly yours,

Noel J. Ogilvie

His Britannic Majesty's Commissioner.

James H. Haw Wagenen

United States Commissioner.

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INTRODUCTION

This report of the commissioners upon the reestablishment of the section of the international boundary from the Northwesternmost Point of Lake of the Woods to Lake Superior is submitted to the two Governments in accordance with the provisions of Article V of the treaty of 1908, which stipulates that the commissioners "shall also prepare in duplicate and file with each Government a joint report or reports describing in detail the course of the boundary so marked by them and the character and location of the several monuments and boundary marks and ranges marking it." The report includes an account of all the field and office work done by the commission in carrying out the provisions of Article V of the treaty of 1908 between the United States and Great Britain and the further provisions of Article I of the treaty of 1925 between the United States and His Britannic Majesty in respect of the Dominion of Canada.

The field operations of the commission in reestablishing this part of the boundary under the provisions of the above-mentioned treaties comprised a careful retracement of the boundary as adopted under the treaty of 1842 and as shown on maps prepared by Commissioners Barclay and Porter in 1822–1824 under the provisions of the treaty of Ghent; the establishment of boundary reference monuments along the shores of the waterways through which the line runs; the determination of the geographic positions of the monuments and of the turning points of the boundary line by means of accurate triangulation and traverse; and the mapping of a strip of terrain adjacent to the line to show the shore lines and other topographic features of the boundary waterways.

The office work consisted largely of the preparation of the boundary maps and of making the geodetic computations necessary to determine the geographic positions of the monuments and turning points of the boundary line. Article V of the treaty states that "the course of the entire boundary as described and laid down as aforesaid and as monumented by said Commissioners shall be marked by them upon quadruplicate sets of accurate modern charts prepared or adopted by them for that purpose, and that said charts so marked shall be certified and signed by them and two duplicate originals thereof shall be filed with each Government * * *."

The "accurate modern charts" specified in the foregoing provision of the treaty comprise 36 modern topographic maps and an index sheet, prepared from the surveys made by the commission. The maps have been engraved on copper plates and printed from lithographic stones on heavy chart paper 26 by 38 inches in size. They show the character of the country along the boundary, the course of the boundary line, and the location of all boundary monuments, boundary reference monuments, and turning points of the boundary line. The four original sets of these maps, specified by the treaty, have been bound in atlas form, and two sets have been filed

with each Government. Copies of each map have been published in sheet form for distribution to other governmental agencies and to the depository libraries of the two countries.

The description and definition of the line, as reestablished by the commissioners and as marked by them on the 36 boundary maps which accompany this report, is set forth in tabular form on pages 114 to 187, inclusive. It includes the geographic positions of all the boundary turning points, the lengths and azimuths of the connecting straight-line boundary courses, the geographic positions of the boundary monuments and the boundary reference monuments along the waterways, and the lengths and azimuths of the lines from the reference monuments to the boundary turning points which they reference.

The geographic positions of all the boundary points and the positions of all the triangulation and traverse stations have been computed on the North American geodetic datum of 1927. This work comprised the computation of approximately 5,100 geodetic positions. The results are set forth in the tables of the description of the boundary and in the tables of geographic positions of boundary triangulation and traverse stations, which are presented in Appendix V, pages 228 to 356.

Sketches of the network of the triangulation and the traverse, comprising 40 sheets, have been prepared and are published in portfolio form to accompany this report.

The geodetic and topographic data and the boundary maps and triangulation sketches, representing the work done by the boundary commission, have been and should continue to be of much value to other agencies of the two Governments and to engineers and surveyors as the foundation for other and more extensive surveys of the region adjacent to the boundary line.

TREATIES OF 1908 AND 1925, APPOINTMENTS OF THE COMMISSIONERS, AND RESERVATION OF LANDS ALONG THE INTERNATIONAL BOUNDARY

TREATY BETWEEN THE UNITED STATES OF AMERICA AND THE UNITED KINGDOM CONCERNING THE BOUNDARY BETWEEN THE UNITED STATES AND THE DOMINION OF CANADA FROM THE ATLANTIC OCEAN TO THE PACIFIC OCEAN

Signed at Washington, April 11, 1908

(*Ratifications exchanged at Washington, June 4, 1908*)

The United States of America and His Majesty Edward the Seventh, of the United Kingdom of Great Britain and Ireland, and of the British Dominions beyond the Seas, King, and Emperor of India, being desirous of providing for the more complete definition and demarcation of the international boundary between the United States and the Dominion of Canada, have for that purpose resolved to conclude a treaty, and to that end have appointed as their Plenipotentiaries:

The President of the United States of America, Elihu Root, Secretary of State of the United States; and

His Britannic Majesty, Right Honorable James Bryce, O. M., his Ambassador Extraordinary and Plenipotentiary at Washington;

Who, after having communicated to each other their respective full powers, which were found to be in due and proper form, have agreed to and concluded the following articles:

Article I

The Boundary Through Passamaquoddy Bay

The High Contracting Parties agree that each shall appoint, without delay, an expert geographer or surveyor to serve as Commissioners for the purpose of more accurately defining and marking the international boundary line between the United States and the Dominion of Canada in the waters of Passamaquoddy Bay from the mouth of the St. Croix River to the Bay of Fundy, and that in defining and marking said boundary line the Commissioners shall adopt and follow, as closely as may be, the line surveyed and laid down by the Commissioners appointed under Article II of the Treaty of July 22, 1892, between the United States and Great Britain, so far as said Commissioners agreed upon the location of said line, namely:

(1) From a point at the mouth of the St. Croix River defined by the ranges established by them, by a connected series of six straight lines defined by ranges and cross ranges, to a point between Treat Island and Friar Head, likewise defined by ranges and cross ranges established by them; and also

(2) From a point in Quoddy Roads, defined by the intersection of the range passing through the position of the Beacon of 1886 and Lubec Channel Light, with a range established by them on the west shore of Quoddy Roads along the course of this latter range, which is about 80° 35′ east of true south, into the Bay of Fundy.

In ascertaining the location of the above-described line, the Commissioners shall be controlled by the indications of the range marks and monuments established along its course by said former Commissioners and by the charts upon which the said Commissioners marked the line as tentatively agreed upon by them.

The remaining portion of the line, lying between the two above-described sections, and upon the location of which said former Commissioners did not agree, shall pass through the center of the Lubec Narrows Channel between Campo Bello Island and the mainland, and, subject to the provisions hereinafter stated, it shall follow on either side of the said Narrows such courses as will connect with the parts of the line agreed upon as aforesaid, and such boundary shall consist of a series of straight lines defined by distances and courses; but inasmuch as differences have arisen in the past as to the location of the line with respect to Pope's Folly Island above Lubec Narrows and with respect to certain fishing grounds east of the dredged channel below Lubec Narrows, it is agreed that each of the High Contracting Parties shall present to the other within six months after the ratification of this Treaty a full printed statement of the evidence, with certified copies of original documents referred to therein which are in its possession, and the arguments upon which it bases its contentions, with a view to arriving at an adjustment of the location of this portion of the line in accordance with the true intent and meaning of the provisions relating thereto of the treaties of 1783 and 1814 between the United States and Great Britain, and the award of the Commissioners appointed in that behalf under the treaty of 1814; it being understood that any action by either or both Governments or their representatives authorized in that behalf or by the local governments on either side of the line, whether prior or subsequent to such treaties and award, tending to aid in the interpretation thereof, shall be taken into consideration in determining their true intent and meaning. Such agreement, if reached, shall be reduced to writing in the form of a protocol and shall be communicated to the said Commissioners, who shall lay down and mark this portion of the boundary in accordance therewith and as herein provided.

In the event of a failure to agree within six months after the date of exchanging the printed statements aforesaid, the question of which Government is entitled to jurisdiction over such island and fishing grounds under treaty provisions, and proceedings thereunder, interpreted in accordance with their true intent and meaning as above provided, and by reason of any rights arising under the recognized principles of international law, shall be referred forthwith for decision upon the evidence and arguments submitted as aforesaid, with such additional statement of facts as may be appropriate, and an argument in reply on each side, to an arbitrator to be agreed upon by the two Governments, or, in case of a failure to agree, to be appointed by a third Power selected by the two Governments by common accord, or, if no agreement is thus arrived at, each Government shall select a different Power and the choice of the arbitrator shall be made in concert by the Powers thus selected. The decision of such arbitrator shall be final, and the line shall be laid down and marked by the said Commissioners in accordance therewith and as herein provided.

The arbitrator shall be requested to deliver, together with his award, a statement of all the costs and expenses incurred by him in connection with the arbitration, which shall forthwith be repaid by the two Governments in equal moieties.

It is further agreed that if, under the foregoing provisions, the boundary be located through the channel to the east of the dredged channel above mentioned, the latter shall be equally free and open for the passage of ships, vessels, and boats of both parties.

The entire boundary shall be marked by permanent range marks established on land and, if desirable in the opinion of Commissioners, by buoys in the water, so far as practicable, and by such other boundary marks and monuments and at such points as the Commissioners may determine to be necessary; but the said Commissioners shall proceed to define and mark and chart the portion of the line agreed upon by the former Commissioners under the Treaty of 1892 aforesaid without waiting for the final determination of the location of the remaining portion of the line.

The course of the said boundary line as defined and marked as aforesaid shall be laid down by said Commissioners on quadruplicate sets of accurate modern charts prepared or adopted by

them for that purpose, which charts shall be certified and signed by the Commissioners, and two duplicate originals thereof shall be filed by them with each Government; and they shall also prepare in duplicate and file with each Government a joint report or reports under their hands and seals describing in detail the course and location of the boundary line and the range marks and monuments and buoys marking it.

The line so defined and laid down shall be taken and deemed to be the international boundary from the Bay of Fundy to the mouth of the St. Croix River, as established by treaty provisions and the proceedings thereunder.

Article II

The Boundary from the Mouth to the Source of the St. Croix River

Whereas Article II of the Treaty of 1783 between the United States and Great Britain provides that a line drawn along the middle of the River St. Croix from its mouth in the Bay of Fundy to its source shall be, between those points, the international boundary between the United States and the British possessions in North America, and the identity of the River St. Croix has been determined by the Commissioners appointed for that purpose under Article V of the Treaty of 1794 between the United States and Great Britain, and the location of the mouth and the source of said river has been duly established, and the course of said river has been described, surveyed, and charted by said Commissioners, as appears from their joint report dated the 25th day of October, 1798, and from the chart or plan of said river prepared and filed by them with said report, but said line of boundary along the middle of said river was not laid down by them on said chart or plan, and was not marked or monumented by them along the course of said river; and whereas, pursuant to an additional article, dated March 15, 1798, supplementing the provisions of the Treaty of 1794 above referred to, a monument was erected by joint action of the two Governments marking the source of the River St. Croix, but said line of boundary through the River St. Croix has not otherwise been monumented and has never been laid down on charts by joint action of the two Governments: therefore, in order to complete and render thoroughly effective the demarcation of the boundary described and established as aforesaid,

It is agreed that each of the High Contracting Parties shall appoint, without delay, an expert geographer or surveyor as a Commissioner, and the Commissioners so appointed shall jointly lay down upon accurate modern charts, to be prepared or adopted by them for that purpose, the line of boundary along the middle of the River St. Croix from its mouth to its source as defined and established by the existing treaty provisions and the proceedings thereunder, above referred to, with the agreed understanding, however, that the line of boundary through said river shall be a water line throughout and shall follow the center of the main channel or thalweg as naturally existing, except where such course would change, or disturb, or conflict with the national character of an island as already established by mutual recognition and acquiescence, in which case the line shall pass on the other side of any such island, following the middle of the channel nearest thereto, or, if the Commissioners find that the national character of any island is in dispute, the question of its nationality shall be submitted by them to their respective Governments, with a chart or map certified jointly by said Commissioners, showing the depth and volume of the water at its high and low stages between such island and the river banks on each side and indicating the course of the main channel of the river as it passes such island, together with a descriptive statement by said Commissioners showing the reasons for selecting such channel as the main channel; and in all such cases the High Contracting Parties agree that the location of the boundary with respect to each island in dispute shall be determined and settled in accordance with the following rules:

(1) The nationality of each island in dispute shall be determined by the predominance of the claims established on either side to such island, arising from the exercise of jurisdiction and sovereignty over it, including such exercise of jurisdiction by the local governments on either side of the line.

(2) The burden of proving the nationality of any such island shall be upon the party seeking to change the general course of the boundary as above prescribed so as to include such island on its own side of the boundary.

(3) The selection by the Commissioners of the main channel passing such island shall not be conclusive upon the parties hereto and is subject to review, but the burden of proving the main channel to be other than the one selected shall be upon the party proposing the change.

The Government proposing such change in the prescribed course of the boundary shall, upon the submission of the question of the nationality of any island or islands by the Commissioners as aforesaid, promptly present to the other Government a printed statement, with certified copies of any original documents in its possession referred to therein, showing the grounds and arguments upon which its claim of jurisdiction and ownership with respect to such island rests. Unless an agreement is reached upon the presentation of such statement, the Government to which such statement is presented shall within six months after its receipt present in reply a similar statement showing the grounds and arguments upon which the claims of the other Government are contested. If an agreement is reached between the two Governments, it shall be reduced to writing in the form of a protocol and shall be communicated to the said Commissioners, who shall proceed to lay down and mark the boundary so as to leave such island on the side of the boundary to which it is shown it belongs, in accordance with the determination of its nationality arrived at as aforesaid.

In the event of a failure by the two Governments to come to an agreement within six months after the presentation of the printed statements in reply herein above provided for, then the question of the nationality of the islands in dispute shall be referred forthwith for decision under the rules herein above set forth for the determination of that question, and under the recognized principles of international law not inconsistent therewith, and upon the evidence and arguments submitted as aforesaid, with such additional statement of facts as may be appropriate, and such further printed argument on each side as may be desired, to an arbitrator to be agreed upon by the two Governments, or, in case of a failure to agree, to be appointed by a third Power selected by the two Governments by common accord, or, if no agreement is thus arrived at, each Government shall select a different Power and the choice of the arbitrator shall be made in concert by the Powers thus selected. The decision of such arbitrator shall be final, and the line shall be laid down and marked by the said Commissioners in accordance therewith and as herein provided.

The arbitrator shall be requested to deliver, together with his award, a statement of all the costs and expenses incurred by him in connection with the arbitration, which shall forthwith be repaid by the two Governments in equal moieties.

It is further agreed that so far as practicable the said Commissioners shall establish boundary monuments and ranges and buoys marking the course and location of the said line, and showing on which side of the boundary the several islands lying in said river belong, wherever in their judgment it is desirable that the boundary be so marked.

The charts upon which the boundary is marked as aforesaid shall be in quadruplicate, and shall be certified and signed by said Commissioners, and two duplicate originals thereof shall be filed by them with each Government, and it shall also be the duty of said Commissioners to prepare in duplicate, and file with each Government, a joint report under their hands and seals describing the line so marked by them and the monuments and range marks and buoys marking it.

The line so defined and laid down shall be taken and deemed to be the international boundary from the mouth to the source of the St. Croix River as established by treaty provisions and the proceedings thereunder as aforesaid.

Article III

The Boundary from the Source of the St. Croix River to the St. Lawrence River

Whereas the remonumenting of the course of the boundary defined and laid down under the provisions of Articles I and VI of the Treaty of August 9, 1842, between the United States

and Great Britain has already been undertaken without a formal treaty agreement, but by the joint and concurrent action of the Governments of the United States and Great Britain, certain monuments between Vermont and Canada having been relocated in 1849, and the portion of said boundary extending between Hall's Stream and the St. Lawrence River in part having been remonumented in recent years and in part is now being remonumented under such action on both sides; and whereas the Commissioners appointed under Article VI of the Treaty of 1842 aforesaid were required to and did mark by monuments the land portion only of said line, and were not required to and did not mark by monuments the portions of the boundary extending along water courses, with the exception that the nationality of the several islands in the St. John River was indicated by monuments erected thereon and a series of monuments was placed by them along the edge of certain of the water courses to fix the general direction of the boundary, most of which monuments have since disappeared, but the entire boundary, including its course through the waterways as well as on land, was charted and marked on maps by said Commissioners under the provisions of Article VI above referred to, and the nationality of the respective islands in the St. John River was determined by them, as appears from the joint report filed by said Commissioners dated June 28, 1847, and the series of maps signed by said Commissioners and filed with their joint report; and whereas the portion of the line through said waterways has not since been monumented or marked along its course by joint action of the two Governments, and the monuments placed by said Commissioners along the land portion of said boundary require repairing and renewing where such work has not already been done in recent years, and additional or supplementary intermediate monuments at convenient points are required under modern conditions: therefore, in order to carry on and complete the work already undertaken as aforesaid, and to reestablish the location of said boundary and render thoroughly effective the demarcation of the said boundary as existent and established,

It is agreed that each of the High Contracting Parties shall appoint, without delay, an expert geographer or surveyor as a Commissioner, and under the joint direction of such Commissioners the lost or damaged boundary monuments shall be relocated and repaired, and additional monuments and boundary marks shall be established wherever necessary in the judgment of the Commissioners to meet the requirements of modern conditions along the course of the land portion of said boundary, and where the said boundary runs through waterways it shall be marked along its course, so far as practicable, by buoys and monuments in the water and by permanent ranges established on the land, and in such other way and at such points as in the judgment of the Commissioners it is desirable that the boundary be so marked; and it is further agreed that the course of the entire boundary, as described in Article I of the Treaty of 1842 and as laid down as aforesaid under Article VI of that Treaty, shall be marked by said Commissioners upon quadruplicate sets of accurate modern charts prepared or adopted by them for that purpose, and that said charts so marked shall be certified and signed by them and two duplicate originals thereof shall be filed with each Government, and said Commissioners shall also prepare in duplicate and file with each Government a joint report or reports describing in detail the course of the boundary so marked by them, and the character and location of the several monuments and boundary marks and ranges marking it.

The line so defined and laid down shall be taken and deemed to be the international boundary as defined and laid down under Articles I and VI of the said Treaty of 1842.

Article IV

The Boundary from Its Intersection with the St. Lawrence River to the Mouth of Pigeon River

The High Contracting Parties agree that the existing International Waterways Commission, constituted by concurrent action of the United States and the Dominion of Canada and composed of three Commissioners on the part of the United States and three Commis-

sioners on the part of the Dominion of Canada, is hereby authorized and empowered to ascertain and reestablish accurately the location of the international boundary line beginning at the point of its intersection with the St. Lawrence River near the forty-fifth parallel of north latitude, as determined under Articles I and VI of the Treaty of August 9, 1842, between the United States and Great Britain, and thence through the Great Lakes and communicating waterways to the mouth of Pigeon River, at the western shore of Lake Superior, in accordance with the description of such line in Article II of the Treaty of Peace between the United States and Great Britain, dated September 3, 1783, and of a portion of such line in Article II of the Treaty of August 9, 1842, aforesaid, and as described in the joint report dated June 18, 1822, of the Commissioners appointed under Article VI of the Treaty of December 24, 1814, between the United States and Great Britain, with respect to a portion of said line and as marked on charts prepared by them and filed with said report, and with respect to the remaining portion of said line as marked on the charts adopted as treaty charts of the boundary under the provisions of Article II of the Treaty of 1842, above mentioned, with such deviation from said line, however, as may be required on account of the cession by Great Britain to the United States of the portion of Horse Shoe Reef in the Niagara River necessary for the light-house erected there by the United States in accordance with the terms of the protocol of a conference held at the British Foreign Office December 9, 1850, between the representatives of the two Governments and signed by them agreeing upon such cession; and it is agreed that wherever the boundary is shown on said charts by a curved line along the water the Commissioners are authorized in their discretion to adopt, in place of such curved line, a series of connecting straight lines defined by distances and courses and following generally the course of such curved line, but conforming strictly to the description of the boundary in the existing treaty provisions, and the geographical coordinates of the turning points of such line shall be stated by said Commissioners so as to conform to the system of latitudes and longitudes of the charts mentioned below, and the said Commissioners shall so far as practicable mark the course of the entire boundary line located and defined as aforesaid, by buoys and monuments in the waterways and by permanent range marks established on the adjacent shores or islands, and by such other boundary marks and at such points as in the judgment of the Commissioners it is desirable that the boundary should be so marked; and the line of the boundary defined and located as aforesaid shall be laid down by said Commissioners on accurate modern charts prepared or adopted by them for that purpose, in quadruplicate sets, certified and signed by the Commissioners, two duplicate originals of which shall be filed by them with each Government; and the Commissioners shall also prepare in duplicate and file with each Government a joint report or reports describing in detail the course of said line and the range marks and buoys marking it, and the character and location of each boundary mark. The majority of the Commissioners shall have power to render a decision.

The line so defined and laid down shall be taken and deemed to be the international boundary as defined and established by treaty provisions and the proceedings thereunder as aforesaid from its intersection with the St. Lawrence River to the mouth of Pigeon River.

Article V

The Boundary from the Mouth of Pigeon River to the Northwesternmost Point of the Lake of the Woods

In order to complete and perfect the demarcation of the international boundary line between the United States and the Dominion of Canada from the mouth of Pigeon River, at the western shore of Lake Superior, to the northwesternmost point of the Lake of the Woods, which boundary is defined in Article II of the Treaty of Peace between the United States and Great Britain dated September 3, 1783, and in Article II of the Treaty of August 9, 1842, between the United States and Great Britain, wherein is defined also the location of the said northwesternmost point of the Lake of the Woods, and the greater part of the said boundary is marked on charts covering that section of the boundary adopted as

treaty charts of the boundary under the provisions of Article II of the Treaty of 1842 aforesaid, but has never been actually located or monumented along its course by joint action of the two Governments, and no joint survey of its course has been made since the survey under the direction of the Commissioners appointed under Article VII of the Treaty of December 24, 1814, between the United States and Great Britain, under whose direction the charts above mentioned were prepared,

It is agreed that each of the High Contracting Parties shall appoint, without delay, an expert geographer or surveyor as Commissioners, who shall reestablish and fix the actual location of said entire boundary described and charted as aforesaid, and designate the side of the boundary upon which each island adjacent to the boundary belongs, it being mutually understood that the boundary, so far as practicable, shall be a water line and shall not intersect islands lying along its course, and the Commissioners shall so far as practicable mark such boundary along its course by monuments and buoys and range marks, and such other boundary marks as the Commissioners may determine, and at such points as in their judgment it is desirable that the boundary shall be so marked; and it is further agreed that the course of the entire boundary as described and laid down as aforesaid and as monumented by said Commissioners shall be marked by them upon quadruplicate sets of accurate modern charts prepared or adopted by them for that purpose, and that said charts so marked shall be certified and signed by them and two duplicate originals thereof shall be filed with each Government, and said Commissioners shall also prepare in duplicate and file with each Government a joint report or reports describing in detail the course of the boundary so marked by them and the character and location of the several monuments and boundary marks and ranges marking it.

The line so defined and laid down shall be taken and deemed to be the international boundary as defined and established under the aforesaid treaties from the mouth of Pigeon River to the northwesternmost point of the Lake of the Woods.

Article VI

The Boundary from the Northwesternmost Point of the Lake of the Woods to the Summit of the Rocky Mountains

In order to complete and render thoroughly effective the demarcation of the international boundary between the United States and the Dominion of Canada from the northwesternmost point of the Lake of the Woods to the summit of the Rocky Mountains, which boundary, according to existing treaties, runs due south from said northwesternmost point to the forty-ninth parallel of north latitude and thence along that parallel to the summit of the Rocky Mountains, and has been surveyed and charted and monumented as appears from the series of twenty-four sectional maps covering this portion of the boundary prepared and filed by the Joint Commission appointed for that purpose by joint action of the two Governments in 1872,

It is agreed that each of the High Contracting Parties shall appoint, without delay, an expert geographer or surveyor as a Commissioner, and under the joint direction of such Commissioners lost or damaged monuments along the course of said boundary shall be relocated and repaired and additional monuments and boundary marks shall be established wherever necessary, in the judgment of the Commissioners, to meet the requirements of modern conditions and to render more effective the demarcation of the existent boundary established under the treaty provisions and proceedings thereunder as aforesaid; and it is further agreed that in carrying out these provisions the said Commissioners shall observe the agreement stated in the protocol of the final meeting, dated May 29, 1876, of the Joint Commission aforesaid, which is as follows:

"2. In the intervals between the monuments along the parallel of latitude, it is agreed that the line has the curvature of a parallel of 49° north latitude; and that such characteristic shall determine all questions that may hereafter arise with reference to the position of the boundary at any point between neighboring monuments.

"3. It is further agreed that, in the event of any of the said three hundred and eighty-eight monuments or marks being obliterated beyond the power of recognition, the lost site or sites shall be recovered by their recorded position relatively to the next neighboring unobliterated mark or marks."

It is further agreed tnat the said Commissioners shall mark upon quadruplicate sets of accurate modern charts prepared or adopted by them for that purpose the entire course of said boundary and the location of the boundary monuments and marks established along the course of said boundary, and two duplicate originals thereof shall be filed with each Government, and said Commissioners shall also prepare in duplicate and file with each Government a joint report describing in detail the work done by them in replacing and repairing lost or damaged monuments and the character and location of the several monuments and boundary marks placed by them along said boundary.

The line so laid down and defined shall be taken and deemed to be the international boundary as defined and established by treaty provisions and the proceedings thereunder as aforesaid from the northwesternmost point of the Lake of the Woods to the summit of the Rocky Mountains.

Article VII

The Boundary from the Summit of the Rocky Mountains to the Gulf of Georgia

Whereas, by concurrent action of the Government of the United States and the Government of Great Britain in 1902 and 1903, Commissioners were designated to act jointly for the purpose of renewing lost or damaged monuments and placing additional monuments where such were needed throughout the course of the boundary along the forty-ninth parallel of north latitude, from the summit of the Rocky Mountains westward to the eastern shore of the Gulf of Georgia, as defined in Article I of the Treaty of June 15, 1846, between the United States and Great Britain and as marked by monuments along its course and laid down on a series of charts, seven in number, by a Joint Commission organized in 1858 for that purpose and composed of two Commissioners appointed one by each Government, which charts, duly certified and authenticated in duplicate by said Commissioners, were approved and adopted by the two Governments, as appears from the declaration in writing to that effect signed on February 24, 1870, at Washington by duly authorized Plenipotentiaries of the respective Governments, and it appearing that the remonumenting of this line by the Commissioners first above referred to is now approaching completion;

It is hereby agreed by the High Contracting Parties that when such work is completed the entire course of said boundary, showing the location of the boundary monuments and marks established along the course of the boundary, shall be marked upon quadruplicate sets of accurate modern charts prepared or adopted for that purpose, and the said Commissioners, or their successors, are hereby authorized and required to so mark the line and designate the monuments on such charts, two duplicate originals of which shall be filed with each Government, and the said Commissioners, or their successors, shall also prepare in duplicate and file with each Government a joint report describing in detail the work done by them in replacing and repairing lost or damaged monuments and the character and location of the several monuments and boundary marks placed by them along said boundary.

The line so laid down and defined shall be taken and deemed to be the international boundary as defined and established by treaty provisions and the proceedings thereunder as aforesaid, from the summit of the Rocky Mountains to the eastern shore of the Gulf of Georgia.

Article VIII

The Boundary from the Forty-ninth Parallel to the Pacific Ocean

The High Contracting Parties agree that each shall appoint, without delay, an expert geographer or surveyor to serve as Commissioners for the purpose of delineating upon accurate modern charts, prepared or adopted by them for that purpose, the international boundary line between the United States and the Dominion of Canada from the forty-ninth parallel of north latitude along the middle of the channel which separates Vancouver's Island from the mainland

and the middle of the Haro Channel and of Fuca's Straits to the Pacific Ocean, as defined in Article I of the Treaty of June 15, 1846, between the United States and Great Britain, and as determined by the award made on October 21, 1872, by the Emperor of Germany as arbitrator pursuant to the provisions of Articles XXXIV–XLII of the Treaty of May 8, 1871, between the United States and Great Britain, and as traced out and marked on a quadruplicate set of charts prepared for that purpose and agreed upon and signed by the duly authorized representatives of the respective Governments, as appears from the protocol of a conference at Washington on March 10, 1873, between such representatives which was signed by them on that date, and as defined by them in a written definition of said boundary signed by them and referred to in and attached to said protocol, and it is agreed that the said Commissioners shall adopt in place of the curved line passing between Saturna Island and Patos Island as shown on said charts a straight line running approximately north and south through a point midway between the eastern point of Saturna Island and the western point of Patos Island and intersecting the prolongations of the two straight lines of the boundary now joined by a curved line. The entire line thus laid down shall consist of a series of connecting straight lines defined by distances and courses; and the Commissioners are authorized to select and establish such reference marks on shore as they may deem necessary for the proper definition and location on the water of the boundary aforesaid. A quadruplicate set of such charts, showing the lines so laid down and marked by them and the location of the several marks or monuments selected or established by them along its course, shall be signed by them and two duplicate originals thereof shall be filed by them with each Government, and the Commissioners shall also prepare in duplicate and file with each Government a joint report, or reports, describing in detail the course of said line and the boundary marks and their location along its course.

The line so defined and laid down shall be taken and deemed to be the international boundary, as defined and established by treaty provisions and the proceedings thereunder as aforesaid, from the forty-ninth parallel of north latitude along the middle of the channel which separates Vancouver's Island from the mainland and the middle of Haro Channel and of Fuca's Straits to the Pacific Ocean.

Article IX

General Provisions

The Commissioners appointed under the provisions of this Treaty shall proceed without delay to perform the duties assigned to them, but each Commissioner shall, before entering upon his duties, make oath in writing that he will impartially and faithfully perform his duties as such Commissioner.

In case a vacancy occurs in any of the Commissions constituted by this Treaty, by reason of the death, resignation, or other disability of a Commissioner, before the work of such Commission is completed, the vacancy so caused shall be filled forthwith by the appointment of another Commissioner by the party on whose side the vacancy occurs, and the Commissioner so appointed shall have the same powers and be subject to the same duties and obligations as the Commissioner originally appointed.

If a dispute or difference should arise about the location or demarcation of any portion of the boundary covered by the provisions of this Treaty and an agreement with respect thereto is not reached by the Commissioners charged herein with locating and marking such portion of the line, they shall make a report in writing jointly to both Governments, or severally each to his own Government, setting out fully the questions in dispute and the differences between them, but such Commissioners shall, nevertheless, proceed to carry on and complete as far as possible the work herein assigned to them with respect to the remaining portions of the line.

In case of such a disagreement between the Commissioners, the two Governments shall endeavor to agree upon an adjustment of the questions in dispute, and if an agreement is reached between the two Governments it shall be reduced to writing in the form of a protocol, and shall be communicated to the said Commissioners, who shall proceed to lay down and mark the

boundary in accordance therewith, and as herein provided, but without prejudice to the special provisions contained in Articles I and II regarding arbitration.

It is understood that under the foregoing articles the same persons will be appointed to carry out the delimitation of boundaries in the several sections aforesaid, other than the section covered by Article IV, unless either of the Contracting Powers finds it expedient for some reason which it may think sufficient to appoint some other person to be Commissioner for any one of the above-mentioned sections.

Each Government shall pay the expenses of its own Commissioners and their assistants, and the cost of marking and monumenting the boundary shall be paid in equal moieties by the two Governments.

Article X

This Treaty shall be ratified by the President of the United States, by and with the advice and consent of the Senate thereof, and by His Britannic Majesty; and the ratifications shall be exchanged in Washington as soon as practicable.

In faith whereof the respective Plenipotentiaries have signed this Treaty in duplicate and have hereunto affixed their seals.

Done at Washington the 11th day of April in the year of our Lord one thousand nine hundred and eight.

Elihu Root [seal.]
James Bryce [seal.]

TREATY BETWEEN THE UNITED STATES OF AMERICA AND HIS BRITANNIC MAJESTY, IN RESPECT OF THE DOMINION OF CANADA, TO DEFINE MORE ACCURATELY AT CERTAIN POINTS AND TO COMPLETE THE INTERNATIONAL BOUNDARY BETWEEN THE UNITED STATES AND CANADA AND TO MAINTAIN THE DEMARCATION OF THAT BOUNDARY

Signed at Washington, February 24, 1925

(Ratifications exchanged at Washington, July 17, 1925)

The United States of America and His Majesty the King of the United Kingdom of Great Britain and Ireland and of the British Dominions beyond the Seas, Emperor of India, in respect of the Dominion of Canada, desiring to define more accurately at certain points and to complete the international boundary between the United States and Canada and to maintain the demarcation of that boundary, have resolved to conclude a treaty for these purposes, and to that end have appointed as their respective Plenipotentiaries:

The President of the United States of America: Charles Evans Hughes, Secretary of State of the United States; and

His Britannic Majesty, in respect of the Dominion of Canada: The Honorable Ernest Lapointe, K. C., a member of His Majesty's Privy Council for Canada and Minister of Justice in the Government of that Dominion;

Who, after having communicated to each other their respective full powers, which were found to be in due and proper form, have agreed to and concluded the following articles:

Article I

Whereas Article V of the Treaty concerning the boundary between the United States and the Dominion of Canada concluded on April 11, 1908, between the United States and Great Britain, provided for the survey and demarcation of the international boundary line between the United States and the Dominion of Canada from the mouth of Pigeon River, at the western shore of Lake Superior, to the northwesternmost point of Lake of the Woods, as defined by the Treaties concluded between the United States and Great Britain on September 3, 1783, and August 9, 1842;

And whereas Article VI of the said Treaty concluded on April 11, 1908, provided for the relocation and repair of lost or damaged monuments and for the establishment of additional monuments and boundary marks along the course of the international boundary between the United States and the Dominion of Canada from the northwesternmost point of Lake of the Woods to the summit of the Rocky Mountains, as established under existing treaties and surveyed, charted, and monumented by the Joint Commission appointed for that purpose by joint action of the Contracting Parties in 1872;

And whereas it has been found by surveys executed under the direction of the Commissioners appointed pursuant to the said Treaty of April 11, 1908, that the boundary line between the United States and the Dominion of Canada from the mouth of Pigeon River, at the western shore of Lake Superior, to the northwesternmost point of Lake of the Woods as defined by the Treaties concluded on September 3, 1783, and August 9, 1842, is intersected by the boundary from the northwesternmost point of Lake of the Woods to the summit of the Rocky Mountains as established under existing treaties and surveyed, charted, and monumented by the Joint Commission appointed for that purpose in 1872, at five points in Lake of the Woods adjacent to and directly south of the said northwesternmost point, and that there are two small areas of United States waters in Lake of the Woods, comprising a total area of two and one-half acres, entirely surrounded by Canadian waters;

And whereas no permanent monuments were ever erected on these boundary lines north of the most southerly of these points of intersection;

The Contracting Parties, in order to provide for a more practical definition of the boundary between the United States and the Dominion of Canada in Lake of the Woods, hereby agree that this most southerly point of intersection, being in latitude 49° 23′ 04″.49 north, and longitude 95° 09′ 11″.61 west,[1] *shall be the terminus of the boundary line heretofore referred to as the international boundary line between the United States and the Dominion of Canada from the mouth of Pigeon River, at the western shore of Lake Superior, to the northwesternmost point of Lake of the Woods and the initial point of the boundary line heretofore referred to as the international boundary between the United States and the Dominion of Canada from the northwesternmost point of Lake of the Woods to the summit of the Rocky Mountains, in lieu of the said northwesternmost point.*

The aforesaid most southerly point shall be located and monumented by the Commissioners appointed under the said Treaty of April 11, 1908, and shall be marked by them on the chart or charts prepared in accordance with the provisions of Articles V and VI of the said Treaty, and a detailed account of the work done by the Commissioners in locating said point, together with a description of the character and location of the several monuments erected, shall be included in the report or reports prepared pursuant to the said Articles.

The point so defined and monumented shall be taken and deemed to be the terminus of the boundary line heretofore referred to as the international boundary line between the United States and the Dominion of Canada, from the mouth of Pigeon River, at the western shore of Lake Superior, to the northwesternmost point of Lake of the Woods and the initial point of the boundary line heretofore referred to as the international boundary between the United States and the Dominion of Canada from the northwesternmost point of Lake of the Woods to the summit of the Rocky Mountains.

Article II

Whereas Article VI of the Treaty concerning the boundary between the United States and the Dominion of Canada concluded on April 11, 1908, between the United States and Great Britain, provided for the relocation and repair of lost or damaged monuments and for the establishment of additional monuments and boundary marks along the courses of the international boundary between the United States and the Dominion of Canada from the northwesternmost point of Lake of the Woods south to the 49th parallel of north latitude and thence westward along said parallel of latitude to the summit of the Rocky Mountains, as established under existing treaties and surveyed, charted, and monumented by the Joint Commission appointed for that purpose by joint action of the Contracting Parties in 1872;

And whereas Article VI of the said Treaty concluded on April 11, 1908, further provides that in carrying out the provisions of that Article the agreement stated in the protocol of the final meeting of the said Joint Commission, dated May 29, 1876, should be observed, by which protocol it was agreed that in the intervals between the monuments along the 49th parallel of north latitude the boundary line has the curvature of a parallel of 49° north latitude;

And whereas the Commissioners appointed and acting under the provisions of Article VI of the said Treaty of 1908 have marked the boundary line wherever necessary in the intervals between the original monuments established by the said Joint Commission, appointed in 1872, in accordance with the agreement stated in the protocol of the final meeting, dated May 29, 1876, of the Joint Commission aforesaid, and as set forth in Article VI of the Treaty of 1908, by placing intermediate monuments on lines joining the original monuments, which have in each case the curvature of a parallel of 49° north latitude;

[1] The geographic coordinates, latitude 49° 23′ 04″.49, longitude 95° 09′ 11″.61, used by the two Governments in defining the location of this point in the treaty of 1925, were obtained from an adjustment made in 1919 of triangulation executed by the International Boundary Commission, and are derived from the geographic positions of triangulation stations "States" and "Canada" as published in Appendix IV of the U. S. Coast and Geodetic Survey Report for 1911. The geographic position of this same point in terms of the North American datum of 1927, the datum on which all geographic positions of this section of the boundary line are based, is latitude 49° 23′ 04″.14, longitude 95° 09′ 11″.34.

And whereas the average distance between adjacent monuments as thus established or reestablished along the 49th parallel of north latitude from Lake of the Woods to the summit of the Rocky Mountains by the Commissioners acting under Article VI of the Treaty of 1908 is one and one-third miles and therefore the deviation of the curve of the 49th parallel from a straight or right line joining adjacent monuments is, for this average distance between monuments, only one-third of a foot, and in no case does the actual deviation exceed one and eight-tenths feet;

And whereas it is impracticable to determine the course of a line having the curvature of a parallel of 49° north latitude on the ground between the adjacent monuments which have been established or reestablished by the Commissioners and the demarcation of the boundary would be more thoroughly effective if the line between adjacent monuments be defined as a straight or right line;

And whereas it is desirable that the boundary at any point between adjacent monuments may be conveniently ascertainable on the ground, the Contracting Parties, in order to complete and render thoroughly effective the demarcation of the boundary between the United States and the Dominion of Canada from the northwesternmost point of Lake of the Woods to the summit of the Rocky Mountains, hereby agree that the line heretofore referred to as the international boundary between the United States and the Dominion of Canada from the northwesternmost point of Lake of the Woods to the summit of the Rocky Mountains shall be defined as consisting of a series of right or straight lines joining adjacent monuments as now established or reestablished and as now laid down on charts by the Commissioners acting under Article VI of the Treaty of 1908, in lieu of the definition set forth in the agreement of the aforesaid Joint Commissioners, dated May 29, 1876, and quoted in Article VI of the said Treaty of 1908, that in the intervals between the monuments the line has the curvature of the parallel of 49° north latitude.

Article III

Whereas the Treaty concluded on May 21, 1910, between the United States and Great Britain, defined the international boundary line between the United States and the Dominion of Canada, from a point in Passamaquoddy Bay lying between Treat Island and Friar Head to the middle of Grand Manan Channel and provided that the location of the line so defined should be laid down and marked by the Commissioners appointed under the Treaty of April 11, 1908;

And whereas it has been found by the surveys executed pursuant to the said Treaty of May 21, 1910, that the terminus of the boundary line defined by said Treaty at the middle of Grand Manan Channel is less than three nautical miles distant both from the shore line of Grand Manan Island in the Dominion of Canada and from the shore line of the State of Maine in the United States, and that there is a small zone of waters of controvertible jurisdiction in Grand Manan Channel between said terminus and the High Seas;

The Contracting Parties, in order completely to define the boundary line between the United States and the Dominion of Canada in the Grand Manan Channel, hereby agree that an additional course shall be extended from the terminus of the boundary line defined by the said Treaty of May 21, 1910, south 34° 42′ west, for a distance of two thousand three hundred eighty-three (2,383) meters, through the middle of Grand Manan Channel, to the High Seas.

The course so defined shall be located and marked by the Commissioners appointed under the Treaty of April 11, 1908, and shall be laid down by them on the chart or charts adopted in accordance with the provisions of Article I of the said Treaty, and a detailed account of the work done by the Commissioners in locating and marking said line, together with a description of the several monuments erected, shall be included in the report or reports prepared pursuant to Article I of the Treaty of April 11, 1908.

The course so defined and laid down shall be taken and deemed to be the boundary line between the United States and the Dominion of Canada in Grand Manan Channel from the terminus of the boundary line as defined by the Treaty of May 21, 1910, to the High Seas.

Article IV

Whereas, pursuant to existing treaties between the United States and Great Britain, a survey and effective demarcation of the boundary line between the United States and the Dominion of Canada through the Great Lakes and the St. Lawrence River and through the Straits of Georgia, Haro, and Juan de Fuca from the 49th Parallel to the Pacific Ocean and between Alaska and the Dominion of Canada from the Arctic Ocean to Mount St. Elias have been made and the signed joint maps and reports in respect thereto have been filed with the two Governments;

And whereas a survey and effective demarcation of the boundary line between the United States and the Dominion of Canada from the Gulf of Georgia to Lake Superior and from the St. Lawrence River to the Atlantic Ocean and between Alaska and the Dominion of Canada from Mount St. Elias to Cape Muzon are nearing completion;

And whereas boundary monuments deteriorate and at times are destroyed or damaged; and boundary vistas become closed by the growth of timber;

And whereas changing conditions require from time to time that the boundary be marked more precisely and plainly by the establishment of additional monuments or the relocation of existing monuments;

The Contracting Parties, in order to provide for the maintenance of an effective boundary line between the United States and the Dominion of Canada and between Alaska and the Dominion of Canada, as established or to be established, and for the determination of the location of any point thereof, which may become necessary in the settlement of any question that may arise between the two Governments hereby agree that the Commissioners appointed under the provisions of the Treaty of April 11, 1908, are hereby jointly empowered and directed: to inspect the various sections of the boundary line between the United States and the Dominion of Canada and between Alaska and the Dominion of Canada at such times as they shall deem necessary; to repair all damaged monuments and buoys; to relocate and rebuild monuments which have been destroyed; to keep the boundary vistas open; to move boundary monuments to new sites and establish such additional monuments and buoys as they shall deem desirable; to maintain at all times an effective boundary line between the United States and the Dominion of Canada and between Alaska and the Dominion of Canada, as defined by the present Treaty and Treaties heretofore concluded, or hereafter to be concluded; and to determine the location of any point of the boundary line which may become necessary in the settlement of any question that may arise between the two Governments.

The said Commissioners shall submit to their respective Governments from time to time, at least once in every calendar year, a joint report containing a statement of the inspections made, the monuments and buoys repaired, relocated, rebuilt, moved, and established, and the mileage and location of vistas opened, and shall submit with their reports, plats and tables certified and signed by the Commissioners, giving the locations and geodetic positions of all monuments moved and all additional monuments established within the year, and such other information as may be necessary to keep the boundary maps and records accurately revised.

After the completion of the survey and demarcation of the boundary line between the United States and the Dominion of Canada from the Gulf of Georgia to Lake Superior and from the St. Lawrence River to the Atlantic Ocean, as provided for by the Treaty of April 11, 1908, the Commissioners appointed under the provisions of that Treaty shall continue to carry out the provisions of this Article, and, upon the death, resignation, or other disability of either of them, the Party on whose side the vacancy occurs shall appoint an Expert Geographer or Surveyor as Commissioner, who shall have the same powers and duties in respect to carrying out the provisions of this Article, as are conferred by this Article upon the Commissioner appointed under the provisions of the said Treaty of 1908.

The Contracting Parties further agree that each Government shall pay the salaries and expenses of its own Commissioner and his assistants, and that the expenses jointly incurred by the Commissioners in maintaining the demarcation of the boundary line in accordance with the provisions of this Article shall be borne equally by the two Governments.

Article V

This Treaty shall be ratified by the Contracting Parties and the ratifications shall be exchanged in Washington or Ottawa as soon as practicable. The Treaty shall take effect on the date of the exchange of ratifications.

Upon the expiration of six years from the date of the exchange of ratifications of the present Treaty, or any time thereafter, Article IV may be terminated upon twelve months' written notice given by either Contracting Party to the other, and following such termination the Commissioners therein mentioned and their successors shall cease to perform the functions thereby prescribed.

In faith whereof, the respective Plenipotentiaries have signed this Treaty in duplicate and have hereunto affixed their seals.

Done at Washington the 24th day of February, A. D. 1925.

[SEAL] Charles Evans Hughes.

[SEAL] Ernest Lapointe.

APPOINTMENTS OF THE COMMISSIONERS UNDER THE TREATY OF 1908

Mr. O. H. Tittmann for the United States

THEODORE ROOSEVELT, PRESIDENT OF THE UNITED STATES OF AMERICA

To all to whom these Presents shall come, Greeting:

Know Ye, that reposing special trust and confidence in the integrity and ability of Otto H. Tittmann, of Missouri, Superintendent of the United States Coast and Geodetic Survey, I do appoint him the expert Commissioner on the part of the United States for the purpose of more accurately defining and marking the international boundary line between the United States and the Dominion of Canada, under the provisions of Articles I, II, III, V, VI, VII, and VIII of the treaty between the United States and Great Britain, signed at Washington on April 11, 1908, and do authorize and empower him to execute and fulfill the duties of this commission with all the powers, privileges, and emoluments thereunto of right appertaining, during the pleasure of the President of the United States.

In testimony whereof, I have caused the Seal of the United States to be hereunto affixed.

Given under my hand at the City of Washington this fifth day of June, in the year of our Lord one thousand nine hundred and eight, and of the Independence of the United States of America the one hundred and thirty-second.

[SEAL] Theodore Roosevelt.

By the President:

Elihu Root, *Secretary of State.*

Dr. W. F. King for His Britannic Majesty

P. C. 2181–M

CERTIFIED COPY OF A REPORT OF THE COMMITTEE OF THE PRIVY COUNCIL, APPROVED BY HIS EXCELLENCY THE GOVERNOR GENERAL ON THE 27TH JUNE, 1908

The Committee of the Privy Council have had under consideration a despatch, dated 10th June, 1908, from His Majesty's Ambassador to the United States, containing the information that the ratifications of the Treaty for the Delimitation of the International Boundary between the United States and Canada were exchanged on the 4th June, 1908.

The Minister of the Interior, to whom the despatch was referred, observes that the Treaty, for the purpose of the more complete definition and demarcation which it contemplates, divides the boundary line, from the Atlantic Ocean at the entrance to Passamaquoddy Bay, to the Pacific Ocean at the Strait of Fuca, into eight sections, and provides that for each section, with the exception of the fourth section, which includes the line through the St. Lawrence River and the Great Lakes, and which is to be dealt with by the existing International Waterways Commission, two expert geographers or surveyors shall be appointed, one by each Government, as Commissioners to accurately define and mark the line, with the understanding stated in Article 9, that the same persons shall be appointed Commissioners under the several sections, excepting the fourth section, unless either Government find it expedient for some reason which it may think sufficient, to appoint some other person to be Commissioner for any of the sections.

The Minister, in accordance with the provisions above mentioned, recommends that Mr. William Frederick King, Dominion Topographical Surveyor, and Chief Astronomer of the Department of the Interior, be nominated for the position of His Majesty's Commissioner for all the sections of the line except the fourth.

The Committee concurring advise that your Excellency may be pleased to inform his Majesty's Secretary of State for the Colonies of the desire of your Excellency's Government in this regard.

All which is respectfully submitted for approval.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

The Honourable
THE MINISTER OF THE INTERIOR.

MR. E. C. BARNARD FOR THE UNITED STATES

WOODROW WILSON, PRESIDENT OF THE UNITED STATES OF AMERICA

To all to whom these Presents shall come, Greeting:

Know Ye, that reposing special trust and confidence in the Integrity and Ability of Edward C. Barnard, of New York, I do appoint him the expert Commissioner on the part of the United States for the purpose of more accurately defining and marking the International boundary line between the United States and the Dominion of Canada, under the provisions of Articles I, II, III, V, VI, VII, and VIII of the treaty between the United States and Great Britain, signed at Washington on April 11, 1908, and do authorize and empower him to execute and fulfill the duties of this commission with all the powers, privileges and emoluments thereunto of right appertaining, during the pleasure of the President of the United States.

In testimony whereof, I have caused the Seal of the United States to be hereunto affixed.

Given under my hand at the City of Washington this thirtieth day of April, in the year of our Lord one thousand nine hundred and fifteen, and of the Independence of the United States of America the one hundred and thirty-ninth.

[SEAL] WOODROW WILSON.

By the President:
W. J. BRYAN, *Secretary of State.*

MR. J. J. MCARTHUR FOR HIS BRITANNIC MAJESTY

[SEAL] GEORGE R. I.

GEORGE by the Grace of God, of the United Kingdom of Great Britain and Ireland and of the British Dominions beyond the Seas, King, Defender of the Faith, Emperor of India, Etc., Etc.

To all and singular to whom these Presents shall come, Greeting!

Whereas by a Treaty concluded at Washington on the 11th day of April, 1908, between our Royal Predecessor His Majesty King Edward VII and our Good Friends the United States of America, respecting the Demarcation of the International Boundary between the United States and the Dominion of Canada, it was in effect provided that Commissioners should be appointed on Our part and on that of Our said Good Friends, and that the Commissioners so appointed should define and mark the boundary line, with the exception of that portion of it extending from the 45th parallel of north latitude through the St. Lawrence River, the Great Lakes and connecting waterways to the mouth of the Pigeon River;

Now Know Ye that We, reposing especial trust and confidence in the approved learning, wisdom and fidelity of Our Trusty and Well-beloved James Joseph McArthur, Esquire, Dominion Land Surveyor, have named and appointed, as We do by these Presents name and appoint him to be Our Commissioner for the purposes aforesaid and pursuant to the said Treaty, to meet the other Commissioner appointed or to be appointed in like manner by Our Good Friends the United States of America, to do and determine all such matters as are provided to be done by him under the said Treaty, in the manner therein provided.

In witness whereof We have signed these Presents with Our Royal Hand.

Given at Our Court of Saint James the Twenty-sixth day of February One thousand Nine Hundred and Seventeen in the Seventh year of Our Reign.

By His Majesty's Command:

ARTHUR JAMES BALFOUR.

MR. E. LESTER JONES FOR THE UNITED STATES

WOODROW WILSON, PRESIDENT OF THE UNITED STATES OF AMERICA

To all to whom these Presents shall come, Greeting:

Know Ye, that reposing special trust and confidence in the Integrity and Ability of E. Lester Jones, of Virginia, I do appoint him the expert Commissioner on the part of the United States for the purpose of more accurately defining and marking the International boundary line between the United States and the Dominion of Canada, under the provisions of Articles I, II, III, V, VI, VII, and VIII of the treaty between the United States and Great Britain, signed at Washington on April 11, 1908, and do authorize and empower him to execute and fulfill the duties of this commission with all the powers, privileges and emoluments thereunto of right appertaining, during the pleasure of the President of the United States.

In testimony whereof, I have caused the Seal of the United States to be hereunto affixed.

Given under my hand, in the District of Columbia, this twenty-eighth day of February, in the year of our Lord one thousand nine hundred and twenty-one, and of the Independence of the United States of America the one hundred and forty-fifth.

[SEAL] WOODROW WILSON.

By the President:

BAINBRIDGE COLBY, *Secretary of State.*

MR. J. D. CRAIG FOR HIS BRITANNIC MAJESTY

[SIGNET] (Sgd.) GEORGE R. I.

GEORGE, by the Grace of God, of the United Kingdom of Great Britain and Ireland and of the British Dominions beyond the Seas King, Defender of the Faith, Emperor of India, Etc., Etc., Etc.

To all and singular to whom these Presents shall come, Greeting!

Whereas by Article VI of a Convention concluded at Washington on the 24th day of January 1903 between Our Royal Predecessor His Majesty King Edward VII and Our Good Friends the United States of America, respecting the adjustment of the Boundary between the Dominion of Canada and the Territory of Alaska, it was in effect provided that Commissioners should be appointed on Our part and on that of Our said Good Friends, for the purpose of laying down the boundary line in conformity with the decision of the Tribunal constituted under the terms of Article I of the said Convention;

And whereas by a Treaty concluded at Washington on the 11th day of April 1908 between Our said Royal Predecessor and Our said Good Friends, respecting the Demarcation of the

International Boundary between the United States and the Dominion of Canada, it was in effect provided that Commissioners should be appointed on Our part and on that of Our said Good Friends, to define and mark the boundary line, with the exception of that portion of it extending from the 45th parallel of north latitude through the Saint Lawrence River, the Great Lakes and connecting waterways to the mouth of the Pigeon River;

Now know ye that We, reposing especial Trust and Confidence in the approved Learning, Wisdom and Fidelity of Our Trusty and Well-beloved John Davidson Craig, Esquire, Bachelor of Arts, Bachelor of Science, Member of the Engineering Institute of Canada, Dominion Land Surveyor and International Boundary Commission Engineer, have named and appointed, as We do by these Presents name and appoint him to be Our Commissioner for the purposes aforesaid and pursuant to the said Convention and Treaty, to meet the other Commissioners appointed or to be appointed in like manner by Our Good Friends the United States of America, and to do and determine all such matters as are provided to be done by him under the said Convention and Treaty, in the manner therein provided.

In witness whereof We have signed these Presents with Our Royal Hand.

Given at Our Court of Saint James the Seventh day of March in the Year of Our Lord One thousand Nine hundred and Twenty-Five and in the Fifteenth Year of our Reign.

Mr. James H. Van Wagenen for the United States

HERBERT HOOVER, PRESIDENT OF THE UNITED STATES OF AMERICA

To all to whom these Presents shall come, Greeting:

Know Ye, That reposing special trust and confidence in the Integrity and Ability of James H. Van Wagenen, of Iowa, I do appoint him the expert Commissioner on the part of the United States for the purpose of more accurately defining and marking the International boundary line between the United States and the Dominion of Canada, under the provisions of Articles I, II, III, V, VI, VII and VIII of the treaty between the United States and Great Britain, signed at Washington on April 11, 1908, and Article IV of the treaty between the United States and Great Britain, signed at Washington on February 24, 1925, and do authorize and empower him to execute and fulfil the duties of this commission with all the powers, privileges and emoluments thereunto of right appertaining, during the pleasure of the President of the United States.

In testimony whereof, I have caused the Seal of the United States to be hereunto affixed.

Done at the City of Washington this third day of May, in the year of our Lord one thousand nine hundred and twenty-nine, and of the Independence of the United States of America the one hundred and fifty-third.

[SEAL] Herbert Hoover.

By the President:

Henry L. Stimson, *Secretary of State.*

Mr. Noel J. Ogilvie for His Britannic Majesty

[SIGNET] (Sgd.) George R. I.

George, by the Grace of God, of Great Britain, Ireland and the British Dominions beyond the Seas King, Defender of the Faith, Emperor of India, Etc., Etc., Etc.

To all and singular to whom these Presents shall come, Greeting!

Whereas by Article VI of a Convention concluded at Washington on the 24th day of January 1903 between Our Royal Predecessor His Majesty King Edward VII and Our Good Friends the United States of America, respecting the adjustment of the Boundary between the Dominion of Canada and the Territory of Alaska, it was in effect provided that Commissioners should be

appointed on Our part and on that of Our said Good Friends, for the purpose of laying down the boundary line in conformity with the decision of the Tribunal constituted under the terms of Article I of the said Convention;

And whereas by a Treaty concluded at Washington on the 11th day of April 1908 between Our said Royal Predecessor and Our said Good Friends, respecting the Demarcation of the International Boundary between the United States and the Dominion of Canada, it was in effect provided that Commissioners should be appointed on Our part and on that of Our said Good Friends, to define and mark the boundary line, with the exception of that portion of it extending from the 45th parallel of north latitude through the Saint Lawrence River, the Great Lakes and connecting waterways to the mouth of the Pigeon River;

Now know ye that We, reposing especial Trust and Confidence in the approved Learning, Wisdom and Fidelity of Our Trusty and Well-beloved Noel John Ogilvie, Esquire, Dominion Land Surveyor, Member of the Engineering Institute of Canada, Member of the American Society of Civil Engineers, the Director of the Geodetic Survey of Canada, have named and appointed, as We do by these Presents name and appoint him to be Our Commissioner for the purposes aforesaid and pursuant to the said Convention and Treaty, to meet the other Commissioners appointed or to be appointed in like manner by Our Good Friends the United States of America, and to do and determine all such matters as are provided to be done by him under the said Convention and Treaty, in the manner therein provided, this appointment to be effective as and from the 14th day of May of this year.

In witness whereof We have signed these Presents with Our Royal Hand.

Given at Our Court of Saint James the tenth day of June in the Year of Our Lord One Thousand Nine Hundred and Thirty-one and in the Twenty-second Year of Our Reign.

RESERVATION OF LANDS ALONG THE INTERNATIONAL BOUNDARY

Proclamations by the President of the United States of America

(No. 810)

Whereas, the customs and immigration laws of the United States can be better enforced and the public welfare thereby better advanced when the Federal Government has complete control of the use and occupation of lands abutting on international boundary lines;

Now, therefore, I, Theodore Roosevelt, President of the United States, do hereby proclaim and make known that all unpatented public lands of the United States, lying within sixty feet of the boundary line between the United States and the Dominion of Canada, are hereby declared to be, and are set apart as a public reservation, and shall hereafter be subject only to such rights as have been heretofore legally acquired under settlements, entries, reservations, or other forms of appropriation, and are now existing, but shall not be subject at any time to any other claim, use, or occupation, except for public highways; and any patent issued for any legal subdivision affected by this reservation under any claim hereafter initiated, shall contain a recital that it is issued subject to this proclamation.

In witness whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the City of Washington this 15th day of June, in the year of our Lord one thousand nine hundred and eight, and of the Independence of the United States the one hundred and thirty-second.

[SEAL] THEODORE ROOSEVELT

By the President:

ELIHU ROOT,

Secretary of State.

(No. 1196)

Whereas, the customs and immigration laws of the United States can be better enforced and the public welfare thereby advanced by the retention in the Federal Government of complete control of the use and occupation of lands abutting on International Boundary Lines;

Now, therefore, I, William Howard Taft, President of the United States, do hereby declare, proclaim, and make known that there are hereby reserved from entry, settlement, or other form of appropriation and disposition under the public-land laws, and set apart as a public reservation, all public lands lying within sixty feet of the boundary line between the United States and the Dominion of Canada.

Excepting from the force and effect of this proclamation all lands which were prior to June fifteenth, nineteen hundred and eight, embraced in any legal entry or covered by any lawful filing, selection, or right of way duly of record in the proper United States land office or upon which any valid settlement had been made pursuant to law, the statutory period within which to make or complete entry or filing of record had not expired, and which has been or may be perfected as required by law. Any claims lawfully initiated between June fifteenth, nineteen hundred and eight, and the date hereof, lawfully maintained and perfected, may be patented subject to the reservation prescribed in proclamation of the President dated June fifteenth, nineteen hundred and eight.

In witness whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the City of Washington, this third day of May, in the year of our Lord one thousand nine hundred and twelve, and of the Independence of the United States the one hundred and thirty-sixth.

[SEAL] WM. H. TAFT

By the President:

HUNTINGTON WILSON,
Acting Secretary of State.

EXECUTIVE ORDER

(No. 3209)

It is hereby ordered that Lot 1 Sec. 17, Lots 1 and 2 Sec. 18, Lots 1 and 2 Sec. 20, Lots 1 and 2 Sec. 21, Lot 1 Sec. 22, Lot 1 Sec. 27, Lots 1, 2, 5, 6 and 7 Sec. 28, the reef in Sec. 17 and the reef in Sec. 28, T. 168 N., R. 33 W., 5th P. M., Minnesota, containing 72.78 acres, be and the same are hereby temporarily withdrawn from settlement, entry, sale or other forms of disposal and reserved pending the establishment of the International Boundary Line through the Lake of the Woods, between the United States and Canada.

WOODROW WILSON

THE WHITE HOUSE
3 January, 1920.

It will be noted from the above proclamations that no reservation exists along the international boundary in any State or portion thereof in the United States where public lands were not available for that purpose on June 15, 1908.

ACTION TAKEN BY THE DEPARTMENT OF LANDS AND FORESTS OF THE PROVINCE OF ONTARIO

The Province of Ontario through the provincial Department of Lands and Forests in 1925 reserved from sale or disposal all ungranted crown lands lying within 66 feet of the three portions of the international boundary which extend, respectively, from Cypress Lake to Swamp Lake, from North Lake to South Lake, and from Watap Lake to Mountain Lake.

AGREEMENT OF THE COMMISSIONERS AS TO THE MANNER IN WHICH THE PROVISIONS OF ARTICLE V OF THE TREATY OF 1908 AND ARTICLE I OF THE TREATY OF 1925 SHOULD BE CARRIED OUT

At a meeting of the commissioners held in Ottawa on December 28, 1908, the appointments of the commissioners under the treaty of April 11, 1908, were presented and found to be in due and proper form. At this and subsequent conferences of the commissioners it was agreed that the provisions of Article V of the treaty of 1908 and Article I of the treaty of 1925 should be carried out in the following manner:

I. That the boundary from the Northwesternmost Point of Lake of the Woods to Lake Superior, when reestablished, should consist throughout of connecting straight courses, conforming as closely as practicable to the course of the curved line shown on the original boundary maps prepared in 1822–1824 under the treaty of Ghent. That the line as thus reestablished should be referred to durable reference monuments on the shores where the line lies in the boundary waterways, and should be marked by durable boundary monuments where the line crosses the three portages.

II. That, owing to the fact that the part of the boundary in Lake of the Woods running from a point near the mouth of Rainy River to Oak Island, if laid down as defined in the journal of Barclay and Porter, the commissioners appointed under Article VII of the treaty of 1814, as being "a direct line to a point in said lake, 100 yards east of the most eastern point of Island No. 1" (Oak Island), would intersect four islands, this part of the line should be modified to such extent as might be necessary to make it conform to the terms of Article V of the treaty of 1908, which stipulates that "the boundary, so far as practicable, shall be a water line and shall not intersect islands * * *."

III. That in so far as practicable the boundary through Rainy River, except where the line passes islands, should be reestablished midway between the banks of the river.

IV. That the monuments marking the land boundary on the portages should be aluminum-bronze posts set in concrete bases extending below the frost line, and that the boundary reference monuments along the waterways through which the boundary passes should be durable metal marks set in solid rock or in blocks of concrete placed flush with the surface of the ground and extending below the frost line. That each monument and reference monument should bear a suitable number, cut or stamped in the metal, to identify it on the ground, in the final reports, and on the boundary maps.

V. That, for the purpose of accurately defining, locating, and describing the boundary as laid down by the commissioners, all boundary monuments and boundary reference monuments should be located geodetically by triangulation or by accurate traverses controlled by first-order triangulation or traverse on the North American datum of 1927, and that a list of their geographic positions, certified by the commissioners in their joint report, should constitute the true description and

definition of the international boundary as surveyed, marked, and reestablished by them in accordance with Article V of the treaty of 1908 and Article I of the treaty of 1925.

VI. That, in order to provide the first-order geodetic control necessary for the above-mentioned purposes, the commissioners would use their best efforts to have the Geodetic Survey of Canada and the United States Coast and Geodetic Survey extend a scheme of first-order triangulation and traverse from Lake Superior to Lake of the Woods. (This cooperative work was entered into by these two governmental agencies and was completed in 1924.)

VII. That the vertical control for the survey and the topographic maps of the boundary should be based upon a line of first-order levels to be run through the region by the Geodetic Survey of Canada. (The Geodetic Survey of Canada ran this line of first-order levels in 1913 from Port Arthur, Ontario, to Emerson, Manitoba, via Fort Frances, Ontario, and Warroad, Minn., with a spur line to the boundary at North Lake, Ontario.)

VIII. That the "accurate modern charts" of the boundary, specified in Article V of the treaty of 1908, should consist of a series of 36 topographic maps to be prepared from surveys made under the direction of the commissioners, showing thereon the course of the boundary, the location of the boundary monuments and reference monuments, and the topography of the terrain adjacent to the line. That the scales of these maps should be as follows: Of the boundary through Lake of the Woods, 1: 62,500; of the boundary from Lake of the Woods to the head of Pigeon River, 1: 24,000; and of the boundary through Pigeon River, 1: 6,000. That the contour interval for the Pigeon River maps should be 5 feet and for the remainder of the boundary maps, 10 feet.

IX. That the maps of the boundary should be engraved on copper plates and printed from lithographic stones using the conventional colors, black, brown, blue, and green. That after the completion of the printing and after the signing of the official maps by the commissioners, the engraved copper plates should be placed in safe storage and later should be equally divided between the two Governments.

X. That the commissioners' joint report to the two Governments on the reestablishment of this section of the international boundary line, required by Article V of the treaty of 1908, should be printed and copies thereof should be distributed to other Government agencies and to depository libraries of the two countries.

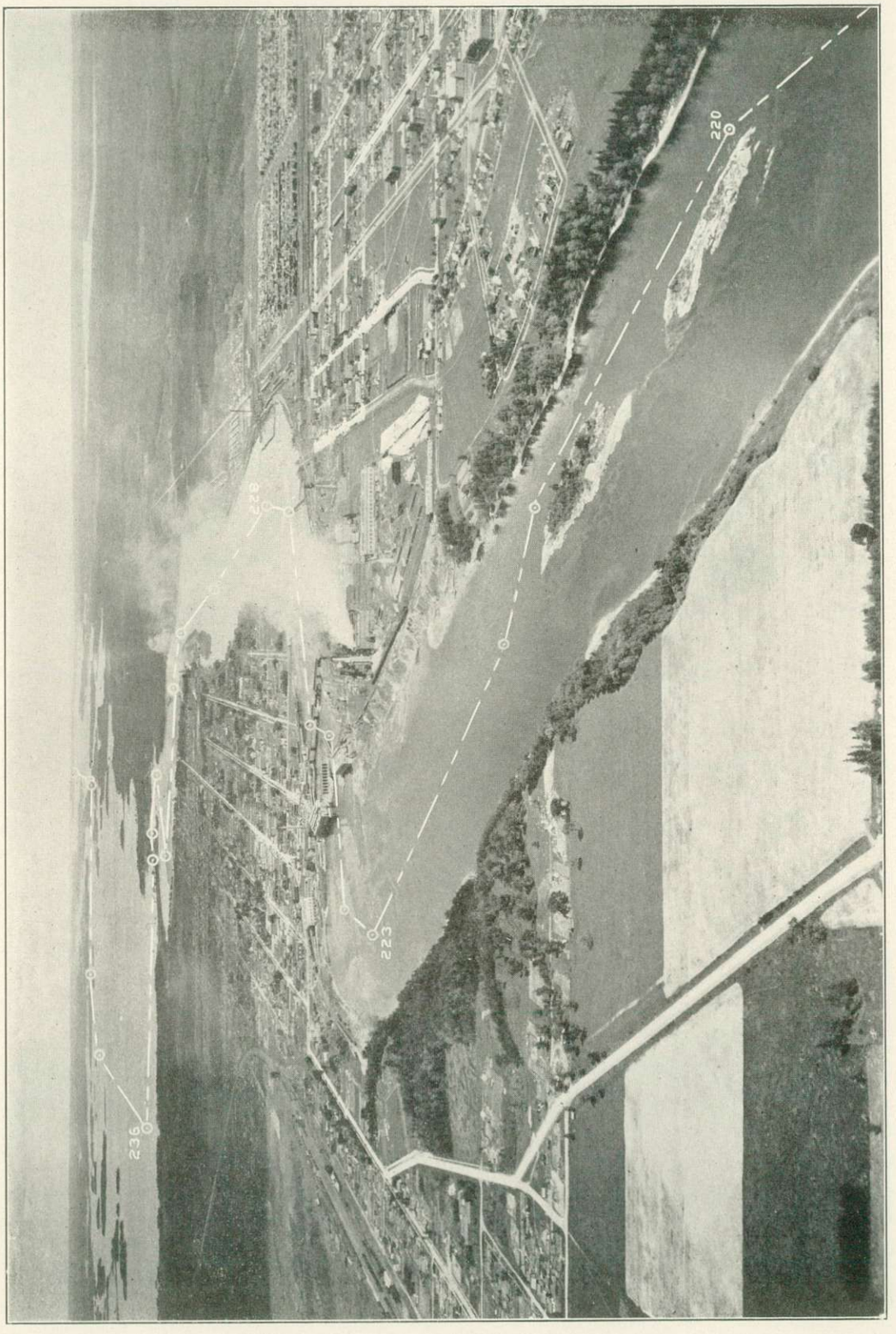
RETRACEMENT OF THE BOUNDARY LINE

The work of reestablishing the boundary from the Northwesternmost Point of Lake of the Woods to Lake Superior, as provided for under the treaties of 1908 and 1925, included the determination of the location of the line as adopted under the treaty of 1842 and as shown on the maps prepared in 1822, 1823, and 1824 by Commissioners Barclay and Porter, acting under Article VII of the treaty of Ghent, 1814. The maps were crudely drawn on a scale of 1 inch to 1 mile, and showed little more than the boundary line and the adjacent shore lines of the boundary lakes and rivers. Although these maps were inaccurate, they were, in general, the sole means of determining the position of the boundary line as agreed to under the treaty of 1842. Other than the maps, no records or notes of the original survey of the boundary waterways could be found, except the journal of the commissioners ,[1] in which the location of parts of the line was described relative to certain islands.

The work of retracing the line consisted first of making an accurately controlled topographic survey of the several lakes and rivers constituting the system of boundary waterways, and from these surveys preparing a modern topographic map, showing in their correct positions all shore lines, islands, and other topographic features. On these maps there was then drawn the tentative boundary line, consisting of a series of connecting straight-line courses, which were made to conform as closely as possible to the curved boundary shown on the old maps of 1822–1824. These modern maps were then carefully checked with the old maps in order to make sure that the numerous islands immediately adjacent to the boundary line as shown on the old maps had been correctly identified on the modern maps, and that the boundary line had been laid down in the correct relation thereto. This series of connecting straight lines, as thus laid down and checked, was then accepted by the commissioners as the true boundary. The geographic positions of the turning points were then accurately determined by triangulation.

The boundary line through Pigeon River, Rainy River, and the small waterways that connect the boundary lakes was represented on the original boundary maps by a line drawn, in general, midway between the banks, and accordingly the line through these streams was laid down by the commissioners as a series of straight lines as nearly midway between banks as practicable, always observing the previously determined nationality of the islands and adhering to any deviation shown on the original boundary maps. The commissioners decided that in the narrowest of these waterways the positions of the turning points of the line, as laid down by them, should be verified and checked in the field to make sure that the line properly divided the boundary waters. This was done in five rivers, namely, Loon, Bottle, Basswood, Granite, and Pine Rivers, and in other smaller boundary streams, and also in the narrow places in the lakes along the part of the boundary line from Namakan Lake to the head of Pigeon River.

[1] British and Foreign State Papers, Vol. LVII, p. 803.



Photograph by Royal Canadian Air Force.

Looking eastward along the international boundary at Fort Frances, Ontario, and International Falls, Minn.; Rainy River in the foreground, Rainy Lake in the distance

At the three places on the boundary where there are no waterways—at Swamp Portage, Height-of-Land Portage, and Watap Portage—the line was laid down and marked to follow approximately the portage trails. The negotiators of the treaty of 1842 had shown the line as following the trail across Height-of-Land Portage, between North and South Lakes, and across Swamp Portage, between Swamp and Cypress Lakes; but at Watap Portage, between Watap and Mountain Lakes, no location of the line had been indicated by them. The precedent, which they had established in the two cases, of making the line follow the portage trails was therefore adopted by the commissioners acting under the treaty of 1908 as applicable to the location of the line on Watap Portage.

The boundary line through Saganaga Lake, as adopted under the treaty of 1842, was shown on two maps, on different scales, each of which covers the entire lake and bears the signatures of Commissioners Webster and Ashburton certifying that each is a "map of boundary agreed to by treaty August 9, 1842." The boundary lines as shown on the two maps are not, however, identical. On the larger-scale map the shore lines correspond closely to the shore lines on the modern maps prepared under the treaty of 1908, while on the smaller-scale map the shore lines are grossly inaccurate and the boundary line shown thereon is impracticable. The commissioners therefore decided to accept the line shown on the larger-scale map.

The boundary line in Lac LaCroix as drawn by Webster and Ashburton under the treaty of 1842 terminates at the eastern end of the lake at the narrow neck of land between Lac LaCroix and Iron Lake, leaving a short gap between the two lakes where no line is shown. In closing this gap the commissioners under the treaty of 1908 followed the channel of Bottle River, the waterway connecting Lac LaCroix and Iron Lake. There was a shorter course across the narrow neck of land between these lakes, but this course was prohibited by the stipulation of Article V of the treaty of 1908 that "the boundary, so far as practicable, shall be a water line."

Through the southern part of Lake of the Woods a 30-mile portion of the boundary line was defined by the commissioners under Article VII of the treaty of Ghent in their journal as a straight course running from the open water of the lake near the mouth of Rainy River "by a direct line to a point in said lake, 100 yards east of the most eastern point of Island No. 1," now known as Oak Island. Upon the completion of the modern survey of Lake of the Woods, the above-described course was found to intersect four islands. This apparent departure from a water boundary, on the part of the commissioners under the treaty of Ghent, is explained by the fact that not all of the islands in this part of Lake of the Woods were shown on the original maps, and such islands as were sketched thereon were very inaccurately located. The commissioners accordingly agreed to lay down this portion of the line as follows: Beginning in the channel east of Sable Islands, near the mouth of Rainy River, the line of the treaty of 1842 was accepted without change northward to its intersection with the channel used by the boats of the fishing companies about 2 miles south of Sugar Point; thence a series of seven connecting straight lines was laid down following the channel used by the larger boats to the point

described in the journal of the commissioners under the treaty of Ghent as being 100 yards east of the most eastern point of "Island No. 1," or Oak Island.

The retracement of the boundary in the northern part of Northwest Angle Inlet of Lake of the Woods was based chiefly upon a careful hydrographic survey [2] which showed that the boundary channel was crossed five times by the line which runs due south from the Northwesternmost Point of Lake of the Woods to the forty-ninth parallel, part of the international line which extends from Lake of the Woods to the summit of the Rocky Mountains. Thus the two boundaries, the channel boundary and the meridian line, inclosed two small areas of United States waters in Lake of the Woods, comprising a total area of two and one-half acres, entirely surrounded by Canadian waters.[3]

Upon the recommendation of the commissioners, the parts of the north-and-south line and of the line in the channel lying northward of their most southern intersection were eliminated from the international boundary by the treaty signed at Washington, February 24, 1925, Article I of which reads in part as follows:

"The aforesaid most southerly point shall be located and monumented by the Commissioners appointed under the said Treaty of April 11, 1908, and shall be marked by them on the chart or charts prepared in accordance with the provisions of Articles V and VI of the said Treaty, and a detailed account of the work done by the Commissioners in locating said point, together with a description of the character and location of the several monuments erected, shall be included in the report or reports prepared pursuant to the said Articles.

"The point so defined and monumented shall be taken and deemed to be the terminus of the boundary line heretofore referred to as the international boundary line between the United States and the Dominion of Canada, from the mouth of Pigeon River, at the western shore of Lake Superior, to the northwesternmost point of Lake of the Woods and the initial point of the boundary line heretofore referred to as the international boundary between the United States and the Dominion of Canada from the northwesternmost point of Lake of the Woods to the summit of the Rocky Mountains."

[2] See details, p. 110, and map, p. 108.

[3] Treaty of 1925. See p. 12.

FIELD OPERATIONS

The first field work pertaining to the final survey and demarcation of the section of the international boundary line from Lake of the Woods to Lake Superior was done several years before the negotiation of the treaty of 1908. During the summer of 1896 a preliminary examination of part of this section of the boundary was made for Canada by an engineer under the direction of Dr. W. F. King, then chief astronomer of the Dominion Government. This examination covered the portion of the boundary from the rapids on Pigeon River, just below South Fowl Lake, to Kettle Falls at the eastern end of Rainy Lake, and it consisted largely of making a comparison of the shore lines of the boundary waterways as shown on the old boundary maps, prepared under Article VII of the treaty of Ghent, with the corresponding features on the ground. Several years later the report of this examination for the Canadian Government was carefully studied by engineers of the United States who had been assigned to the investigation of boundary matters preliminary to the drafting of a general boundary treaty. The results of this work by the two Governments were later used in framing Article V of the treaty of 1908, which provided for the final survey and demarcation of this part of the line.

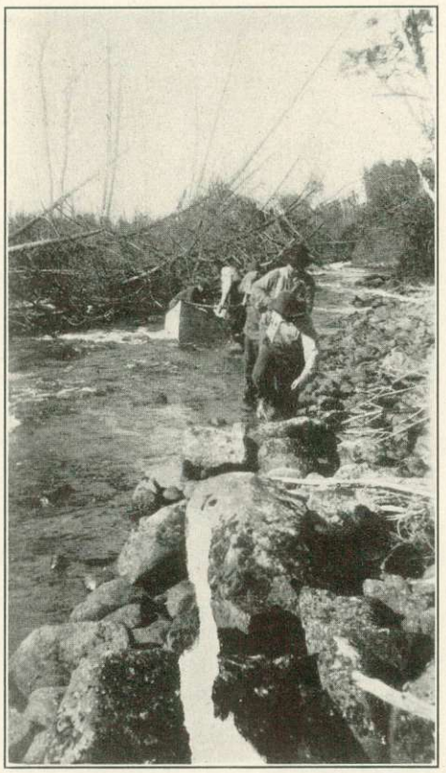
The field work of reestablishing the boundary under the provisions of the treaty of 1908 was begun in September of that year by a small United States party at the eastern end of the line at Lake Superior. Until 1912 this party, which continued westward from year to year, was the only organization operating on this section of the boundary. In 1912 activities were increased by the addition of a Canadian party and another United States party which started work eastward from the Northwesternmost Point of Lake of the Woods. Both Governments were then represented by fairly large organizations until the close of the season of 1916. Thereafter the work was done principally by United States parties.

At the beginning of the work in 1908 the commissioners were of the opinion that the development of a scheme of triangulation control and a survey of the shore lines of the boundary waterways and of the islands within these waters would furnish sufficient information for preparing the "accurate modern charts" required by the treaty. Maps of this kind—that is, without contours—were then being prepared by the International Waterways Commission under Article IV of the treaty of 1908[1] as the official maps of the boundary through the St. Lawrence River and the Great Lakes. Consequently the commissioners' instructions to the field parties from 1908 to 1912 did not include the making of a complete topographic survey of the terrain adjacent to the boundary waterways nor for running levels to determine the elevations necessary for contoured maps.

[1] Article IV of the treaty of 1908 provided specifically that the survey and demarcation of the boundary through the Great Lakes and the St. Lawrence River was to be done by the International Waterways Commission.

In 1912 questions or matters of difference regarding the use and the regulation of the waters of Lake of the Woods and its watershed were submitted by the Governments of the United States and Canada to the International Joint Commission for examination. Thereupon the joint commission began an exhaustive field investigation of this region. This investigation emphasized the importance of these boundary waters and directed attention to the need for maps that showed not only the shore lines but also the relief of the terrain adjacent to the waterways.

In view of these developments the commissioners in 1913 instructed the field parties to include in their work in this region not only the mapping of the shore lines but also the contouring of the terrain adjacent to the boundary waterways and the determination of the elevations of the water surfaces of the various lakes above sea-level datum. This decision for a complete topographic survey of the boundary waterways necessitated at a later period some additional work along that part of the boundary which had been surveyed prior to 1913 in the years 1908 to 1912. The additional contour mapping was done by the parties who went into that region to set the boundary reference monuments in 1916 and 1917.



Granite River, one of the narrow waterways through which the boundary line was located in the field

The commissioners had agreed that the boundary triangulation should be tied wherever practicable to a continental scheme of first-order geodetic control in order that the geographic positions of all boundary monuments, reference monuments, and the turning points of the boundary line might be determined on the latest geodetic datum common to the two countries. Accordingly by cooperative arrangements with the United States Coast and Geodetic Survey and the Geodetic Survey of Canada a scheme of first-order control for this purpose, consisting of first-order triangulation and traverse, was run jointly by these two governmental agencies from Lake Superior to Lake of the Woods and thence westward to the ninety-eighth meridian arc of triangulation at the Red River. This work was completed in 1924, and shortly thereafter the necessary boundary field work was done to complete the remaining ties between this first-order scheme and the boundary triangulation.

Also, it was deemed necessary, after the major portion of the field work had been completed and the topographic maps had been made, that the course and location of the boundary line through some of the very narrow waterways should be rechecked in the field in order to make certain that the line as laid down by the commissioners properly divided the boundary waters. Field work of this character, together with the numbering of the boundary monuments and reference monuments and the making of additional triangulation ties, was done by comparatively small

parties from time to time, as compatible with the progress of the completion of the field work on other sections of the boundary line, during the field seasons of 1918, 1921, 1922, 1925, and 1926.

A detailed account of the field operations of the two sections of the commission is set forth on the following pages.



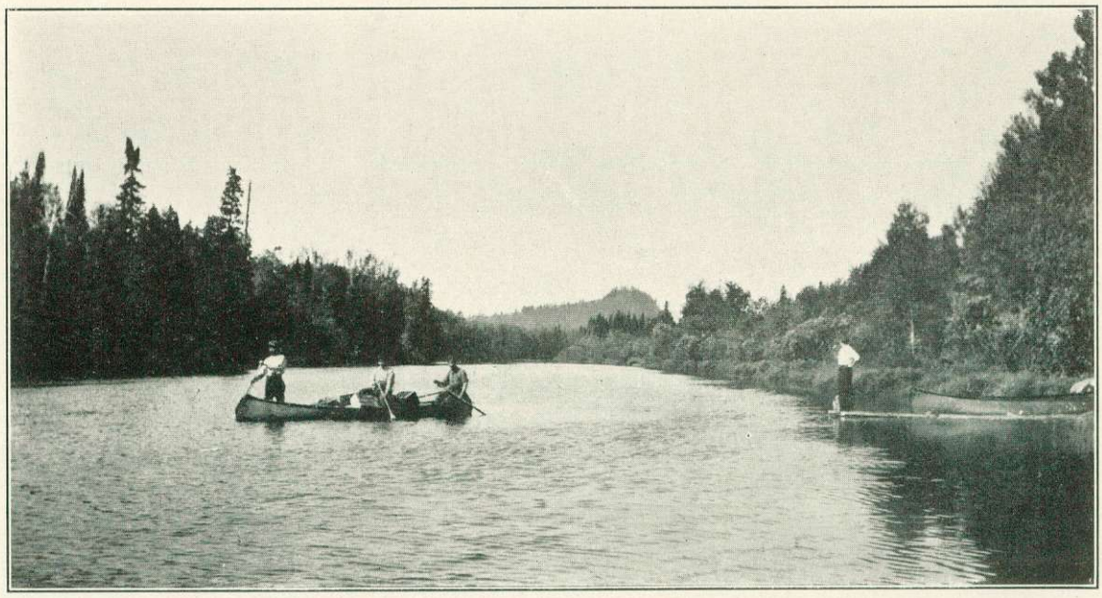
"High Falls" on Pigeon River

SEASON OF 1908—PIGEON RIVER

Immediately following the conclusion of the boundary treaty of 1908 and the appointment of the commissioners thereunder, plans were made for beginning as soon as possible the field work of the boundary survey and demarcation which the treaty provided for.

The first work on the section of the boundary covered by this report was begun in September, 1908, by a triangulation party of the United States section of the commission at Victoria Island in Lake Superior, near the mouth of Pigeon River. This party consisted of a geodetic engineer and four hands. They chartered a small steam launch, *The Pickett*, and established camp on Victoria Island.

A scheme of major triangulation was started from stations "Mt. Josephine," "Knob," and "Northwest Royal" of the triangulation of the United States Lake



Pigeon River above Partridge Falls

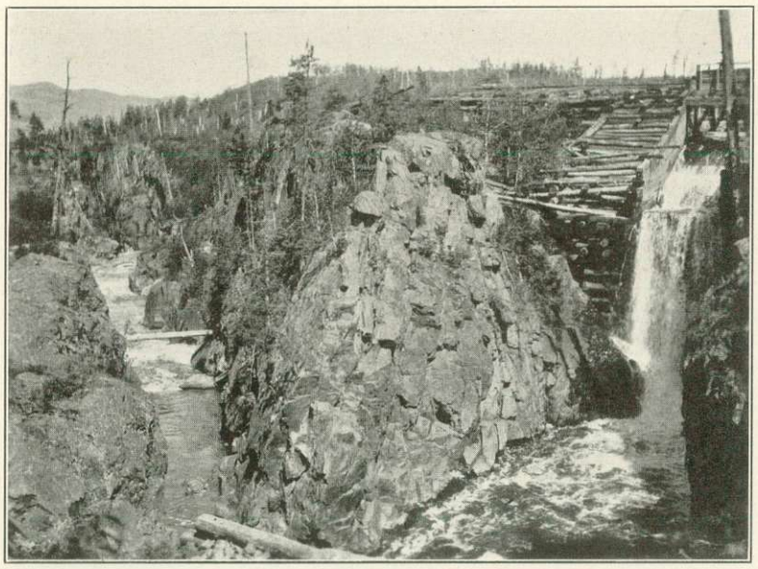
Survey on Lake Superior, and from a line of this scheme, minor triangulation was extended into Pigeon Bay and thence along the boundary up Pigeon River. This triangulation was designed to furnish the geodetic control for the determination of the geographic positions of the boundary reference monuments to be set along Pigeon River and of the turning points of the boundary line to be laid down therein by the commissioners.

Owing to the short time available for work during the season of 1908, the party's operations were necessarily restricted to bringing the triangulation into Pigeon River preparatory to the more general work of the survey next season. By the time they had carried the triangulation through five quadrilaterals as far up Pigeon River as the first falls, which point was reached on November 17, weather conditions became so unfavorable that the party discontinued work until the following summer.

The above-described work in 1908 was under the direction of W. B. Fairfield, assistant, United States Coast and Geodetic Survey.

SEASON OF 1909—PIGEON RIVER

Owing to the fact that funds for work on Pigeon River during the field season of 1909 were not available until July 1, the beginning of the fiscal year, operations of the United States party were not resumed until late that month. At that time Mr. W. B. Fairfield, assistant, United States Coast and Geodetic Survey, organized a field party at Port Arthur, Ontario, and shortly thereafter established a survey camp at the mouth of Pigeon River.



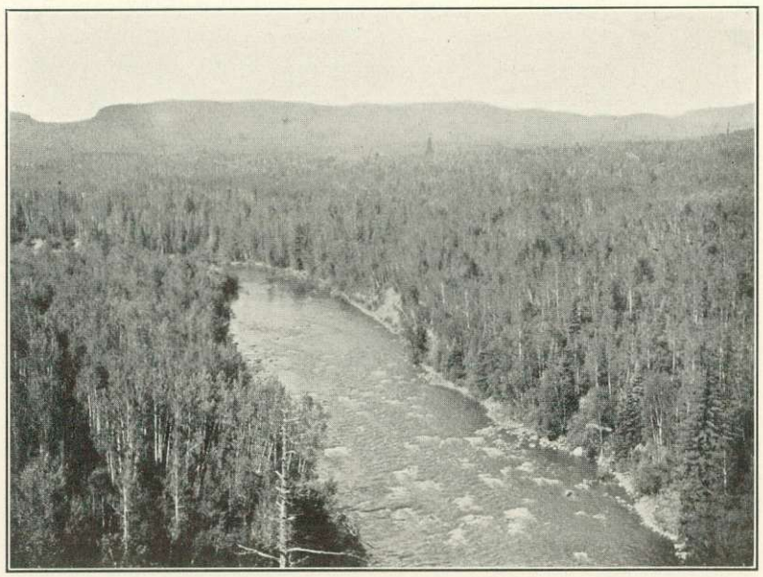
"The Cascades" on Pigeon River

As Pigeon River is narrow and crooked and its banks heavily wooded, the chief of party decided to control the survey of the river by a carefully run stadia traverse which would later be connected at intervals with the general scheme of boundary triangulation. Accordingly, such a traverse was begun at the last triangulation station of the previous season's work, near the dam at High Falls, and was run upstream along the banks of the river, the stations frequently being alternated from bank to bank as conditions demanded.

The stadia methods and instruments employed in running the traverse were such as to secure a relatively high degree of accuracy for stadia work. The angles of the traverse were measured with a 7-inch Berger theodolite by the repetition method used on minor triangulation. The distances were measured by stadia, the

length of each line being carefully read both forward and backward. The stadia rods were carefully graduated by the United States Coast and Geodetic Survey to agree with the stadia interval of the theodolite, and the stadia factor of each rod was determined in the field under conditions similar to those encountered in running the traverse. Vertical angles were carried along the traverse to provide the necessary differences of elevation for reducing the observed lengths of the lines to the horizontal.

The mapping of the shore line and islands of Pigeon River was done by plane table and stadia on a field scale of 1: 5,000. In addition to the shore line, the map showed the location of the rapids and falls in the river and the line of the deep-water channel. No contouring of the terrain along the river was done at this time.[2]



Pigeon River looking upstream from boundary reference monument 1338

The transportation of supplies and equipment for the survey work on Pigeon River was by teams and wagons over logging roads of the Pigeon River Lumber Co. The supplies for the party were purchased from time to time in Port Arthur, Ontario, and shipped by boat to the mouth of Pigeon River and thence delivered to the survey camp by the Pigeon River Lumber Co. Because of swift water and numerous falls, water transportation on Pigeon River was for the most part impracticable.

The party remained in the field until the survey of Pigeon River was completed. South Fowl Lake, the head of the river, was reached about November 15, and as weather conditions were unfavorable for continuing work on the lake the camp outfit was hauled to the mouth of the river and stored for the winter at the main camp of the Pigeon River Lumber Co.

The personnel of the party during the season of 1909 was as follows: Chief of party, W. B. Fairfield; assistant, Rudolph Luscher; and eight hands.

SEASON OF 1910—SOUTH FOWL LAKE, NORTH FOWL, MOOSE, LILY, MOUNTAIN, WATAP, AND ROSE LAKES

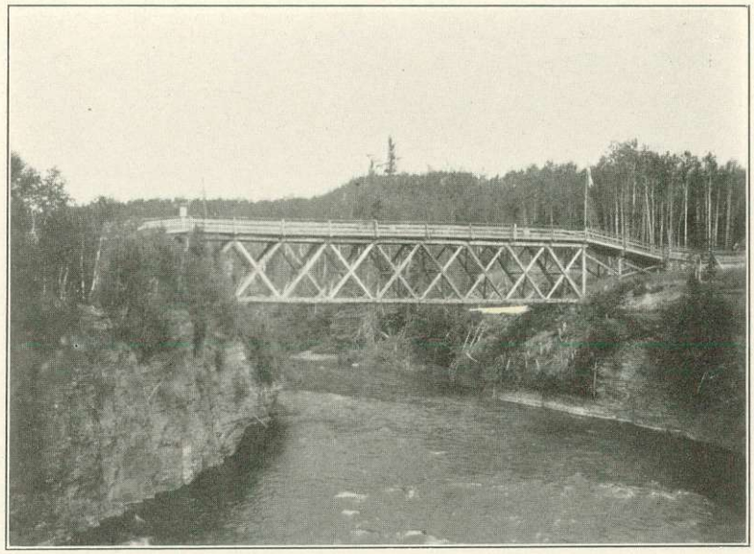
The United States party for the season of 1910 assembled at Port Arthur, Ontario, and on June 27 went to the mouth of Pigeon River. Upon arrival at the main

[2] The need for complete topographic maps of the boundary through this region, including the contouring of the terrain adjacent to the boundary line, was not apparent until several years later. See preliminary statement, p. 29.

camp of the Pigeon River Lumber Co., they learned that forest fires were raging along the upper part of the river and in the vicinity of South Fowl Lake, which was to be the starting point of the season's work. As it was unwise to risk the survey outfit in the burned district before the fires were extinguished, the party remained at the mouth of Pigeon River until July 11.

By that time several showers had occurred, which partially quenched the fires, so that shortly thereafter the party was able to reach the head of Pigeon River, where they established camp on a burned-over island in South Fowl Lake. Fires were still burning in the woods across the lake to the west and north.

Work was immediately begun on a scheme of triangulation to control the survey of the lakes westward from the head of Pigeon River. A line of the traverse, run in 1909, was used as a temporary base, and an azimuth was observed at station "Abel." Most of the triangulation stations were on prominent points of elevation from 200 to 400 feet above the lakes and some distance back from the shore lines. Connected to this triangulation were numerous local subsidiary schemes of triangulation for the detailed control of the mapping of the shore lines of the lakes and for furnishing the geographic positions of the boundary reference monuments and the turning points of the boundary line. The triangulation that season was extended as far westward as Rose Lake.



International bridge on Scott Highway at crossing of Pigeon River, 1909

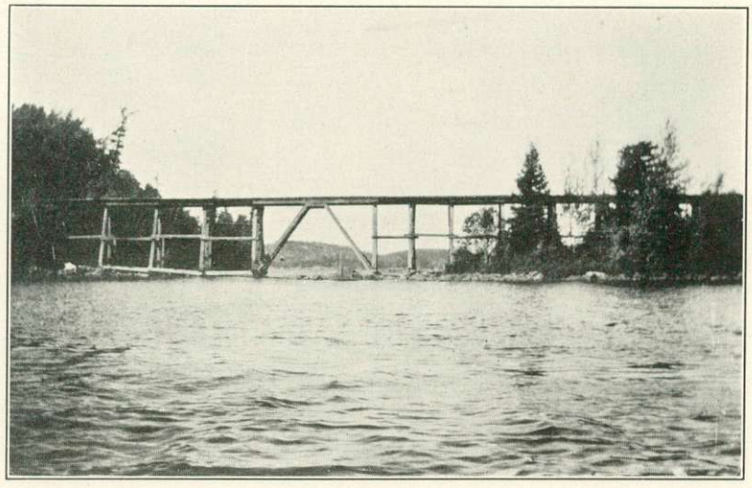
The topographic work consisted of mapping the shore lines of the lakes on a scale of 1: 20,000 and the narrow boundary waterways on a scale of 1: 5,000 and of making a complete topographic map of Watap Portage, between Mountain Lake and Watap Lake, on a scale of 1: 5,000, with 5-foot contours. Elevations necessary for the survey were carried forward by vertical angles measured at the triangulation stations.

Considerable line cutting was done during the season. Many lines of sight had to be cleared for the triangulation work, and a 20-foot vista was cleared along the boundary line on Watap Portage.

The party remained in the field until the beginning of winter for the purpose of measuring a base line on the ice when the lakes had frozen. On account of increasing bad weather the party on October 21 laid aside their tents and during the remainder of the season occupied a logging camp of the Bishop Lumber Co. on Rose Lake.

The party continued work on the triangulation until about the 1st of December, when the ice was sufficiently safe for measuring the base line. In the meantime considerable snow had fallen, and on December 2, when the base was measured, it

was necessary to clear the proposed line across the ice with a snow plow. Immediately this was done, a 1,334-meter base was measured both forward and backward from boundary reference monument 1,193 to triangulation station "Arthur." This work was done with a 50-meter invar tape supported throughout its length flat on the ice, under a tension of 15 kilograms and at a mean temperature of 16° Fahrenheit.



Railway bridge across boundary waterway connecting Gunflint Lake and Magnetic Lake, 1911

On December 3 all the outfit, except the canoes which had been stored for the winter at the Bishop Lumber Camp, was moved on sleds over a "tote" road to North Lake siding, a station on the Canadian National Railway, and there left in charge of the United States customs officer until the following season.

The personnel of the party in 1910 was as follows: Chief of party, W. B. Fairfield; assistant, Kai Hendriksen; and eight hands.

SEASON OF 1911—ROSE LAKE, RAT, SOUTH, NORTH, GUNFLINT, MAGNETIC, PINE, AND ROUND LAKES

The United States party for 1911 began field work at Rose Lake on June 11.

The triangulation, which had been begun at South Fowl Lake in 1910, was extended from Rose Lake westward along the boundary waterways as far as stations "Carlos" and "Droit" near Round Lake. To strengthen the scheme, a base line 973 meters in length was measured along the Port Arthur, Duluth & Western Railway on the north shore of Gunflint Lake. Also, azimuth observations were made at station "Dram" on Height-of-Land Portage and at station "Cook" at the west end of Gunflint Lake.



One of the wider parts of Pine River, the boundary stream connecting Magnetic Lake and Pine Lake

The topographic mapping was similar in all respects to that done during the previous season. The shore lines of the lakes were mapped and a complete topographic map was made along the boundary on

Height-of-Land Portage, between North Lake and South Lake. Elevations for the topographic work were carried forward by vertical angles measured at the triangulation stations.

Transportation was entirely by canoes, which were used by the surveyors going to and from work and also for moving camp. The type of boat that best met these requirements, especially in rough weather, was a 20-foot freight canoe of 54 inches beam.

By the time the party reached Round Lake, which was late in October, ice was beginning to form on the smaller lakes, making canoe transportation increasingly difficult. The party therefore discontinued work at Round Lake and returned to North Lake, where the outfit was placed in storage for the winter.

The personnel of the party during the season of 1911 was as follows: Chief of party, W. B. Fairfield; assistant, J. J. Phelan; and 12 hands.

SEASON OF 1912—ROUND LAKE, MARABOEUF, SAGANAGA, SWAMP, CYPRESS, AND KNIFE LAKES, AND LAKE OF THE WOODS

Up to this time the only field party engaged on this section of the boundary was the United States party whose operations have just been described. In 1912, however, field activities were increased by the addition of a Canadian party and a United States party which since 1908 had been engaged on the survey of the boundary along the forty-ninth parallel. These parties started work on Lake of the Woods. The Canadian party began work in May at Northwest Angle Inlet, but the United States party, whose principal work in 1912 was the survey of the forty-ninth parallel boundary from Red River to Lake of the Woods, did not arrive at Lake of the Woods until shortly after the middle of September. These two parties conducted operations concurrently with the work of the other United States party, which continued westward from Round Lake, where they had left off in 1911.

Canadian Party on Lake of the Woods

The Canadian party assembled at Kenora, Ontario, and on May 15 left for the Northwesternmost Point of Lake of the Woods. They reached Buckete Island at the entrance to Northwest Angle Inlet early on the following day, and, proceeding up the inlet, established camp on a tributary creek about 1 mile east of the meridian boundary line. Their transportation equipment consisted of two motor boats 36 and 40 feet in length and several small boats.

The country in which the party began work is low and boggy. Northwest Angle Inlet is nearly covered with floating bog or muskeg, which consists of a mat of grass roots, moss, and mud. It also contains a considerable growth of reeds and wild rice. Through this muskeg a clear channel meanders, about 60 feet wide and from 6 to 10 feet deep.

The party made a preliminary examination of the inlet from Boucher Island to the vicinity of the Northwesternmost Point, during the course of which they made a search for the cribwork monument (see p. 110) which had been erected in 1824 by David Thompson, astronomer and surveyor for the British section of the commission under the treaty of Ghent, to mark an alternative location for the North-

westernmost Point, and which had been selected in 1825 by Dr. J. L. Tiarks, astronomer for the British Government, as being the Northwesternmost Point of Lake of the Woods.[3] No trace of this monument could be found, which was not surprising, as but few vestiges of it remained in 1872 when its submerged site was recovered only after a long search by engineers of the boundary commission of 1872–1876. The location of this reference monument was not, however, essential to the determination of the position of the Northwesternmost Point, for the reason that the exact distance of this point from monument 925, as measured along the meridian boundary, had been recorded in the report of the survey of the boundary from Lake of the Woods to the Rocky Mountains made in 1872–1876.

A small scheme of triangulation was begun at the meridian boundary near monument 925 and carried along the shores of the inlet and eastward into Lake of the Woods as far as Oak Island. Here the triangulation was expanded into a larger scheme which was later to become a part of the major triangulation of Lake of the Woods.

Monuments were set along the shores of Northwest Angle Inlet and on islands in Lake of the Woods to reference the boundary as far eastward as Oak Island. Each of these monuments consisted of a block of concrete 2 feet square and 3 feet deep, in which was set an iron bar 3 feet long and 2 by 2 inches in cross section with a pyramidal top to indicate the exact point of reference. These monuments were all tied in to the triangulation, many of them being set at triangulation stations.

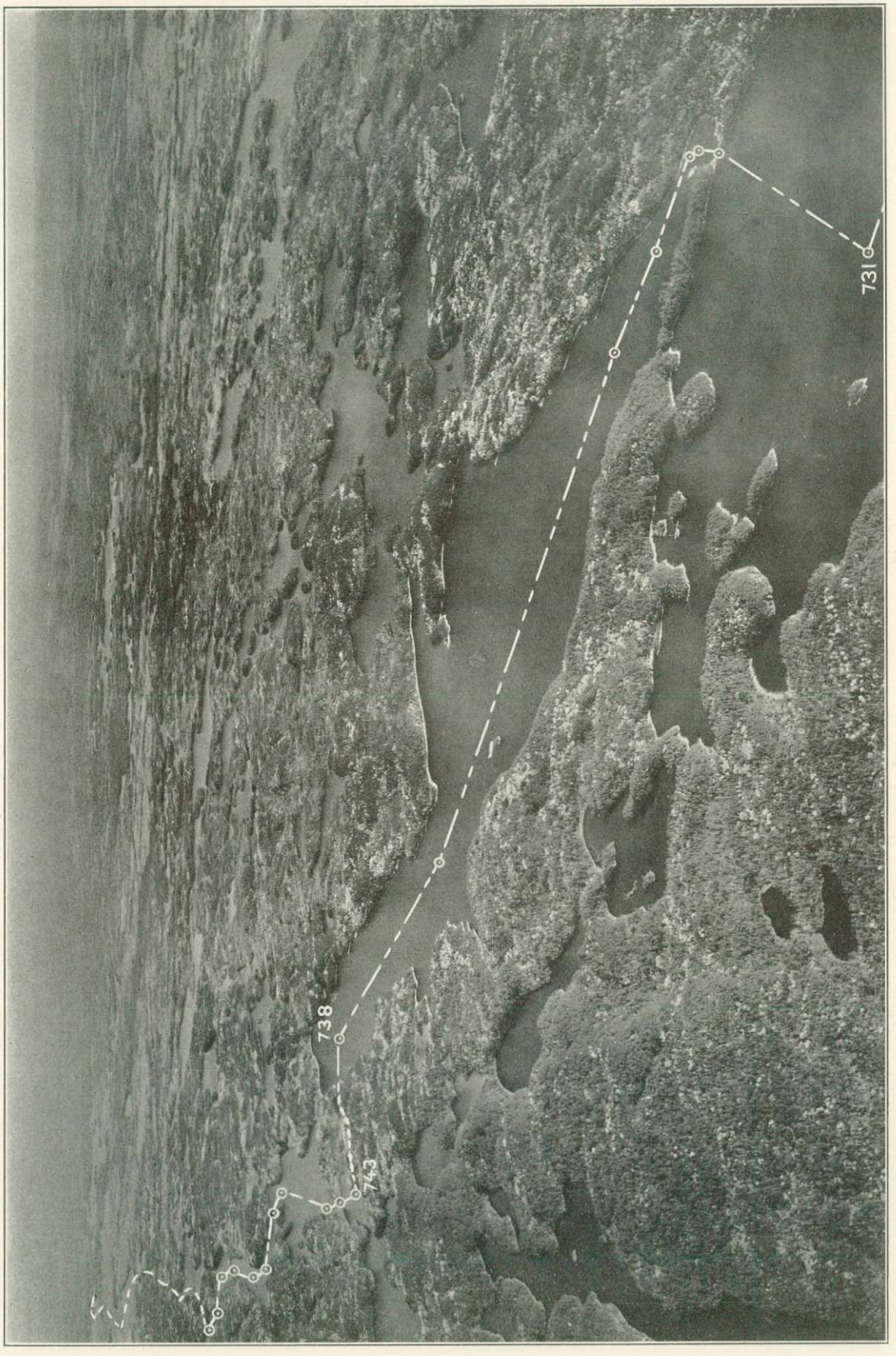
A topographic and hydrographic survey was made of the shore line and the deep-water channel. The survey of the islands adjacent to the boundary and of a narrow strip along the shore of the mainland was made with transit and stadia and mapped in the field on a scale of 1:20,000, contour interval 10 feet. The hydrographic survey was made in accordance with the standard practice of the United States Coast and Geodetic Survey, the hydrography being done for the party by the United States representative. His equipment for this work consisted of a 36-foot motor boat owned by the United States section of the commission.

Throughout the season the work was frequently retarded by rains and heavy windstorms. The waters of Lake of the Woods are frequently very rough, and during these periods constant care had to be exercised to prevent the launches from being driven ashore.

The party discontinued work on October 25 and went to Kenora, where the launches were hauled out and the outfit stored for the winter.

The personnel of the Canadian party for the season of 1912 was as follows: Chief of party, J. J. McArthur, D. L. S.; assistants, F. P. Steers, H. M. Barton, H. P. Moulton, J. M. Perrier, and A. Albrecht; and 12 hands. The United States representative with the Canadian party in 1912 was F. D. Granger, assistant, United States Coast and Geodetic Survey.

[3] See Appendix III, p. 217; also Report upon the Survey of the Northern Boundary of the United States from Lake of the Woods to the Summit of the Rocky Mountains, p. 80.



Photograph by Royal Canadian Air Force

Looking eastward along the international boundary, Knife Lake to Saganaga Lake; Quetico Park, Ontario (left), Superior National Forest, Minnesota (right)

United States Party on the Eastern Part of the Line (Round Lake to Knife Lake)

The United States party which had been working westward from the eastern end of this section of the line since 1908 resumed work in 1912 on June 9 at Round Lake.

Their work was similar in every respect to that done in previous seasons—namely, carrying forward a scheme of triangulation along the boundary waterways and mapping the shore lines of the lakes and narrow waterways by plane table and stadia. As in the previous season, transportation for all purposes was entirely by canoes.

The main scheme of triangulation, together with subsidiary schemes necessary to control the mapping and the positions of the boundary reference monuments, was extended as far westward as the western end of Knife Lake. From Round Lake to Saganaga Lake the main scheme was advanced directly across the loop which the boundary makes between these lakes, only the subsidiary scheme being carried immediately along the narrow, winding intervening boundary waterway. Azimuth observations were made at triangulation stations "Care," "Camp," "Dolores," and "Engle."

The topographic survey also was extended to Knife Lake. The survey of the lakes was made on a scale of 1: 20,000 and the narrower boundary waterways on a scale of 1: 5,000. A complete topographic map on a scale of 1: 5,000 with 20-foot contours was made of Swamp Portage, the boundary portage between Swamp Lake and Cypress Lake. Elevations for the survey were carried forward by vertical angles measured at the triangulation stations.

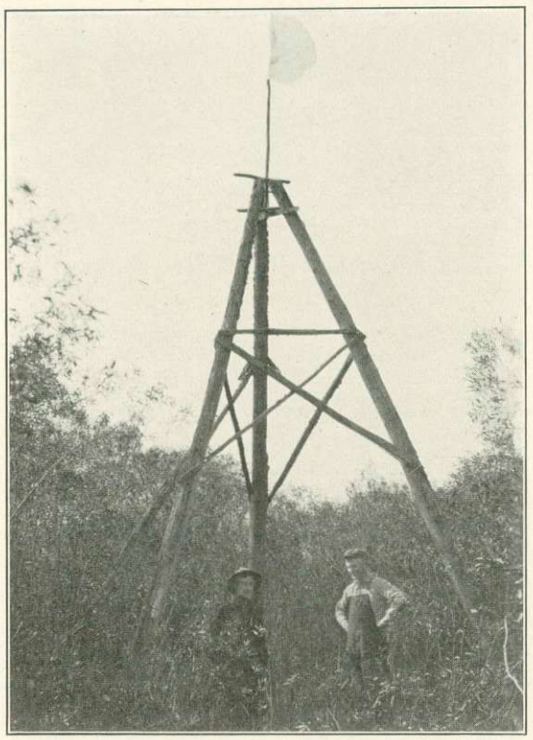
Work was discontinued at Knife Lake on October 29. The outfit of tents and other camp equipment was then taken by canoes westward along the boundary waterways to Prairie Portage on Basswood Lake and there stored for the winter in one of the warehouses of the St. Croix Lumber Co. From Prairie Portage the party went by boats of the St. Croix Lumber Co. southwestwardly through the chain of lakes to the end of the Duluth & Iron Range Railroad at Winton, Minn., and there disbanded.

The personnel of this United States party in 1912 was as follows: Chief of party, W. B. Fairfield; assistant, J. J. Phelan; and 15 hands.

United States Party on Lake of the Woods

The United States party, which during the earlier part of this season had been engaged upon the survey of the forty-ninth parallel boundary from Red River eastward through the Roseau Swamp country to Lake of the Woods, reached Lake of the Woods early in September. On September 18, the work on the forty-ninth parallel being completed, the party moved their camp outfit to Warroad, Minn. Here the saddle horses, teams, and wagons were disposed of by auction, and in their stead launches and small flat-bottomed boats were procured for work on the lakes.

The party with the outfit of boats and camp equipment left Warroad on September 19 and on September 20 arrived at Harrison Creek, Northwest Angle Inlet,



Old tripod at head of Northwest Angle Inlet erected by boundary survey of 1872–1876. (Photograph taken in 1912)

where they established camp on the meridian boundary at monument 924, about 2 miles due south of the Northwesternmost Point of Lake of the Woods.

Work was immediately started on clearing the vista and making a topographic survey along the meridian boundary south from monument 925 and on making a detailed topographic and hydrographic survey of the upper part of Northwest Angle Inlet from a point southeast of the northernmost monument of the meridian boundary to the Northwesternmost Point.

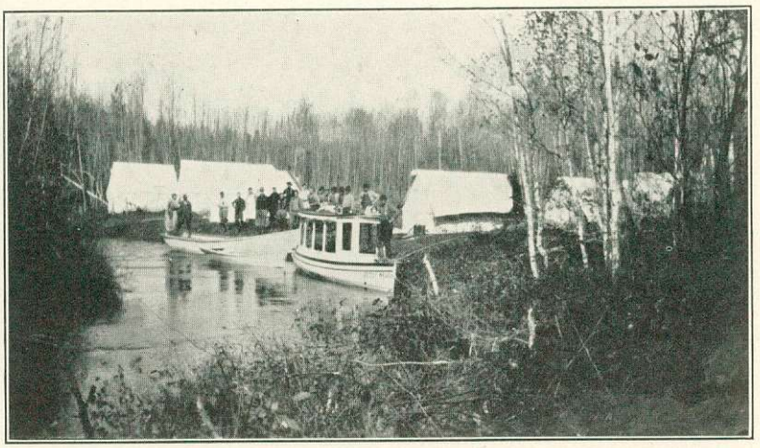
An 833-meter base line was measured along the western shore of the inlet in the vicinity of the meridian line, and from this base a small scheme of triangulation was extended up the inlet to the vicinity of the Northwesternmost Point and also southward, to a junction with stations of the scheme of triangulation which had been extended southeastward therefrom by the Canadian party earlier that year. The triangulation was tied to monument 925 and the position of the Northwesternmost Point was determined. The azimuth of the meridian boundary was obtained from an astronomic azimuth determined by two nights' observations at triangulation station "New Rice." The party also determined by triangulation the position of an old tripod which was found standing a short distance west of the Northwesternmost Point and which had been built by the surveyors of the boundary commission of 1872–1876.

The detailed topographic and hydrographic survey of the vicinity of the Northwesternmost Point was made by plane table and stadia on a field scale of 400 feet to the inch. It included a careful survey of the shore line of the inlet and of the course and depth of the



Camp of United States party on Harrison Creek at monument 924, October, 1912

deep-water channel from a point a considerable distance southeast of the southernmost intersection of the channel with the meridian boundary to the northern end of the inlet, so as to take in the site of the original Northwesternmost Point.[4]



Camp of United States boundary party on Poplar Creek, near Northwest Angle Inlet, 1912

The topographic survey of the strip of country 2 miles wide along the meridian boundary was made on a field scale of 1:45,000, contour interval 10 feet. The distances between the monuments along the meridian line were determined by invar tape by base-measurement methods.

On October 7 camp was moved southward to a point on Poplar Creek, about 1 mile east of the meridian boundary in the vicinity of monument 921. Working from this camp the topographic mapping, the line measurement, and the vista cutting were extended south as far as the boundary crossing of Stony Creek.

On October 14, weather conditions having become so bad that further work was impracticable, the party returned to Warroad, Minn., and stored the outfit for the winter. Two topographers and their assistants remained at Warroad for a

[4] For description and map of the detailed survey, see pp. 108 and 111.



United States boundary survey party at Northwest Angle Inlet, October, 1912

time to map the town and the country along the lake shore adjacent thereto. The rest of the party disbanded.

The personnel of the United States party on Lake of the Woods was as follows: Surveyor in charge of the work, E. C. Barnard; chief of party, James H. Van Wagenen; assistants, E. V. Perkinson, R. K. Lynt, H. C. O. Clarke, F. C. Warner, and W. V. Hagar; foreman of line-cutting party, R. W. McGuire; and 17 hands (including 9 Indians). The Canadian representative with the United States party in 1912 was J. L. Rannie, D. L. S.

SEASON OF 1913—LAKE OF THE WOODS, RAINY RIVER, RAINY LAKE, NAMAKAN, CARP, BIRCH, SUCKER, AND BASSWOOD LAKES

The season of 1913 marked the beginning of much greater activity on this section of the boundary line. To the larger organizations which had started work at Lake of the Woods in 1912 there was now added another United States party which up to this year had been engaged on the boundary along the forty-ninth parallel, with the result that considerably more progress was made between Lake of the Woods and Lake Superior than in any other year since the work was begun in 1908. Both United States and Canadian forces were widely distributed along the line, from Knife Lake to Lake of the Woods. This and the following year, 1914, were to be the seasons of greatest accomplishment on this section of the boundary line.

Also, the field work from this time on included a more comprehensive scheme of triangulation in this region and a more complete topographic survey, comprising not only the shore lines but also the contouring of all the islands and a strip of terrain immediately adjacent to the shores of the international waterways. These developments were in accordance with the added importance given to this section of the boundary waterways by international questions which had recently come before the International Joint Commission as heretofore referred to.

Canadian Organization on Lake of the Woods and Rainy River

The party assembled at Kenora, Ontario, and on May 15 established camp on an island off American Point near the entrance to Northwest Angle Inlet. Here they completed the mapping of the topography of the islands adjacent to the boundary and then moved to Bear Island, which lies immediately north of Big Island in Lake of the Woods, and made a junction between their triangulation covering Northwest Angle Inlet and the triangulation which the United States party had extended northeastward from the base at Warroad, Minn.

The party then moved to a point near the mouth of Rainy River and made the necessary surveys covering Rainy River from its mouth to Baudette. The triangulation started from the line "Burton—Oak" of the United States triangulation of Lake of the Woods, the reconnaissance and tower building for which had already been completed earlier that season, and included a scheme of major triangulation with sides from 3 to 6 miles in length and minor triangulation with stations on or near the river banks for determining the positions of the boundary reference monuments. The major triangulation was joined to the United States triangulation on the line "Rainy—Spooner," near Baudette.

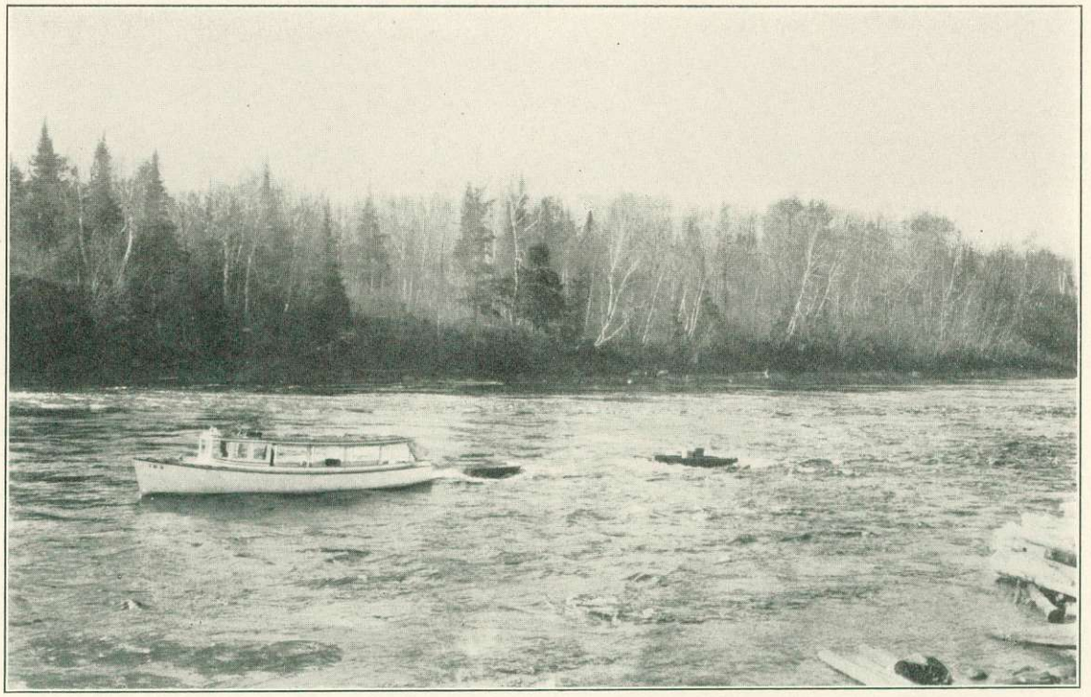
The party made a topographic map of the islands and of a narrow strip of territory along the shores of the lake and the river. Boundary reference monuments of the same type as those set in 1912 (iron posts set in concrete bases) were established on the islands adjacent to the boundary line from Oak Island to the mouth of Rainy River and along the banks of Rainy River upstream as far as Baudette.

Early in September a small party took one of the large launches, a motor skiff, and a canoe up Rainy River and through Rainy Lake to Namakan Lake, and made a reconnaissance of the region to be surveyed by the Canadian party the next year. The remainder of the party continued work on Rainy River until October 27, when the party disbanded. The launches and camp outfit of the main party were stored for the winter at Rainy River, Ontario, and the outfit of the reconnaissance party on Namakan Lake was housed at Kettle Falls.



Lighthouse on Bigsby Island, Lake of the Woods; one of the control points for the topographic mapping

The personnel of the Canadian organization during the season of 1913 was as follows: Chief of party, J. J. McArthur, D. L. S.; assistants, F. P. Steers, D. L. S.,



Canadian launch *I. B. S.* ascending Soo Rapids, Rainy River, 1913

H. M. Barton, D. L. S., H. P. Moulton, D. L. S., G. B. Herridge, and J. M. Perrier; and 14 hands. The United States representative with the Canadian party in 1913 was F. D. Granger, assistant, United States Coast and Geodetic Survey.

United States Party on the Eastern Part of the Line (Carp Lake, Birch, Sucker, and Basswood Lakes)

The United States party that had closed the season of 1912 at the western end of Knife Lake assembled in 1913 at Prairie Portage on May 10 and moved the camp outfit eastward to Carp Portage at the western end of Carp Lake, where field work was begun.

The scheme of minor triangulation was started at the western end of Knife Lake from the line "Faith—Enough," the terminus of the triangulation of the previous season. It was extended westward, covering Carp, Birch, Sucker, and Basswood Lakes and Basswood River, as far as the eastern end of Crooked Lake. At three



Transportation facilities used by the survey parties on Prairie Portage; Basswood Lake to Sucker Lake

of the triangulation stations, "Garb," "Gyp," and "Hoist," azimuth observations were made. Late in the season, after ice had formed, the party measured a base line on the ice on Basswood Lake from station "Hoist" to station "Hoist North Base."

A complete topographic map on a scale of 1 : 20,000, with 20-foot contour interval, was made of the terrain along the boundary waterways from the western end of Knife Lake to the eastern end of Crooked Lake. Detail maps on a scale of 1 : 5,000 with 10-foot contour interval were made of the narrow parts of the boundary streams connecting the lakes. The mapping was done with plane table, telescopic alidade, and stadia. Vertical control for the topography was obtained by measuring vertical angles at the stations of the scheme of triangulation. Spirit levels were run across all the portages, including the 4-mile portage from Hoist

Portage on Basswood Lake to Fall Lake. Spirit levels were also run at the close of the season from a bench mark on Fall Lake to two Duluth & Iron Range Railroad bench marks at Winton, Minn.

Transportation was carried on entirely by water—by canoes and motor boats.

The party discontinued the season's work at Hoist Portage on Basswood Lake late in October.



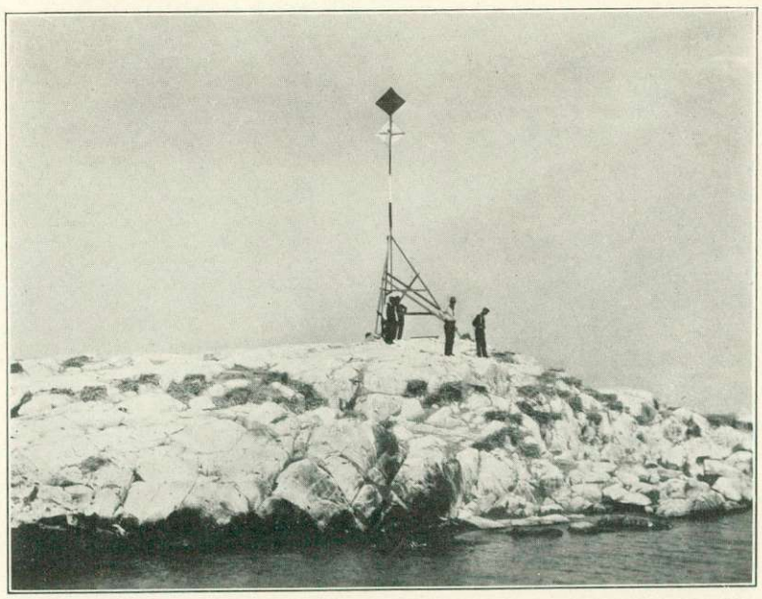
A small gill-net kept the surveyors supplied with whitefish

The camp outfit was taken to Winton, and there stored in one of the warehouses of the St. Croix Lumber Co.

The personnel of the United States party on the eastern part of the line in 1913 was as follows: Chief of party, W. B. Fairfield; assistant, J. J. Phelan; and 15 hands.

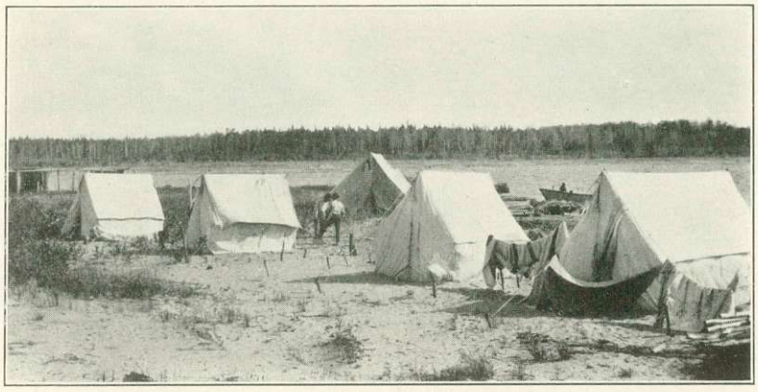
United States Parties on the Western Part of the Line (Lake of the Woods, Rainy River, Rainy Lake, and Namakan Lake)

The United States forces operating on the western part of the boundary from Lake of the Woods to Lake Superior during the field season of 1913 comprised two organizations. The first of these, which had reached Lake of the Woods late the previous season and which was under the direction of Mr. E. C. Barnard, was subdivided into three parties, namely, a large party which did topography, minor triangulation, monumenting, and leveling on Lake of the Woods and Rainy Lake; a small party which made the detailed surveys of Fort Frances and International Falls and the topographic map of Black Bay, Rainy Lake; and a triangulation party which did the reconnaissance and major triangulation of Rainy Lake and Namakan Lake. The second organization, which, following the completion of



Gull nests on Cormorant Rock, at station "Gull," Lake of the Woods

their work on the forty-ninth parallel in 1912, was just beginning work on this section of the boundary and which was under the direction of Mr. C. H. Sinclair, comprised two triangulation parties, one of which did the reconnaissance and major triangulation of Lake of the Woods and of Rainy River from Baudette to International Falls, and the other the minor triangulation along Rainy River from Birchdale to Fort Frances.

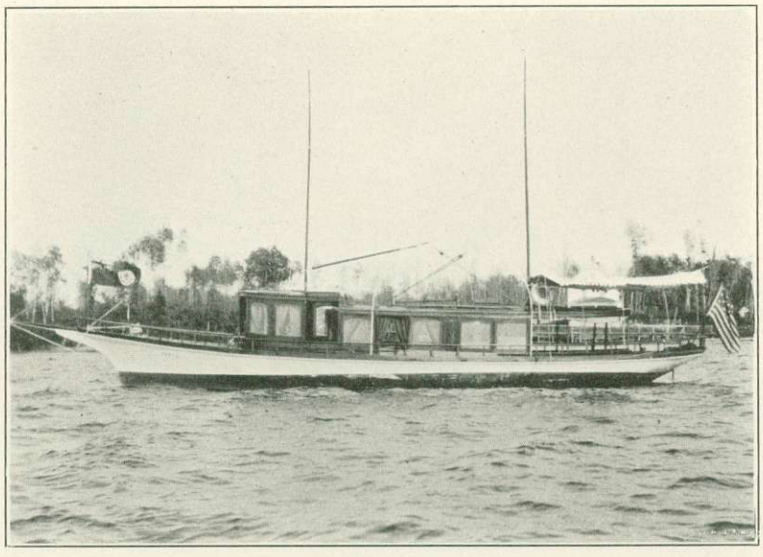


Topographic camp at Zippel, Lake of the Woods, 1913

MR. BARNARD'S ORGANIZATION

On February 15, 1913, a member of Mr. Barnard's organization was sent to Warroad, Minn., with instructions to establish bench marks on Lake of the Woods, Rainy Lake, and Namakan Lake, in order to provide vertical control for the topographic mapping that was to be done later in the season. After outfitting at Warroad he went to Fort Frances, Ontario, and with three men started eastward over the ice on Rainy Lake, taking with him the necessary camp equipment on a bobsled drawn by a light team of horses.

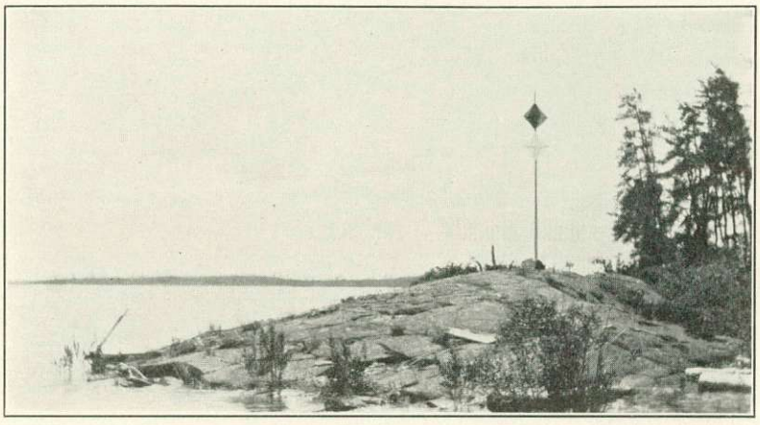
He established bench marks along the shores of the lakes at intervals of 5 miles, determining the elevation of each bench mark above the water surface of the lake by cutting a hole through the ice near by and leveling from the water surface to the bench mark with a spirit level. During these operations a record was kept of the elevation of the water surface of Rainy Lake as determined by staff gages at Ranier and Kettle Falls, and from these data, together with the known elevations of the zeros of the gages above mean sea level, were obtained the elevations of the Rainy Lake bench marks.



United States launch *Amrita*

The same procedure was adhered to on Namakan Lake and, in all, 21 bench marks were established along the shores of the two lakes. Experiencing at times temperatures as low as 40° below zero, the party reached the head of Namakan Lake on March 1. Then, after running a forward and a backward line of levels to determine the difference of elevation between Rainy Lake and Namakan

Lake, they returned to Warroad, and similarly established three bench marks on Lake of the Woods. After the completion of the leveling, the party was engaged on topographic work on Lake of the Woods until May 15, when they joined the larger organization, which came to the field at that time.

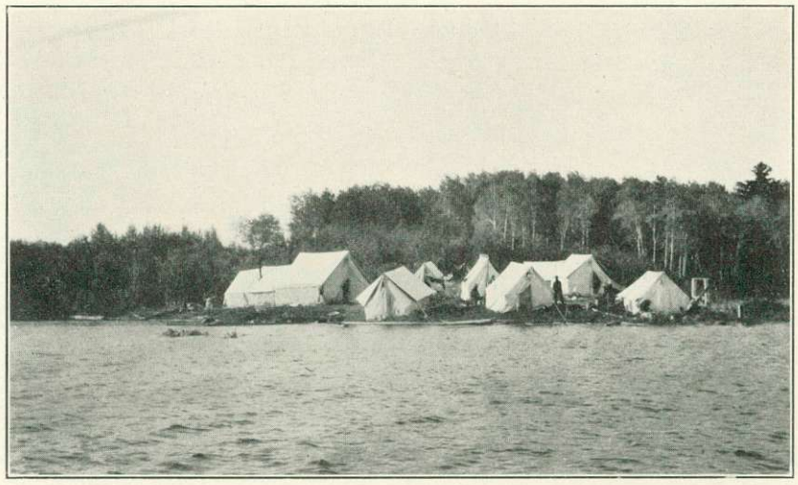


Type of triangulation signal used in determining the positions of the boundary reference monuments

The main party of Mr. Barnard's organization—a topographic, minor triangulation, monumenting, and leveling party—assembled at Warroad early in May, and after overhauling the equipment that had been stored there at the end of the previous field season and hiring a 40-foot launch capable of withstanding the rough weather on Lake of the Woods, they completed the topographic mapping of the strip of country along the shore of the lake from Stony Point to the mouth of Rainy River, working from Warroad and from camps at Long Point, Zippel, and Pine Island.

The work on Lake of the Woods was finished on June 18, and on the following day the party moved by water to Baudette, Minn., from which place they went by rail to Ranier, Minn. By June 23 they were in camp on Birch Point on Rainy Lake, about one-half mile east of Ranier. Here they took up the topographic mapping, the selection of sites for the boundary reference monuments, and the reconnaissance and observing of a scheme of minor triangulation necessary to determine the geographic positions of the boundary reference monuments and the turning points of the boundary line and for the control of the topographic mapping.

The party on July 18 moved camp to the narrow isthmus connecting the main parts of Sand Point Island. This site was centrally located and afforded a good harbor for the large boats on either side of the narrow neck of sand beach which was only about 20 feet wide and over which the small boats could be easily portaged. It was also near one of the bench marks, established during the preceding winter, making it easy to determine the elevation of the zero of a staff gage for the daily determination of the height of the water surface which was used as a reference plane by the topographers.



Survey camp on Birch Point, Rainy Lake, 1913

From this camp the topographic work was carried as far east as Powder Island and the minor triangulation was extended south to the entrance to Black Bay, where a triangulation station was established on each side of the entrance, from which the small topographic party could extend control for the mapping of Black Bay which was to be done by them later in the season.

On September 2 the party moved to a small bay on the shore of the mainland one-fourth mile east of Little Rocky Narrows where a grove of jack pines offered protection from wind and storms. They moved again on September 26 to a sheltered spot on MacKenzie Island facing the comparatively calm waters of Brule Narrows, and from this camp, which was the last of the season, the topographic mapping was completed to the eastern end of Brule Narrows, and the minor scheme of triangulation was carried as far east as Big Island.

By this time thin ice was forming on the small bays, and occasional snowstorms were interfering with the work to such extent that on October 23 the party discontinued work for the season and moved the camp equipment to Ranier where it was inventoried and stored for the winter. Their launches were hauled out at Fort Frances.

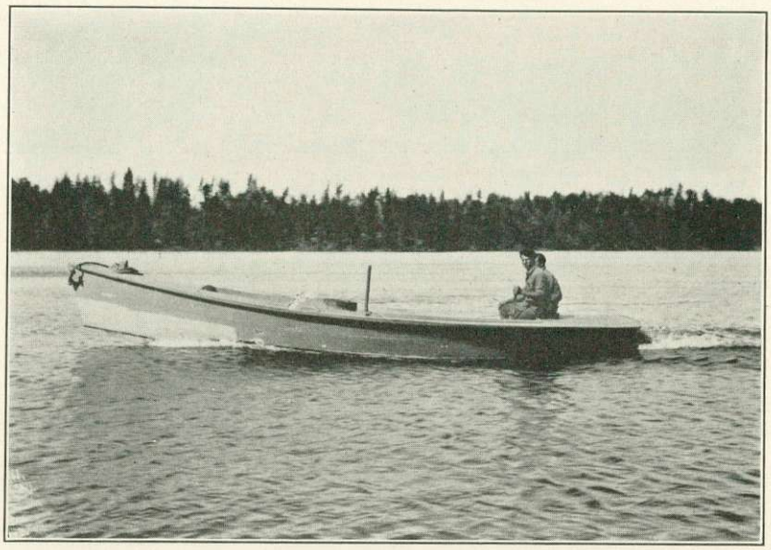
During the progress of the work of the foregoing party, a small topographic party was also engaged on work at International Falls, Minn., and later in the season on Black Bay on the south shore of Rainy Lake. Late in May this party began the mapping of the towns of Fort Frances, Ontario, and International Falls and Ranier, Minn., and the section of Rainy River adjacent thereto. A short base line was measured along the Canadian National Railway on the Canadian side of the river, from which a small scheme of triangulation was developed to determine the positions of points along the river for control of the topographic mapping and the positions of the boundary reference monuments.

The work of the party in this vicinity was completed on August 5 and they then moved to Black Bay, on Rainy Lake. Starting at the two triangulation stations at the entrance to Black Bay, which had been established by the main party, a small scheme of triangulation was carried into the bay and a topographic map made of the strip of country along the shore. This work was completed on October 21 and the party returned to Ranier and disbanded.

In addition to the above-mentioned topographic parties operating on Lake of the Woods and Rainy Lake, a triangulation party of Mr. Barnard's organization was engaged on the major scheme of triangulation covering Rainy Lake and Namakan Lake. This party consisted of an observer and reconnaissance man and a tower-building organization. They were provided with a 36-foot launch and a 23-foot flat-bottomed motor-boat and with all other necessary equipment to do reconnaissance, build towers, clear lines of sight, and make the necessary triangulation observations.

The party was organized at Fort Frances, Ontario, during the last week of May and began work eastward on Rainy Lake from a camp near Ranier, Minn. They next camped on Sand Point Island, not far from the western entrance to Brule Narrows, and later, as the work progressed, they moved camp to a small island east of Big Island, about midway between Brule Narrows and the eastern end of Rainy Lake. From here they moved to Kettle Falls, where they completed the reconnaissance and

tower building on the eastern end of Rainy Lake and extended the scheme into Namakan Lake. Their last camp of the season was at a point just above Squirrel Narrows on Namakan Lake.

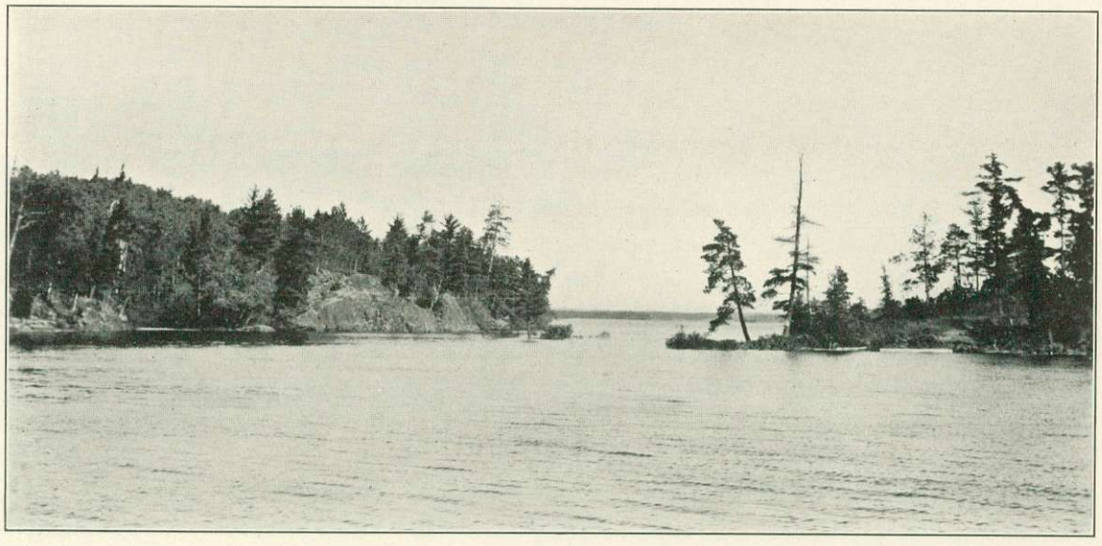


The Crab: type of motor boat used by triangulation party on Rainy Lake, 1913

The season's work of this party included the reconnaissance for the major scheme of triangulation covering Rainy Lake and most of Namakan Lake; the erection of 15 native-timber triangulation towers of an average height of 45 feet; and the observing of this triangulation as far east as Big Island in Rainy Lake.

The operations of this party were brought to a close on October 30. The party then returned to the western end of Rainy Lake and stored their equipment with the outfits of the other parties at Ranier and Fort Frances.

The personnel of the foregoing United States parties under the direction of Mr. E. C. Barnard in 1913 on Lake of the Woods, Rainy River, Rainy Lake, and Namakan Lake was as follows: Surveyor in charge of the work, E. C. Barnard; chiefs of parties, James H. Van Wagenen, F. C. Warner, and F. S. Ryus; assistants, H. C. O. Clarke, R. P. Strough, R. K. Lynt, E. V. Perkinson, and G. A. Perry; and 18 hands. The Canadian representative with the United States parties in 1913 was I. R. Pounder, D. L. S.



Little Rocky Narrows, one of the steamboat channels on Rainy Lake

MR. SINCLAIR'S ORGANIZATION

Concurrently with the foregoing described work of the three United States parties under the direction of Mr. E. C. Barnard, two other United States parties under Mr. C. H. Sinclair, assistant, United States Coast and Geodetic Survey, were also engaged in 1913 upon the major and minor triangulation of Lake of the Woods and Rainy River. These two parties during the previous year, 1912, had completed the triangulation eastward along the forty-ninth parallel from Red River to Lake of the Woods and late in the season that year had measured a 9,269-meter base line along the railroad adjacent to the west shore of Lake of the Woods and had erected two 85-foot triangulation towers at the ends of the base preparatory to expanding the major scheme eastward across the lake in 1913.

This organization began work on Lake of the Woods early in March, 1913, while the lake was still frozen, so that the tower building lumber could be transported across the lake by sleds, thereby avoiding the difficulties of boat transportation during the rough weather common on Lake of the Woods after the spring thaw. Furthermore, it was imperative that the transportation of these materials over the adjacent swamps and muskeg be done while the ground was frozen.

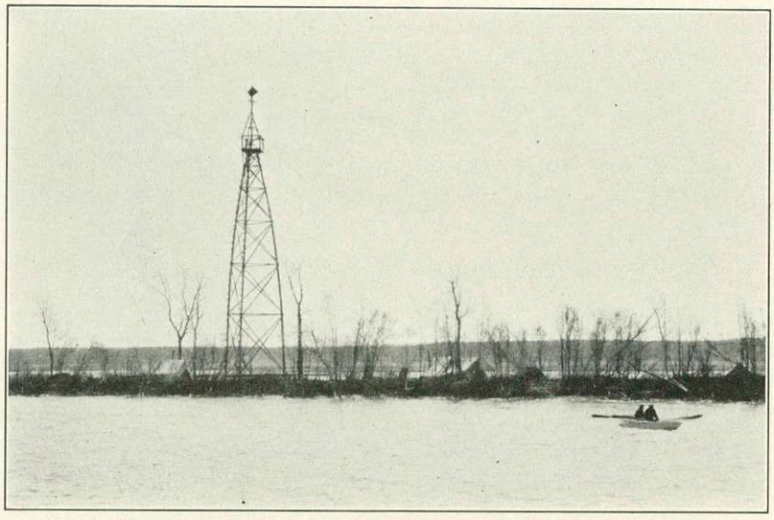


United States triangulation and topographic party at Brule Narrows, Rainy Lake, 1913

As soon as the work of transporting and distributing the lumber and tower-building materials to the various triangulation station sites on the shores and islands of the lake was well started, the party went to Northwest Angle Inlet and set and located two cast-iron monuments to reference the point determined by the United States party in 1912 as the southernmost intersection of the meridian boundary and the boundary through Lake of the Woods. The commissioners were agreed that this point should be permanently fixed and monumented, and were prepared to recommend to the two Governments that it be adopted as the common terminus of the two sections of the boundary line defined by Articles V and VI of the treaty of 1908 [5] in lieu of the original Northwesternmost Point, thereby eliminating the two short intersecting portions of these lines north of this point. (See map, p. 108.) These monuments, which were 8-foot hollow cast-iron posts, projecting 5 feet above the concrete bases, were set on the shores of the inlet, one east and one west of the point

[5] Later, by the treaty signed Feb. 24, 1925, this point as referenced in 1913, was formally adopted by the two countries as the northernmost point of the boundary line in Lake of the Woods, in lieu of the Northwesternmost Point as originally established by Tiarks in 1825. (See treaty of 1925, p. 12.)

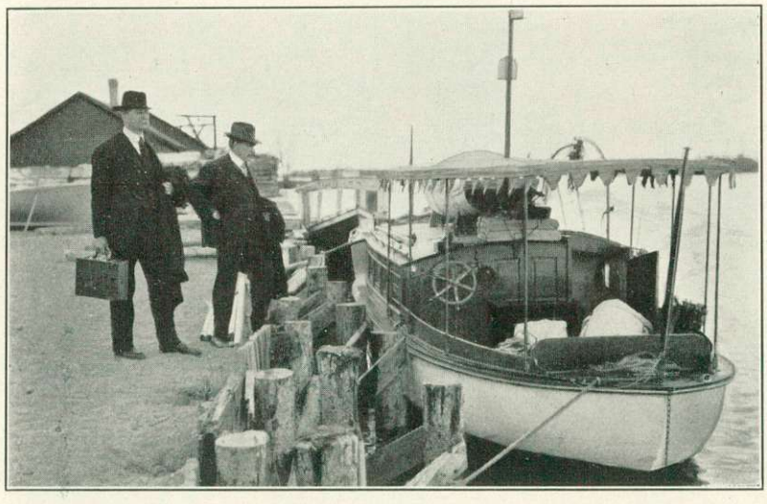
of southernmost intersection of the two lines, 2,522 feet north of monument 925 of the meridian boundary and 4,785 feet south of the original Northwesternmost Point.



Tower at triangulation station "Willow 1913," Lake of the Woods

By the time three of the triangulation towers had been built, the ice began to break up, so the party moved temporarily to Fort Frances, Ontario, where they laid out an 8,062-meter base line along the Canadian Northern Railway and erected an 80-foot tower at each base station. They then returned to Lake of the Woods, and, after erecting the remaining towers, took up the observation of the horizontal angles and completed the major triangulation of the lake to the mouth of Rainy River.

On June 20 the party returned to Fort Frances, and after measuring the base line which they had laid out earlier in the season and observing an azimuth at "Fort Frances East Base" they began developing a major scheme of triangulation from this base westward along Rainy River. Also, one quadrilateral was extended eastward to Rainy Lake to furnish a base for the triangulation that the party under Mr. E. C. Barnard had started along that part of the boundary. Towers 30 to 90 feet in height constructed of sawed timber were built at 20 of the 22 stations of the triangulation on Rainy River, from the outlet of Rainy Lake to Baudette, Minn. The progress of the work was retarded by several strong windstorms which blew down eight of the towers some of which had not yet been occupied and consequently had to be rebuilt.



E. C. Barnard and C. H. Sinclair, chiefs of United States parties, Lake of the Woods, 1913

By the end of the season the party had connected their triangulation to the major triangulation done earlier in the season by the Canadian party along the lower part of Rainy River from Lake of the Woods to Baudette, Minn. They then returned to Fort Frances,

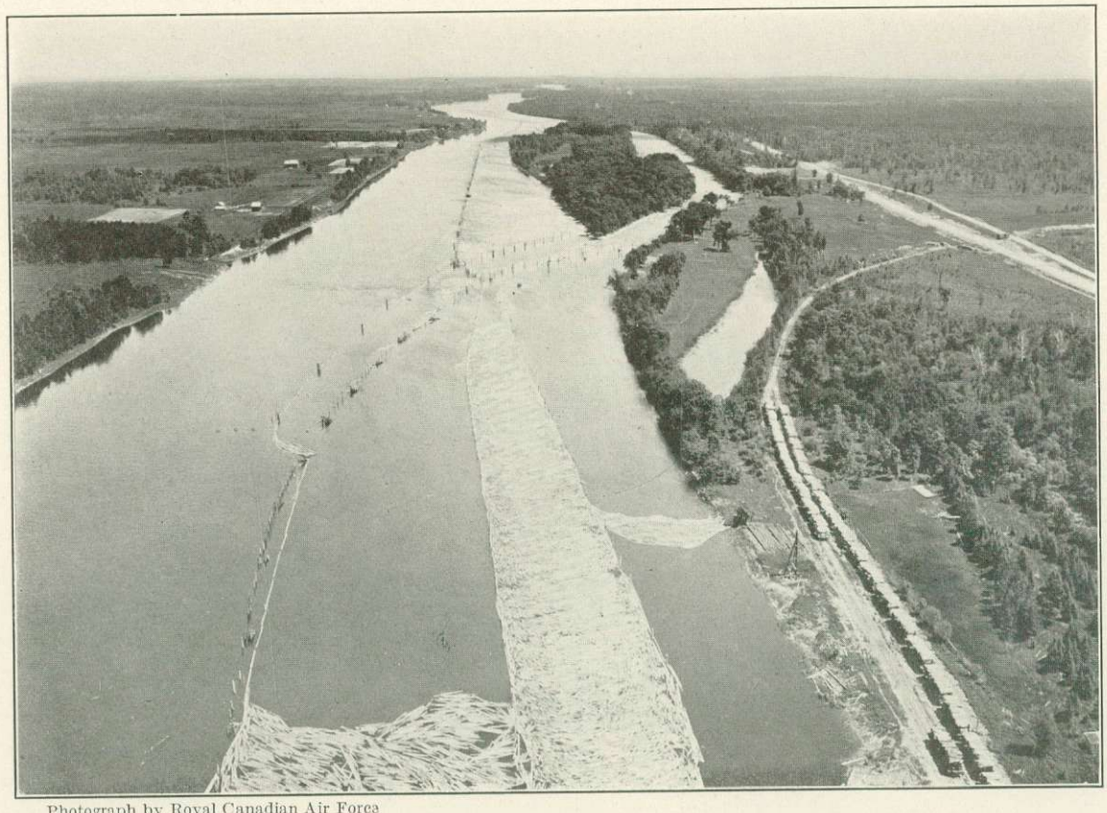
stored their equipment in the Canadian customs building, and on November 19 disbanded.

During the progress of the above-described major-triangulation work on Rainy River a second party of Mr. C. H. Sinclair's organization was likewise engaged on the scheme of minor triangulation along the river. This party was detached from the main organization immediately after the base at Fort Frances was measured, and established their first camp near Fort Frances.

The minor triangulation done by this party was connected with the major scheme along the river at intervals of approximately 10 miles and was further strengthened by making base-line measurements of some of the shorter lines of the scheme. The quadrilaterals were in general long and narrow, the purpose being to keep the stations near the river banks in order to avoid building towers and cutting lines through the timber and to facilitate making connections with the boundary reference monuments.

During the progress of the season's work of this party on Rainy River, camp was moved successively to sites at Little Fork River, Loman, Minn., Manitou, Minn., and, finally, to Birchdale, Minn., at which place, on November 1, the work was brought to a close. The party then stored their outfit at Birchdale and disbanded.

The personnel of the foregoing United States parties under the direction of Mr. C. H. Sinclair in 1913 on Lake of the Woods and Rainy River was as follows: Surveyor in charge of the work, C. H. Sinclair; chiefs of parties, Jesse Hill and E. R. Martin; and 12 hands. The Canadian representative with the United States parties in 1913 was I. R. Pounder, D. L. S.

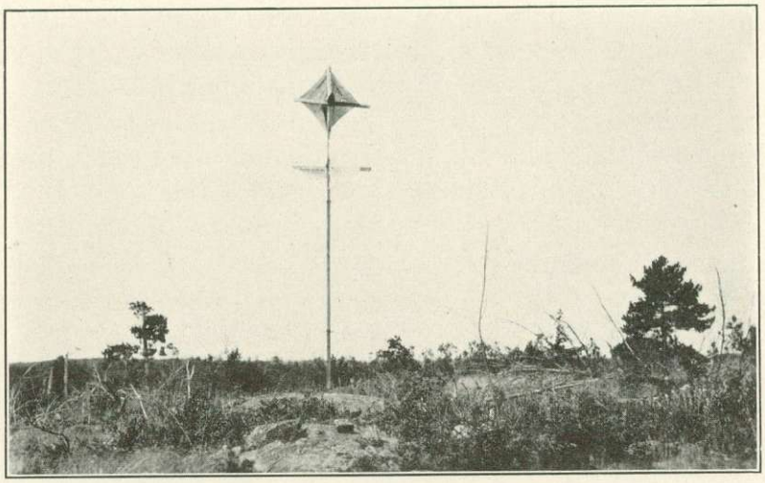


Photograph by Royal Canadian Air Force

Typical stretch of Rainy River; at Watrous Island, near Loman, Minn.

FIELD WORK OF THE UNITED STATES ORGANIZATIONS, 1913

The field work done in 1913 by the several parties of the United States organizations on the western part of the line, whose operations have just been described, comprised the topographic surveys necessary for the preparation of the boundary maps and the major and minor triangulation to control the topographic surveys and to determine the geographic positions of the boundary reference monuments and the turning points of the boundary line.[6]



Major-triangulation station "Berry," Rainy Lake, 1913

The topographic surveys included the mapping of the islands and the terrain of the mainland along the shores of the boundary waterways with plane table, telescopic alidade, and stadia, supplemented in the more densely wooded areas by string tapes and aneroid barometers. In general, the mapping was done on a field scale of 1:20,000, contour interval 10 feet. The towns of Ranier and International Falls, Minn., and Fort Frances, Ontario, were mapped on a scale of 1:5,000, contour interval 5 feet. The shores of Lake of the Woods, where less detail was necessary, were mapped on a scale of 1:45,000, contour interval 10 feet. Each topographic sheet was controlled by the geographic positions of the triangulation stations and the boundary reference monuments plotted thereon, and by plane-table triangulation extended from these points to the numerous islands and into the sinuosities of the shore line.



A topographer and his assistants moving between stations, Rainy Lake

Vertical control for the topographic mapping was obtained from the bench marks established by one of the parties in February and March before the ice went out. A staff gage, the elevation of which was determined from one of these bench marks, was established as near as possible to each camp site, and by

[6] For a detailed description of the survey work on this section of the boundary line, see "Field and Office Methods and Results," p. 84.

means of it a daily determination was made of the elevation of the water surface. The gage was read usually in the morning before the topographers left camp, and the elevation of the water surface, thus obtained for that particular day, was used by them as a reference plane in determining the elevations of the starting points of their traverse lines which were run back from the lake shore to locate the contours.

The schemes of major triangulation consisted of comparatively strong figures; the lines of sight were from 2 to 10 miles in length. The schemes of minor triangulation were started from lines of the major schemes and were extended along the shores of the mainland and islands, following the immediate course of the boundary line and convenient to the locations of the boundary reference monuments. The points to be used as boundary reference monuments were first selected as triangulation stations, generally in pairs, near the turning points of the boundary line. They were nearly always located on ledge rock or on large bowlders, as near the boundary line as was practicable, and were marked by the standard 2-inch bronze-disk triangulation station marks. Such of these stations as were finally selected by the commissioners as boundary reference marks were then further marked by standard bronze reference posts (see p. 91).

Transportation for the surveying parties in this region, including moving camp, daily movements to and from work, and the transportation of supplies and materials, was carried on in general by launches and small boats. For this purpose the United States organization was equipped with 6 motor boats 20 to 48 feet in length, suitable for all kinds of weather on the lakes, and 5 small flat-bottomed boats equipped with outboard motors. Also, an additional motor boat was furnished by the Canadian Government for the use of the Canadian representative attached to the United States organization. At times teams were also used to advantage, particularly for the work on Lake of the Woods before the ice went out and for the tower building and major-triangulation work along Rainy River. Considerable backpacking also was done, especially in connection with the tower-building work of the major-triangulation party on Rainy Lake and Namakan Lake. Tools and heavy tower-building equipment had to be carried from the boats at the lake shores inland to the high points selected for the triangulation stations, and the native timber used in the construction of the towers had to be moved by the men from the places where it was felled to the tower sites. This was by far the most arduous part of the season's work.

SEASON OF 1914—RAINY RIVER, RAINY LAKE, NAMAKAN LAKE, SAND POINT LAKE, LAC LACROIX, CROOKED LAKE, BASSWOOD RIVER, AND BASSWOOD LAKE

The distribution of the field work of the United States and Canadian parties in 1914 and the general character of the operations were much the same as those of the previous year. There was a Canadian organization doing triangulation, topographic mapping, and monumenting on Namakan Lake, Sand Point Lake, and Lac LaCroix. There was a United States organization on the eastern part of the line doing triangulation, topographic mapping, and monumenting on Basswood Lake, Basswood River, and Crooked Lake; and there was a second United States organization on the western part of the line engaged on similar work on Rainy River, Rainy Lake, and Namakan Lake.

Canadian Organization on Namakan Lake, Sand Point Lake, and Lac LaCroix

Late in April an advance party of three members of the Canadian organization went to The Hoist on the south shore of Namakan Lake and crossed the lake on the ice to Kettle Falls, where a launch and some small boats had been stored at the close of the previous season. The boats were repaired and put in condition for the season's work. At the same time a second small advance party went to Rainy River, Ontario, where the principal part of the equipment was stored. They overhauled and repaired the outfit and made a survey of part of the towns of Baudette, Minn., and Rainy River, Ontario, and then transferred their equipment by water to Namakan Lake, where the entire party was assembled by May 20. They began work at Namakan Narrows, the point to which the United States party had extended the reconnaissance for the major triangulation from the westward the year before.

During the first part of the season the survey was extended from Namakan Narrows eastward. As in the previous seasons, a scheme of minor triangulation for the control of the topography and the location of monument sites was extended along the shores of the waterways and was connected with the major scheme of triangulation at frequent intervals. A strip of topography on a scale of 1:20,000 was mapped along the shores of the mainland, and the islands in the boundary lakes and streams were completely contoured. Monument sites were selected and the positions of the points chosen were determined by triangulation, but the monuments were not set until the following season.

By the end of July the work as a whole had progressed as far eastward as Sand Point on Sand Point Lake, and the major scheme of triangulation had been extended to Lac LaCroix. The main party then moved camp back to Steamboat Narrows to take up the work westward on Namakan Lake, leaving a smaller party to continue the major and minor schemes of triangulation toward the east.

By October 25 the main party had completed the topographic mapping and minor triangulation to the west end of Namakan Lake and at Kettle Falls had made a junction with the work of the United States party which had just been completed to this point from the westward. At Kettle Falls the main party was joined by the party from Lac LaCroix. Here the boats were hauled out and the outfit was stored for the winter, and on October 27 the party disbanded.

The personnel of the Canadian organization in 1914 was as follows: Chief of party, J. J. McArthur, D. L. S.; assistants, F. P. Steers, D. L. S., H. M. Barton, D. L. S., J. M. Sheppard, G. B. Herridge, L. C. Nesham, Albert Wilkins, A. A. Brown, and J. M. Perrier; and 15 hands.

United States Organization on the Eastern Part of the Line (Basswood Lake, Basswood River, and Crooked Lake)

Substantially the same party that had operated on this part of the line in 1913 reassembled at Winton, Minn., the following spring and on May 29, began field work at the eastern end of Basswood Lake.

During the first part of the season the entire party was engaged in extending the major scheme of triangulation westward from the eastern end of Basswood

Lake to the middle of Crooked Lake, to control the minor triangulation done in 1913. They also continued the minor scheme of triangulation westward along the shores of Crooked Lake. Azimuth observations were made at stations "Igo" and "Exit," at which boundary reference monuments 696 and 672 were later set.

The topographic mapping was done as in the previous season with plane table and stadia. The islands and a strip of terrain along the shores of the boundary waterways were mapped on a scale of 1:20,000, contour interval 20 feet. The narrow part of Crooked Lake was mapped on a scale of 1:5,000. Elevations for the vertical control of the topographic mapping were obtained by measuring vertical angles at the triangulation stations.

Transportation for the party was entirely by water—by motor boats and canoes. Motor boats belonging to a fishing company were hired for moving camp and for bringing in supplies from Winton, Minn. Canoes were used for the day-to-day transportation of the surveyors to and from work.

The party discontinued work on October 22 at Curtain Falls, at the western end of Crooked Lake, and returned to Winton, Minn., at which place the instruments, outfit, and canoes were stored for the winter in a warehouse of the St. Croix Lumber Co.

The personnel of the United States party during the season of 1914 on Basswood Lake and Crooked Lake was as follows: Chief of party, W. B. Fairfield; assistant, J. J. Phelan; and 13 hands.

United States Organization on the Western Part of the Line (Rainy River, Rainy Lake, and Namakan Lake)

The United States organization operating on the western part of the boundary from Lake of the Woods to Lake Superior during the field season of 1914 comprised



Snapshot taken by a member of the United States party on Crooked Lake, 1914

three separate parties under the direction of Mr. E. C. Barnard: A large topographic, minor triangulation, and monumenting party on Rainy Lake; a major-triangulation party operating successively on Rainy Lake, Namakan Lake, and Rainy River; and a small topographic party on Rainy River. The parties assembled at Ranier, Minn., about May 15. The boats and camp outfits were removed from storage, and the parties immediately established camps and began field work.

The largest of the three parties, the party to which was assigned the completion of the topographic mapping, minor triangulation, and monumenting on Rainy Lake, which had been begun the previous season, established camp on May 18 on a small island near the south shore of Rainy Lake about 1 mile west of Big Island. They began operations at the eastern end of Brule Narrows, where they had discontinued the work in 1913, and continued eastward. They also mapped Saginaw Bay, which lies southwest of Brule Narrows.

The party made their next camp on an island on the Canadian side of the lake near Black Point, about 3 miles west of Rat River, to which place they moved on June 22. The work progressed steadily and on July 24 camp was again moved to Surveyors Island, a small island at the eastern end of Rainy Lake at the mouth of Kettle Channel near the northwest shore of Oak Island.

By the middle of August it was apparent that the work on Rainy Lake could easily be finished before the weather became too cold for field work, so one of the topographers and his assistants were transferred to Rainy River to help finish that work.



United States topographic party moving camp; Black Point, Rainy Lake, 1914

On September 13 the party, with the exception of a topographer who remained at Kettle Falls to complete the topographic work on Hale Bay, moved to Little Rocky Narrows west of Brule Narrows where the party had camped the year before and took up some additional topographic work to complete the mapping of Seine Bay and Swell Bay, which the commissioners had decided should be included in the general map of Rainy Lake. As soon as the work on Swell Bay was completed, camp was moved to Seine Bay at the entrance to Seine River and, with the aid of favorable weather, the work in that vicinity was completed by October 7. The party was then engaged for a few days before the close of the season in completing the setting of boundary reference monuments at various places on the lake.

The topographic work done by the United States party on Rainy Lake during the field season of 1914 included the mapping of the islands and the strip of country as far inland as the immediate height of land along the shores of the boundary waterways. The methods used were similar in every respect to those of the season of 1913. In general, the mapping was done on a field scale of 1:20,000, contour interval 10 feet. The terrain along Kettle Channel and at Kettle Falls was mapped on a field scale of 1:5,000, contour interval 5 feet. Vertical control for the topographic mapping was based on the bench marks established on Rainy Lake in February, 1913. The elevation of the water surface of the lake was determined daily from fixed gages which were established for that purpose, the elevation of the zero of each gage being determined by spirit levels run from the nearest bench mark.

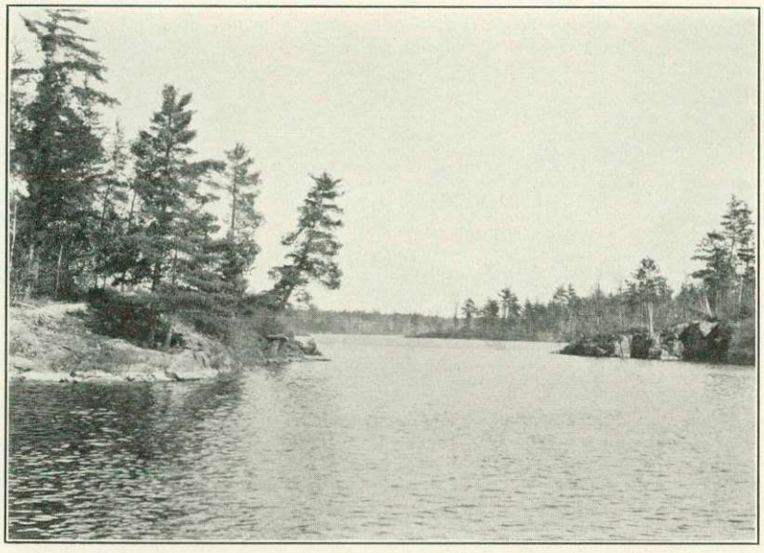
The minor triangulation done by the party was started from lines of the major scheme and was extended along the shores of the mainland and islands, following the immediate course of the boundary line in order to directly determine therefrom the geographic positions of the boundary reference monuments. Five of the short



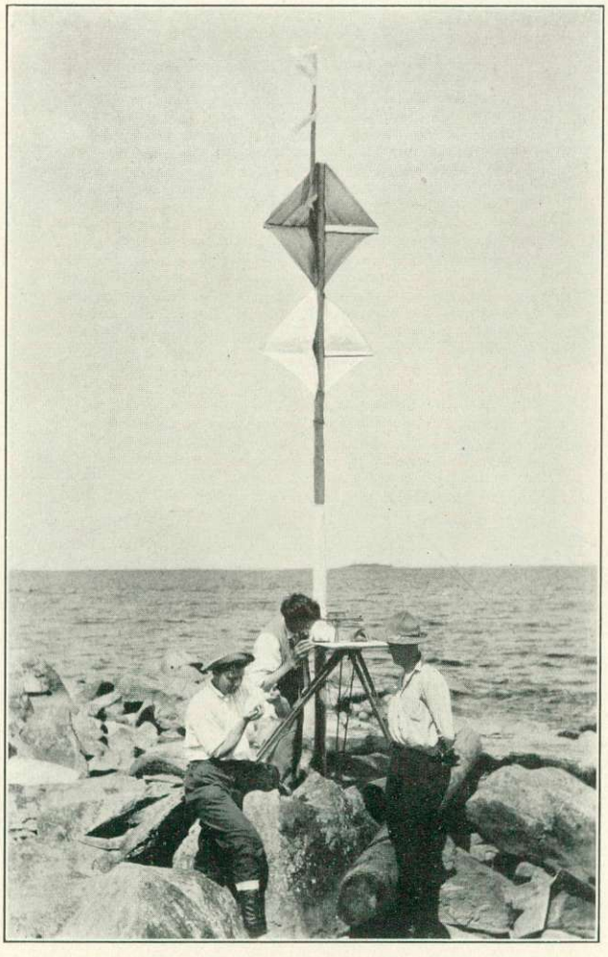
Camp of United States topographic party; Surveyors Island, at entrance to Kettle Channel, Rainy Lake, 1914

lines of the minor scheme of triangulation along Kettle Channel were measured with an invar tape. Bronze reference monuments of the type shown on page 91 were set and located (generally at stations of the minor triangulation) to reference the turning points of the boundary line.

All of the work on Rainy Lake, including the monument setting and the survey of Hale Bay, was completed by October 13.



Kettle Channel; boundary waterway between Rainy Lake and Namakan Lake



Topographic work on Rainy Lake, 1914

The party then moved to Ranier, where the instruments were packed and shipped to Washington, D. C. As the work assigned to the United States parties on the western part of this section of the boundary was now practically completed, the boats and most of the camp outfit were sold at public auction, and on October 17 the party disbanded.

During the time the work of the above party on Rainy Lake was in progress, a major-triangulation party was also engaged on Rainy Lake and Namakan Lake completing the major triangulation, the reconnaissance for which had been done the previous year. The work was carried as far eastward as Namakan Narrows to a junction on the line "Bay–Tower" with the triangulation done by the Canadian party in 1914.

This party went to the field on May 18 with the topographic and minor-triangulation party whose work has just been described, and for a few days camped with that party at their first camp of the season, about a mile west of Big Island on



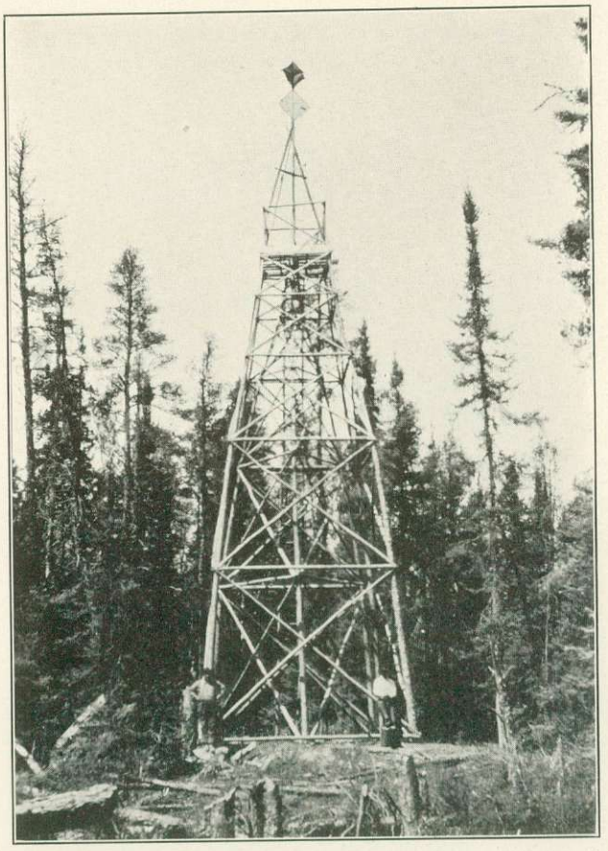
United States topographic and minor-triangulation party, Rainy Lake, 1914

Rainy Lake. Beginning at the point at which work had been discontinued the previous season, the party proceeded eastward with the observing of the major triangulation and shortly moved to Kettle Falls where they stayed for a few days, completing the observing in that vicinity, and then moved eastward to Namakan Narrows where they established camp with the Canadian party. They completed their work on Namakan Lake on June 30.

They then moved by water to Birchdale, Minn., and started work on the scheme of minor triangulation where it had been discontinued in 1913, extending it down Rainy River to Baudette, Minn., where they made a junction with the Canadian scheme of triangulation which had been brought up the river from Lake of the Woods.

By September 1 the triangulation work on Rainy River from Birchdale to Baudette was finished. The party then took up the setting of the monuments to reference the turning points of the boundary line from Baudette to International Falls. These monuments consisted of the usual type of bronze-post reference monuments shown on page 91.

The triangulation work done by this party in 1914 included the erection of three additional towers on Namakan Lake, the completion of the horizontal angle measurement of the general scheme of major triangulation on Rainy Lake and Namakan Lake, and the determination of an astronomic azimuth. The work on Rainy River included the completion of the reconnaissance of the scheme of minor



Native-timber tower at triangulation station "Brule," Rainy Lake, 1914

triangulation immediately adjacent to the boundary, the observing of this scheme, and the measurement of 12 short base lines. This minor triangulation was tied to the major scheme at five points.

The triangulation party closed their season at International Falls, Minn., on November 11, having completed all the triangulation work which had been assigned to the United States parties on the western part of this section of the boundary. The boats were sold at public auction and the instruments and other equipment were shipped to Washington, D. C.

While the foregoing triangulation work was being carried on, the small topographic party, to which the topographic survey of Rainy River had been assigned, had established their first camp May 21 on an island in Rainy River below the dam at International Falls, Minn., and had immediately begun work westward down the river. The weather was favorable for rapid progress, and on June 10 they moved to Isherwood, Ontario, 12 miles farther downstream. While at this camp their work was completed to the mouth of Little Fork River, and on July 1 camp was again moved to a point on the Canadian side of Rainy River, opposite the mouth of Big Fork River.

About the middle of August the topographic force on Rainy River was increased by the addition of a topographer and his assistants, who were transferred from the party on Rainy Lake. The work proceeded rapidly and was completed at Rapid River, Ontario, on October 21. The two topographers then went to Baudette, Minn., and from there proceeded to Washington, D. C.

Transportation for the several parties during the season of 1914 was by launches and flat-bottomed boats equipped with outboard motors. On Rainy Lake, use was also made of the transportation facilities furnished by two large commercial launches which made regular trips twice a week between Ranier and Kettle Falls. The parties on Rainy River used three small launches and several skiffs. In addition to the other boat equipment the parties were equipped with scows on which heavy loads could be transported when moving camp.

The personnel of the United States parties on Rainy Lake, Namakan Lake, and Rainy River for the season of 1914 was as follows: Surveyor in charge of the work, E. C. Barnard. Topographic and minor-triangulation party on Rainy Lake: Chief of party, James H. Van Wagenen; assistants, H. C. O. Clarke, R. K. Lynt, E. V. Perkinson, G. A. Perry; and 12 hands, including rodmen. Triangulation party on Rainy Lake, Namakan Lake, and Rainy River: Chief of party, Jesse Hill; and 5 hands. Topographic party on Rainy River: Chief of party, Lee Morrison; and 3 hands. The Canadian representative with the United States parties in 1914 was I. R. Pounder, D. L. S.

SEASON OF 1915—LITTLE VERMILION LAKE, LOON RIVER, LOON LAKE, LAC LACROIX, CROOKED LAKE, BASSWOOD RIVER, BASSWOOD LAKE, AND KNIFE LAKE

After the close of the season of 1914 the number of parties engaged on the boundary from Lake of the Woods to Lake Superior was reduced by the transfer of the larger United States organization to the Maine-Quebec highlands boundary, leaving one Canadian party and one United States party to carry on the work. In 1915 these two parties continued the survey of the portions of the boundary on which they had been engaged in 1914, working from opposite directions toward a junction point near Curtain Falls.

Canadian Party on Little Vermilion Lake, Loon River, Loon Lake, and Lac LaCroix

Early in May the Canadian chief of party, who had discontinued work in 1914 near the southern end of Sand Point Lake, sent a few men to Kettle Falls to make repairs to their camp outfit and boats. After they had attended to these preliminaries they moved the outfit to Little Vermilion Narrows and made the first camp of the season. By May 12 the entire party was assembled.

The work was similar in most respects to that of the previous season. The minor triangulation and the topographic mapping were continued from Sand Point Lake up the narrows, through Little Vermilion Lake, and into the valley of Loon River. Low water caused considerable trouble in the rapids in Little Vermilion Narrows; and in Loon River a dam had to be constructed to obtain a depth of water sufficient to float the launches of the party.

In the Loon River valley, which is narrow and heavily timbered, the minor triangulation was discontinued in favor of traverse, which was run along the river, crossing it several times. The traverse was continued around the "Big Bend" and up the river to a point where the valley becomes wide enough again for triangulation to be executed with economy. A base line was measured at this point. The minor triangulation on Lac LaCroix, starting from a line of the major triangulation, was then extended down Loon Lake and Loon River and was tied to the base at the end of the precise traverse.

Reference monuments were set along the portion of the boundary covered by this season's operations as far as Loon Lake and also at the sites whose positions had been determined by triangulation in 1914 along the boundary from Kettle Falls to Sand Point. The reference monuments were manganese-bronze posts set in solid rock or in concrete bases 12 inches square.

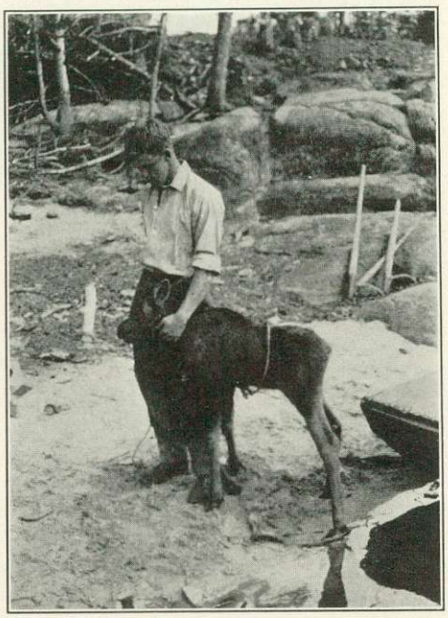
A topographic survey was made of Little Vermilion Lake, Loon River, Loon Lake, and part of Lac LaCroix. This work was done with plane table and stadia on a scale of 1 : 20,000, contour interval 10 feet. Elevations for vertical control of the topographic mapping were obtained from a line of levels carried eastward from a bench mark established on Namakan Lake by the United States party in 1913.

Spirit levels were run across the portages from one lake to the next, and the elevations were carried across the lakes by water levels by means of staff gages upon which simultaneous readings were made of the plane of the water surface at opposite ends of each lake.

Throughout the season the transportation of supplies, equipment, and men was handled principally by the launches and canoes of the party. The tramways of a fishing company were of assistance in moving the camp outfit around Loon Rapids and across the portage from Loon Lake to Lac LaCroix.

On July 23 the commissioners, Dr. W. F. King and Mr. E. C. Barnard, visited the main camp and inspected the work from Kettle Falls to Lac LaCroix.

By October 23 the major triangulation had been completed to stations "Village" and "Ely" east of the outlet of Lac LaCroix; the minor triangulation and topographic mapping had been completed as far as the island in Lac LaCroix on which reference monument 549 is located. Work on Lac LaCroix was then suspended, and the party started back toward Kettle Falls by way of the portage from Lac LaCroix into Loon Lake, attending to some unfinished surveying operations on the way. Arriving at Kettle Falls on October 30, the party hauled out the boats and launches, stored the camp equipment, and disbanded.



A guest of the Canadian party during part of the season of 1915

The personnel of the Canadian party for the season of 1915 was as follows: Chief of party, J. J. McArthur, D. L. S.; assistants, F. P. Steers, D. L. S., H. M. Barton, D. L. S., G. T. Prinsep, J. M. Sheppard, G. E. Wait, A. Wilkins, J. A. Snow, and J. M. Perrier; and 18 hands.

United States Party on Crooked Lake, Basswood River, Basswood Lake, and Knife Lake

The United States party assembled at Winton, Minn., where they had stored their outfit at the end of the season of 1914, and after overhauling and repairing the equipment and canoes they moved to Basswood River, where field work was begun on June 7.

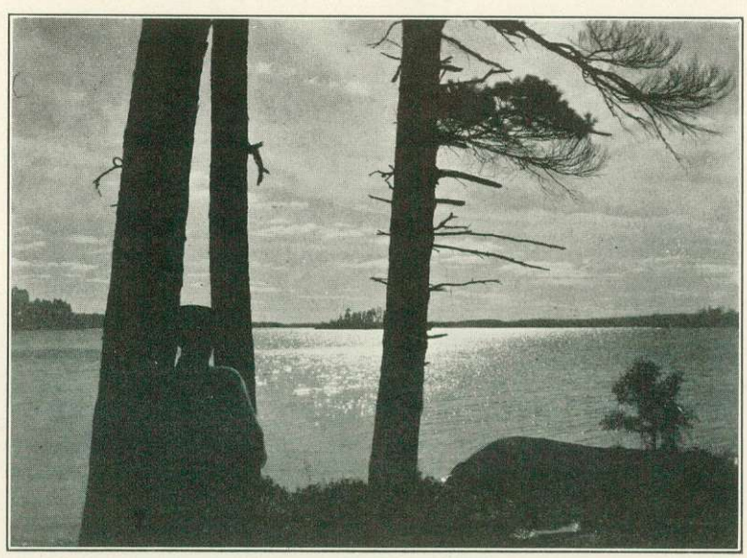
The major scheme of triangulation, which in 1914 had been extended from the eastern end of Basswood Lake to the middle of Crooked Lake, was continued to the western end of Crooked Lake to stations "Curtain" and "Falls," to which the triangulation on Lac LaCroix then being done by the Canadian party would be connected. The major scheme of triangulation was then extended to the eastward



Portaging equipment of United States party from Sucker Lake to Basswood Lake

from the line "Echo–Fang" near the eastern end of Basswood Lake and tied to the line "Dorothy–Saunders" of the first-order triangulation of the Geodetic Survey of Canada. Minor triangulation was extended along the narrow part of Basswood River from Basswood Falls to the falls at the head of Crooked Lake and also along the boundary through the narrow part of Basswood Lake. Near the end of the season some minor triangulation was also done to complete the control on Knife Lake.

The topographic surveys of the terrain along the boundary waterways of Basswood Lake, Basswood River, and Crooked Lake were completed during this season. The topography of the shores of the larger boundary waterways was mapped with plane table and stadia on a scale of 1:20,000, contour interval 10 feet. Curtain Falls and Basswood Falls and the other narrow waterways were mapped on a scale of 1:5,000, contour interval 5 feet. Vertical control for the topographic mapping was based on bench marks of the Duluth & Iron Range Railroad at Winton, Minn. Spirit levels were run in closed circuits from these bench marks to Fall Lake, thence to Basswood Lake, and also across all the portages between the boundary lakes as far westward as Lac LaCroix. The elevations were carried across the lakes by making simultaneous readings of the water surface on staff gages which were placed at opposite ends of each lake. Vertical control was also obtained by vertical-angle determination of the elevations of the triangulation stations of the scheme of control. Permanent bench marks were established on Basswood Lake, Basswood River, Crooked Lake, Iron Lake, and Lac LaCroix.



Stretch of boundary waters in Basswood Lake

The transportation of supplies from Winton, Minn., to the survey camps on Crooked Lake and Basswood Lake was carried on, as in the previous season, by the launches of a fishing company. The launches of the fishing company were also used in moving camp. Canoes propelled by outboard motors were used by the surveyors for transportation between camp and the localities of their work.

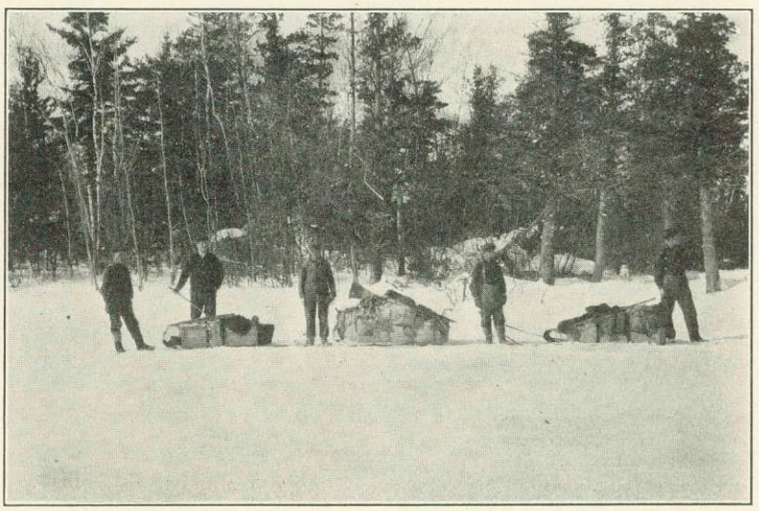
The topographic mapping and the triangulation were completed on October 30, and the spirit leveling was completed early in November. A cabin was then built on the shore of the southeastern arm of Basswood Lake to house a small party which would return to the field to measure a base line on the ice on Basswood Lake some time during the winter.

The party then stored the canoes at Hoist Portage on Basswood Lake, and their equipment at Winton, Minn., and disbanded.

The personnel of the United States party during the season of 1915 was as follows: Chief of party, W. B. Fairfield; assistants, E. R. Martin, J. J. Phelan, J. J. Charters, H. C. Corrigan, and W. C. Bastian; and 15 hands.

MEASUREMENT OF BASE LINE ON BASSWOOD LAKE

About January 1, 1916, the chief of the above party, which had been operating in 1915, returned to the field from Washington and measured a 3,788-meter base line on the ice, across the southeastern arm of Basswood Lake between stations "Had" and "Garb," which had been tied to both the major and minor schemes of triangulation the previous fall.



United States base-measuring party en route to camp on Basswood Lake, January, 1916

An early snowfall of unusual depth had prevented the formation of ice thick enough to support the weight of sleds and horses; for this reason it was necessary for the men to haul the base-measuring outfit and equipment on toboggans from Hoist Portage across the various waterways to the cabin which had been built the previous fall.

The line between stations "Garb" and "Had" was cleared of snow in order that the base measurement could be made with the tape supported throughout its length flat on the ice. Wetted boards were then placed at 50-meter intervals along the line and were allowed to freeze fast to the ice. The measurement of the base was then made by marking the tape lengths on copper strips attached to these boards. The line was measured three times with 50-meter invar tapes under a tension of 15 kilograms, at a mean temperature of 11° Fahrenheit.

The personnel of the base-measurement party on Basswood Lake, winter of 1915–16, was as follows: Chief of party, W. B. Fairfield; assistant, E. R. Martin; and six hands.

SEASON OF 1916—THE BOUNDARY FROM LAC LACROIX TO NORTH LAKE

In 1916 the Canadian party which had operated on Lac LaCroix the previous year continued their work eastward to the western end of Crooked Lake, where a junction was made with the work done by the United States party in 1915, thereby completing the continuity of the survey from Lake of the Woods to Lake Superior. A United States party in 1916 monumented the boundary from Curtain Falls at the western end of Crooked Lake eastward to Cypress Lake and did the contouring necessary to complete the topographic mapping of the terrain along the boundary waterways from Carp Lake eastward to North Lake.

Canadian Party on Lac LaCroix and Iron Lake

The Canadian party assembled at Kettle Falls late in May and went to the locality on Lac LaCroix where the work of the previous season had been discontinued; they established camp on the north end of Coleman Island.

A topographic survey was made of the eastern part of Lac LaCroix, Bottle River, and Iron Lake. The mapping of the islands and the strip of terrain along the shores of the mainland was done on a scale of 1:20,000, contour interval 10 feet. The survey of Bottle River, the narrow boundary waterway connecting Lac LaCroix with Iron Lake, was made on a scale of 1:5,000, contour interval 5 feet. The line of levels, which had been started the previous season at a bench mark on Namakan Lake, was carried across Lac LaCroix by water levels, and the line was closed on a bench mark which had been established by the United States party in 1915 on an island near the western end of Bottle Portage.

The major and minor schemes of triangulation were carried eastward along Lac LaCroix and Iron Lake to Curtain Falls at the western end of Crooked Lake. Here the major scheme was tied to the major triangulation done by the United States party in 1915 at stations "Curtain" and "Falls," and the minor schemes were connected at reference monuments 656 and 657.

Boundary reference monuments, Nos. 482 to 655, of the type shown on page 91 were set to reference the boundary from Lac LaCroix to Curtain Falls.

With the close of the season's operations, late in September, the principal part of the work assigned to the Canadian party on the boundary from Lake of the Woods to Lake Superior was completed. The party, therefore, upon their return to Kettle Falls, disposed of much of the camp outfit and all of their boat equipment except two launches, which were reserved for future inspection work.

The personnel of the Canadian party in 1916 was as follows: Chief of party, J. J. McArthur, D. L. S.; assistants, G. T. Prinsep, J. M. Sheppard, J. Q. Coughlan, J. A. Snow, G. O. Rochester, and J. M. Perrier; and nine hands.

United States Party, Crooked Lake to North Lake

A large United States party, equipped to do monumenting and topographic mapping, assembled at Winton, Minn., on May 22 and shortly thereafter moved to the vicinity of the international boundary at Hoist Portage on Basswood Lake. Two independent parties were then organized—a topographic party, which began work eastward from Carp Lake, making a more complete topographic survey * of the terrain along the shores of the boundary waterways, and a monumenting party, which started eastward from Curtain Falls on the work of setting the boundary reference monuments.

The topographic party, consisting of four plane-table men with their assistants and several hands, established their first camp at Prairie Portage at the eastern end of Basswood Lake. As the season progressed they occupied camps successively on



United States party loading camp outfit, Winton, Minn., at beginning of season of 1916

Knife Lake, Cypress Lake, Saganaga Lake, Pine Portage and finally at Little Gunflint Lake, completing the topographic mapping as far as Height-of-Land Portage between North Lake and South Lake.

The topographic mapping was done with plane table, telescopic alidade, and stadia supplemented in the more densely wooded areas by paraffined string tapes and aneroid barometers. In general the mapping was done on a field scale of 1:20,000, contour interval 10 feet. The mapping of Swamp Portage and most of the narrow boundary channels was done on a scale of 1:5,000, contour interval 5 feet. The outlet of Swamp Lake was mapped on a scale of 1:2,500, contour interval 5 feet. For the vertical control of the topographic mapping, spirit levels were run in closed circuits from one lake to the next, and the elevations were carried across the lakes by making simultaneous readings of the water surface on staff gages placed at opposite ends of each lake.

*This additional topographic work consisted of adding contours to the shore-line maps which had been made previous to 1913, when the commissioners decided that all the boundary maps should include, in addition to the shore line, a contoured strip of terrain along the boundary waterways. See p. 29.



United States party at Swamp Portage, returning to Winton, Minn., at close of season, 1916

The monumenting party established their first camp on Basswood River near Crooked Lake. After setting reference monuments in this vicinity they then camped on Crooked Lake about 6 miles east of Curtain Falls, and after completing the monumenting as far west as that point they returned to Basswood Lake and camped at Prairie Portage. Thence they progressed eastward, camping on Knife Lake and later on Cypress Lake and completing the monumenting that season as far as Cypress Lake.

From Curtain Falls to the western end of Cypress Lake 258 standard 8-inch manganese-bronze posts of the type shown on page 91 were set in ledge rock on the shores of the boundary waterways to reference the turning points of the boundary line. The reference monuments were set generally at points which had already been determined by triangulation; a few, however, were placed at points whose positions had to be determined from the nearest triangulation stations at the time the monuments were set. On Swamp Portage three large aluminum-bronze monuments of



United States party moving camp, Basswood Lake, 1916

the types shown on page 90 were erected to mark the land portion of the line from Cypress Lake to Swamp Lake. This part of the line was also marked by a 20-foot vista cleared through the forest growth between the two lakes.

An inspection of this portion of the boundary line was made in September by the United States commissioner, Mr. E. C. Barnard.

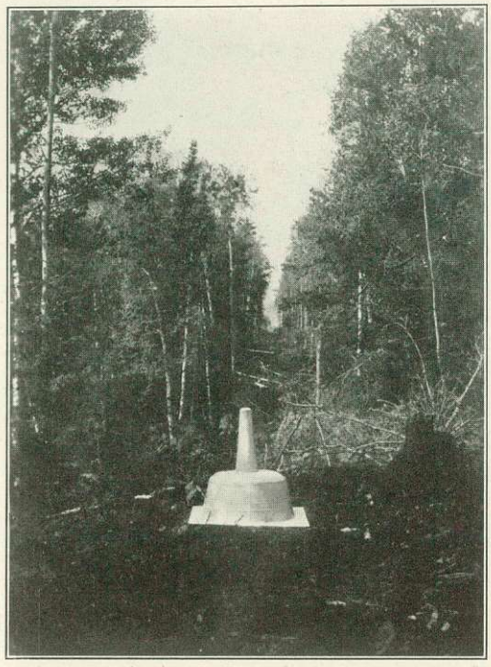
The field work of both parties was discontinued about the middle of October. The topographic outfit was stored for the winter at the eastern end of Gunflint Lake, and the party left the field by way of North Lake railroad station. The monumenting party, which had not progressed so far eastward, departed by way of Winton, Minn.

The personnel of the United States party in 1916 was as follows: Chief of party, J. J. Phelan; assistants, R. K. Lynt, E. R. Martin, J. J. Charters, D. W. Eaton, W. C. Bastian, and G. C. Phillips; and 24 hands.

SEASON OF 1917—CONTROL TRIANGULATION AND REPAIR OF MONUMENTS, LAKE OF THE WOODS AND RAINY RIVER; TRIANGULATION, MONUMENTING, AND MAPPING, CYPRESS LAKE TO LAKE SUPERIOR

By the end of the season of 1916 the original program of the commissioners for the surveying and mapping of the boundary from the Northwesternmost Point of Lake of the Woods to Lake Superior had been completed by the several surveying parties of the two sections of the commission. Before the original program was completed, however, it had become apparent, as the reader has observed, that certain other field work not originally planned was necessary before the commissioners could lay down the final boundary on the official maps and, by the determination of the geodetic coordinates of the turning points of the line, accurately describe its course. Part of this work could be done satisfactorily only after the mapping of the outlines of the boundary waterways had been completed; other steps toward the final completion of the demarcation of the line depended upon first-order control surveys which were not available during the earlier years of the work.

The surveys made in 1917 and subsequent years were therefore directed to this work of completion. They included the following: Completing the mapping of the contours along the boundary waterways in accordance with the commissioners' decision, made in 1913, that all the boundary maps should be completely contoured; setting the remaining reference monuments on certain parts of the line where the selection of the monument sites had been deferred until the topographic surveys were completed and the commissioners had determined the location of the boundary turning points; rechecking in the field the location of the turning points in the more narrow waterways to make certain that each course of the boundary line had been laid down in its proper place; and tying the boundary triangulation to the arc of first-order geodetic control, along the boundary from Lake Superior to Lake of the Woods, which was completed in 1924 by the United States Coast and Geodetic Survey and the Geodetic Survey of Canada as a part of the major network of first-order geodetic control of the two countries.



Boundary monument No. 8; Watap Portage, between Watap Lake and Mountain Lake

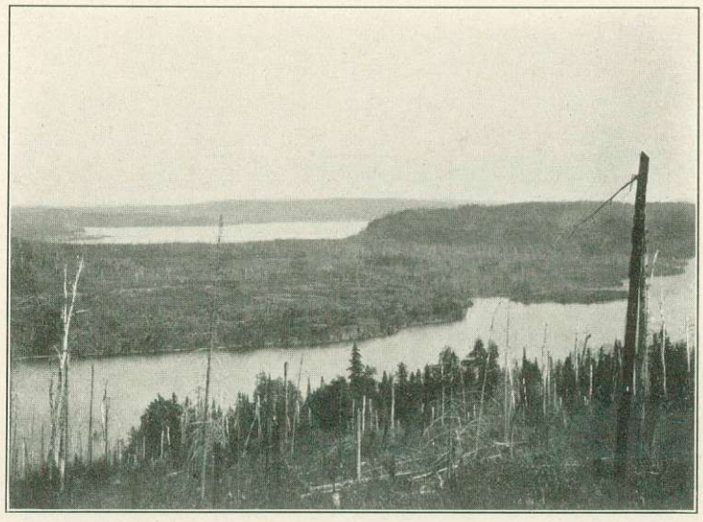
Engaged upon these miscellaneous surveys in 1917 were two United States parties and one Canadian party. One of the United States parties, continuing operations of the previous season, mapped the contours, necessary to complete the boundary maps from North Lake to Lake Superior, and set boundary reference monuments along the line from Cypress Lake to South Fowl Lake. The other United States party did some first-order triangulation on Lake of the Woods and during the latter part of the season tied part of the boundary triangulation—that from Gunflint Lake to Mountain Lake—to the first-order triangulation done in this region by the Geodetic Survey of Canada. A small Canadian party inspected and repaired monuments on Lake of the Woods and Rainy River. These parties in 1917 completed approximately one-half of the additional work that had been deemed necessary for the final demarcation of the line.

United States Topographic and Monumenting Party, Cypress Lake to Lake Superior

The topographic and monumenting party, as in the previous season, was organized in two independent sections—one to do the topographic mapping, the other to set the reference monuments. The work of both sections of the party was a continuation of similar activities begun by them in 1916.

The topographic section of the party assembled at North Lake, Ontario, about May 25 and moved to Rose Lake, where they established camp. The mapping of the contours was resumed at North Lake, where it had been discontinued in 1916, and was carried eastward to Lake Superior, thus completing all the additional topographic work necessary for the preparation of the boundary maps.

The monumenting section of the party established camp late in May near Swamp Por-



Height-of-Land Portage, between North Lake and South Lake; crest of watershed between Lake of the Woods and Lake Superior

tage and continued the setting of the reference monuments from Cypress Lake eastward to South Fowl Lake.

The field work was similar in all respects to that of the previous season. The topography of the lakes was mapped on a 1: 20,000 scale with a contour interval of 10 feet; and the portages, Pigeon River, and other narrow boundary streams were mapped on a 1: 5,000 scale with a contour interval of 5 feet.

A continuous line of levels was carried along the boundary, by spirit levels across the portages and by simultaneous readings of water gages on the lakes. The spirit levels which were run along Pigeon River were finally closed on the water surface of Lake Superior, the elevation of which was obtained from data furnished by the United States Army Engineers and the Hydrographic Survey of Canada.

Standard 8-inch manganese-bronze posts were set as reference monuments, some at points that had been determined by triangulation in previous field seasons and some at new locations. The new points were tied to the old triangulation. Conical aluminum-bronze monuments with rounded tops, standing about 3 feet above the surface of the ground, were set in concrete bases to mark the land boundary on Height-of-Land and Watap Portages. The relative positions of the three monuments on each of the land boundaries were determined by tape traverses which were tied to the triangulation. Along the boundary line on Height-of-Land



Photograph taken by Royal Canadian Air Force

Looking northward on Maraboeuf Lake; part of Saganaga Lake in the background

and Watap Portages a vista having a 20-foot sky line was opened through the trees and brush.

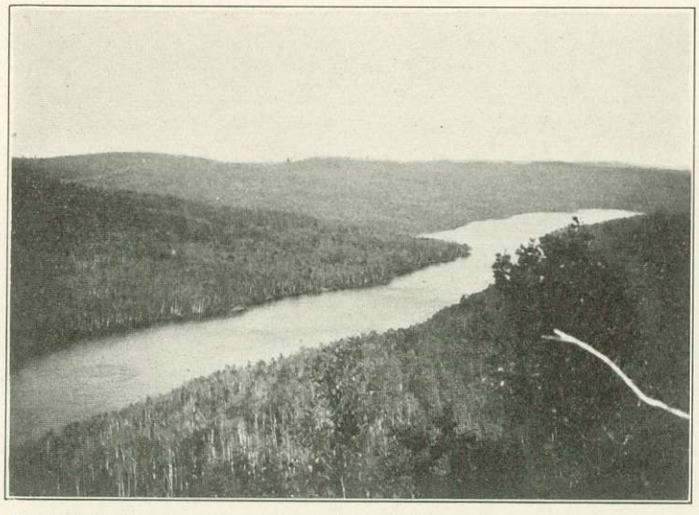
The work was inspected by the United States commissioner, Mr. E. C. Barnard, on July 19 and 20.

By the last week in October the monumenting was completed as far as the north end of South Fowl Lake, and, as the weather was unfavorable, this work was discontinued and the equipment of the monumenting party was stored at one of the camps of the Pigeon River Lumber Co. The topographic mapping, however, being almost completed, was continued until Lake Superior was reached. On November 8 the outfit of the topographic party was stored at Grand Portage, Minn., on Lake Superior, and the party disbanded.

The personnel of the United States topographic and monumenting party in 1917 was as follows: Chief of party, J. J. Phelan; assistants, R. K. Lynt, E. R. Martin, J. J. Charters, C. E. Carl, G. C. Phillips, P. W. Huddleston, C. L. Dunklee, and P. H. Dunklee; and 31 hands.

United States Triangulation Party on Lake of the Woods and on the Boundary from Gunflint Lake to Mountain Lake

The United States triangulation party assembled at Warroad, Minn., during the first week in May and began work on a scheme of first-order triangulation on Lake of the Woods. Starting at the Warroad base line near the western shore of the lake, the work was carried eastward across the lake and terminated at the mouth of Rainy River.



Watap Lake, looking northeastward from triangulation station "Best"

About May 15, immediately after the ice on Lake of the Woods had broken up, the 40-foot launch *I. B. S.*, owned by the Canadian section of the commission, was sent from Fort Frances, Ontario, to Warroad with a crew of three men, to take part in the work. With this launch and a small barge, lumber was distributed to eight triangulation stations, at which towers were built of an average height of 50 feet. The observing of the triangulation was done with a 12-inch direction theodolite, the pointings being made either on signal lights at night or on heliotropes. The triangulation was connected to the line "Mass–Target" of the triangulation done by the Canadian party in 1912 on the northern part of Lake of the Woods and to the line "Ben–Reference monument 55" of the triangulation done by the Canadian party in 1913 on Rainy River.

The work was inspected in June by the Canadian commissioner, Mr. J. J. McArthur, D. L. S.

The work on Lake of the Woods was completed on August 14. The party then moved by rail to North Lake, Ontario, and began work on triangulation to tie the boundary scheme of triangulation to the first-order control that had been begun westward from Lake Superior in 1911 by the Geodetic Survey of Canada.

This work was begun at the western end of Gunflint Lake and was carried eastward along the boundary to Mountain Lake. During its progress four connections were made to the boundary triangulation—one at the west end of Gunflint Lake, one on South Lake, one on Rose Lake, and one on Watap Lake.

The horizontal angles were measured with the accuracy required for third-order triangulation. Each angle was measured with a 6¼-inch Berger theodolite by the method of repetitions, six repetitions with telescope in direct position and six repetitions with telescope reversed.

For transportation on the lakes, one small canoe and two Peterborough canoes propelled by gasoline motors were used. When camp was moved, considerable back-packing had to be done over the portages from one lake to the next.

By the last week in September the work had progressed as far as Mountain Lake and the party was camped on Lily Lakes Portage. A long period of rain, snow, and weather unfavorable for observing then set in and for the next two weeks the party did only reconnaissance and signal building. On October 8 the party moved to the portage between Moose Lake and North Fowl Lake, the last camp of the season. On October 21 a sudden cold snap covered the shallow lakes with ice an inch thick and closed navigation by canoe on the North and South Fowl Lakes. The party was thus cut off from the Pigeon River wagon road and from their base of supplies. They were also prevented from transporting their outfit to the intended winter storage quarters at Grand Portage, Minn. Accordingly, they left the canoes, engines, tools, and cooking outfit at a cache built in the woods near their last camp and back-packed the instruments, tents, and bedding 18 miles by the tote road to the Canadian Northern Railway at Whitefish Lake, from which point they took the train to Port Arthur, Ontario. There they stored the outfit and on November 1 the party disbanded.

The personnel of the United States triangulation party for 1917 was as follows: Chief of party, Jesse Hill; assistants, J. J. Bachtel and J. E. Bump; and 10 hands.

Canadian Party on Lake of the Woods and Rainy River

The only work done by the Canadian section of the commission on this section of the boundary in 1917 was the inspection and repair of some of the boundary reference monuments which had been set by the Canadian party on Lake of the Woods and on Rainy River in 1912 and 1913, and the making of some additional topographic surveys along Rainy River from Baudette, Minn., to Lake of the Woods.

A small party, which was detached from a larger Canadian party operating elsewhere on the international boundary line that season, went to Lake of the Woods and during the period from June 5 to June 21 inspected the monuments from

Baudette northward to Northwest Angle Inlet. It was found that some of the monuments had been washed out by the unusually high water of the previous spring* and others required repairs. One of the monuments, reference monument 22, which was found to be a menace to navigation at high water, was blown out. No other monument was erected in its stead, as the boundary was considered to be sufficiently well referenced without it.

The work of resetting the damaged monuments and locating them in their new positions and making the additional topographic surveys was done later by the party during the month of September. The monuments which had been washed out or undermined by high water were reset at new and more protected sites, and their new geographic positions were determined by tying them in to the nearest boundary triangulation stations. Others which had been heaved by the frost or otherwise damaged were reset in more substantial concrete bases. The topographic surveys consisted of some minor mapping necessary to complete the surveys previously made along Rainy River, such as traversing roads, locating new houses, and determining the elevations of the newly located reference monuments.

The personnel of the Canadian party in 1917 was as follows: Chief of party, J. J. McArthur, D. L. S.; assistants, James Bowie and S. G. Lindsay; and two hands.

SEASON OF 1918—INSPECTION OF MONUMENTS, LAKE OF THE WOODS, RAINY RIVER, NAMAKAN LAKE, SAND POINT LAKE, AND LOON RIVER; CONTROL TRIANGULATION AND MONUMENTING, MOUNTAIN LAKE, MOOSE, NORTH FOWL, AND SOUTH FOWL LAKES, AND PIGEON RIVER

In 1918 a United States party completed the monumenting of the boundary line from the northern end of South Fowl Lake to the mouth of Pigeon River and made the surveys necessary to tie the boundary triangulation and traverse from Mountain Lake to Lake Superior to the first-order triangulation of the Geodetic Survey of Canada that had been done in the years 1911 to 1916 as part of the general scheme of first-order geodetic control. A small Canadian party inspected the boundary reference monuments which had been set by the Canadian parties on Lake of the Woods in 1912 and 1913 and on Namakan Lake and the adjacent boundary waterways in 1915.

United States Party, Mountain Lake to Lake Superior

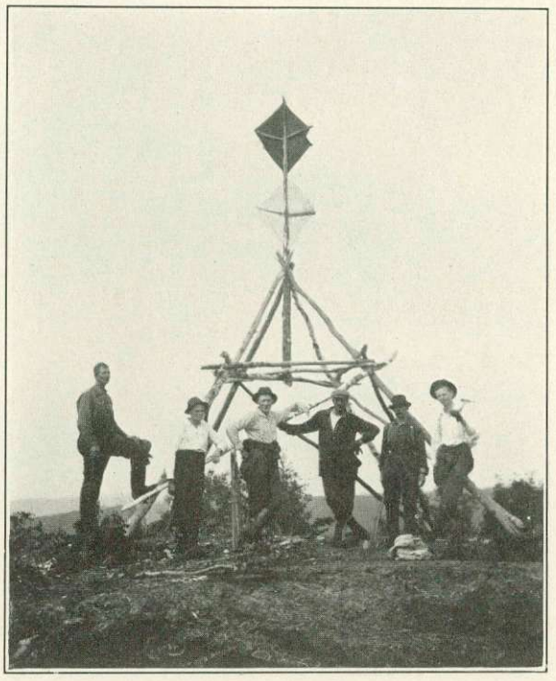
The United States party went to the field early in June, and after overhauling the outfit, which had been stored at the close of work in 1917, part at Port Arthur, Ontario, and part at Grand Portage, Minn., established camp at the mouth of Pigeon River.

Work was immediately begun on major triangulation for the control of the stadia traverse along Pigeon River and of the minor triangulation done in 1910 along South Fowl Lake, North Fowl, Moose, and Mountain Lakes. This control triangulation was based on four of the stations of the first-order triangulation of the Geodetic

* See account of flood of 1916, Report of consulting engineers to International Joint Commission, on Lake of the Woods Levels, 1917, pp. 233 to 235.

Survey of Canada. The major triangulation done in 1918 was tied to seven stations of the Pigeon River traverse and to stations of the boundary triangulation on South Fowl Lake, Moose Lake, and Mountain Lake.

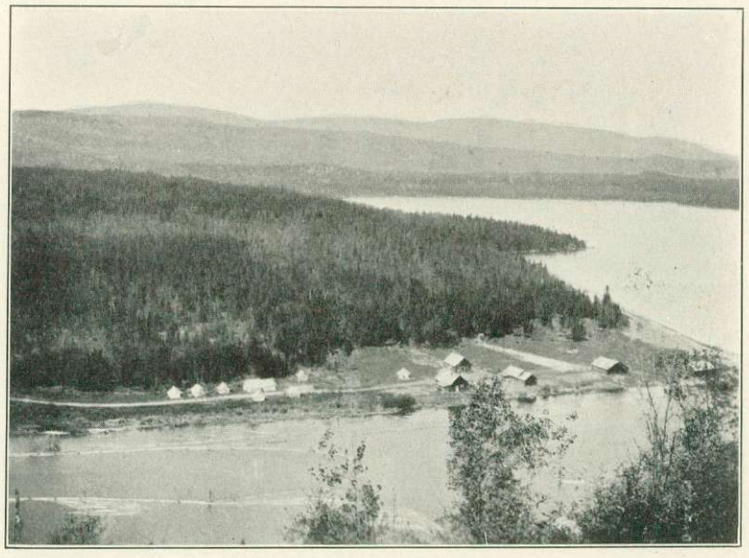
Bronze-post monuments of the type shown on page 91 were set along the shores of Pigeon River and South Fowl Lake to reference the turning points of the boundary line. They were set generally in holes drilled in ledge rock, but at sites at which no ledge rock was found they were set in concrete bases 12 inches square resting on a solid foundation below the frost line.



United States triangulation party at station "Best," 1917

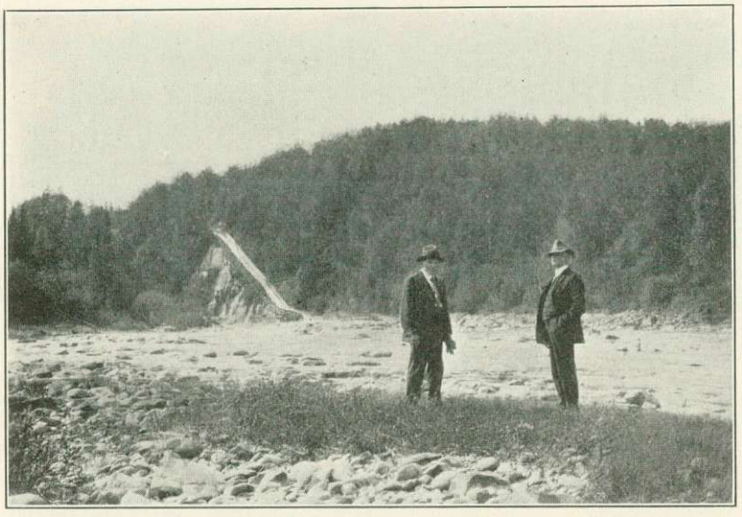
To preclude any possible difficulty in tracing the actual course of the boundary line between some of the islands in Pigeon River, bronze disks of the type shown on page 92 were set on nine of the largest islands in the river below High Falls to indicate, by a system of lettering, the nationality of each of these islands. The islands on which were set the disks stamped B, C, F, G, and I are in Canada; and those bearing the disks stamped A, D, E, and H are in the United States. The geographic positions of these disks were determined by triangulation in the same way as were the boundary reference monuments.

In June of 1918 a joint inspection was made of this section of the boundary line by the United States commissioner, Mr. E. C. Barnard, and the Canadian commissioner, Mr. J. J. McArthur, D. L. S.



Camp of United States party at Pigeon River Lumber Co.'s camp, mouth of Pigeon River, 1918

The work was finished early in September. As most of the field work on the boundary from Lake of the Woods to Lake Superior was now completed, except for some minor surveys and the inspection and repair of monuments, the canoes were sold, and the tents and instruments were shipped east for use on the surveys of the boundary along the St. Croix River and Passamaquoddy Bay.



United States Boundary Commissioner E. C. Barnard (left) and Canadian Boundary Commissioner J. J. McArthur inspecting boundary work on Pigeon River, 1918

Before leaving the field the chief of party made an inspection of the boundary reference monuments set in 1914 along Rainy River from Ranier, Minn., to Baudette, Minn. Three monuments which had been destroyed were reset on more protected sites, and their geographic positions were determined by tying them to stations of the boundary triangulation.

The personnel of the United States party for 1918 was as follows: Chief of party, Jesse Hill; assistants, E. R. Martin, R. K. Lynt, J. E. Bump, and S. G. Lindsay; and 11 hands.

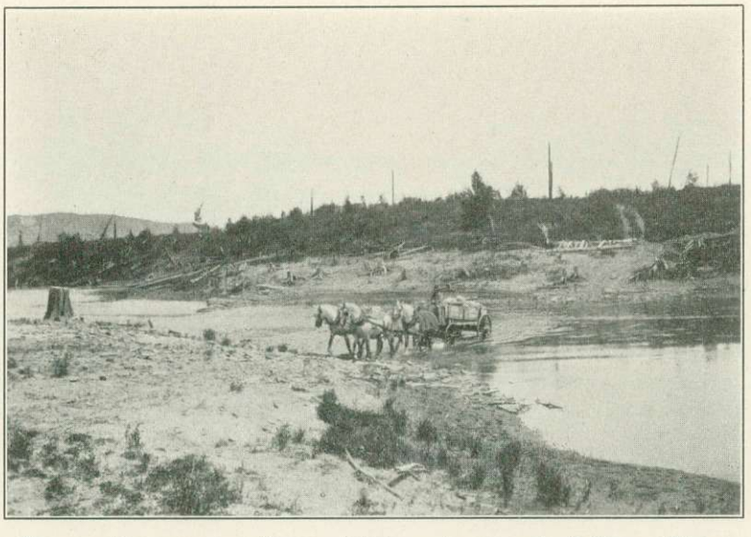
Canadian Inspection Party on Lake of the Woods, Rainy River, Namakan Lake, Sand Point Lake, and Loon River

In June a small Canadian party again went to Lake of the Woods and inspected and repaired a number of the reference monuments. They also checked the location of the boundary line in the vicinity of Brush Island to make sure that it had been properly located close to the shore of the island, as shown on the original boundary maps.

Next, the monuments on Namakan Lake, Sand Point Lake, and Loon River, which had been set by the Canadian party in 1915, were inspected and numbered.

Early in September the monuments on Rainy River north of Baudette, Minn., were inspected to find out whether any damage had been done to them during the previous year by high water. The monuments were found in good condition.

The personnel of the Canadian party in 1918 was as follows: Chief of party, J. J. McArthur, D. L. S.; assistant, S. G. Lindsay; and one hand.

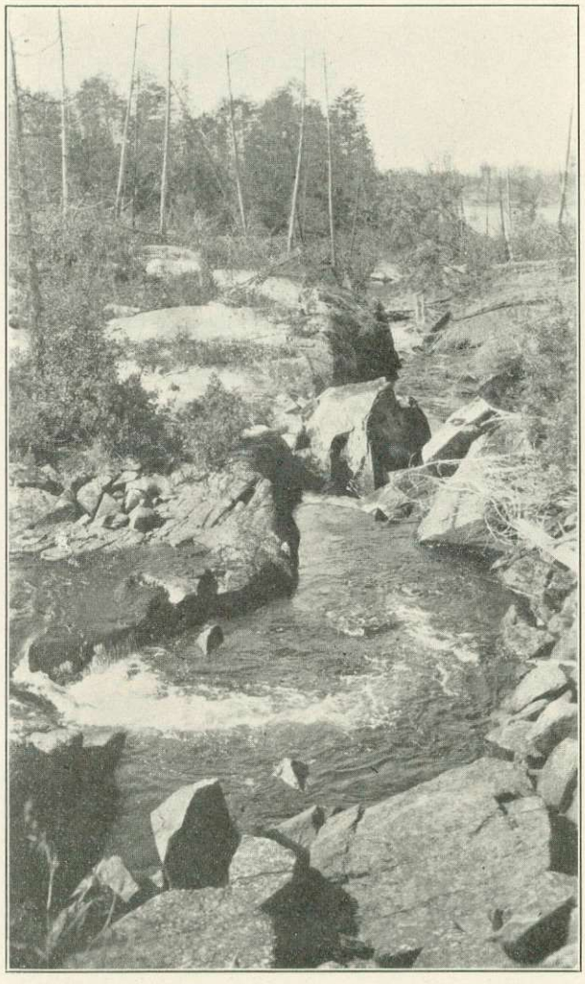


Transporting monumenting materials on lower part of Pigeon River, 1918

COMPLETION OF FIELD OPERATIONS—MISCELLANEOUS SURVEYS MADE IN 1921, 1922, 1925, AND 1926

The field work done after 1918 consisted only of some minor surveys and monumenting necessary for the final completion of the demarcation and definition of the boundary line as set forth and certified in the commissioners' final report.

After the topographic maps had been completed and the commissioners had laid down the course of the boundary line thereon and had given each turning point a definite geographic position, it was necessary to determine in the field the precise location of the boundary turning points in the very narrow waterways in order to make certain that each course of the boundary fell in its proper place. Also, after the first-order geodetic control had been established through that region jointly by the Geodetic Survey of Canada and the United States Coast and Geodetic Survey in 1924, it was necessary to tie the boundary triangulation to this control in order that the geographic positions of the boundary reference monuments and of the turning points of the boundary line could be computed and set forth in the commissioners' report in terms of the North American datum of 1927, a geodetic datum common to both countries. Furthermore, during the period since the original monumenting was done on Rainy River and in Northwest Angle Inlet, unusually high water had not only destroyed some of the monuments but also had changed the contour of the shore line at places, making it necessary to reset or repair certain of the monuments and do some additional surveying.



A narrow place in Pine River, where the boundary waterway is only a few feet wide

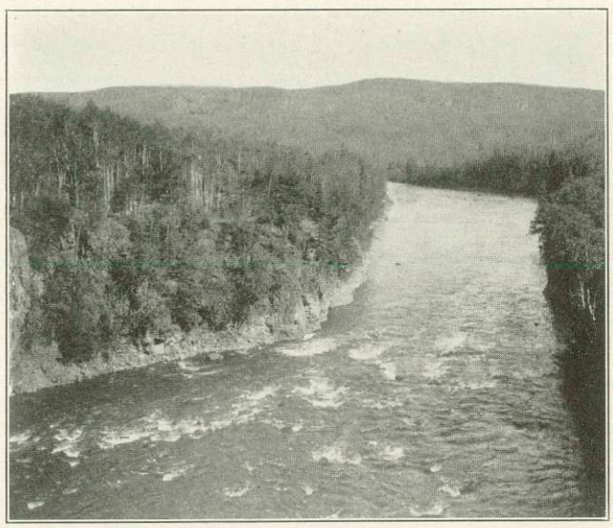
In 1921 a small United States party inspected the monuments along Rainy River between Baudette and Birchdale, Minn., and repaired or rebuilt those that had been damaged or destroyed by high water. After the completion of this work on June 8 the party moved to Port Arthur, Ontario, where a party, made up of members of both sections of the commission, was organized for the purpose of making a careful field location of the boundary line through the narrow waterways in the region between Namakan Lake and the head of Pigeon River.

On June 15 this joint party moved by rail to North Lake, where they made their first camp and began running out the boundary line, working eastward. Each

boundary turning point in the narrow waterways was located by determining its direction and distance from the nearest boundary reference monument or from the nearest station of a traverse run for this purpose from one boundary reference monument to the next.

On July 2 the work was finished as far as South Fowl Lake, and the party then returned to North Lake. The boundary location was continued westward from North Lake to Squirrel Narrows in Namakan Lake, thereby completing the work of this character in that vicinity. The party then moved to Ranier, Minn., where on September 18 they disbanded.

In 1922 a Canadian party made a field location of the boundary in Northwest Angle Inlet, inspected the monuments in that vicinity and on Rainy River below Baudette, Minn., and repaired or reset and relocated those that had been damaged or were in danger of being destroyed by high water.



Looking down Pigeon River from Scott Highway bridge

The work was inspected in June by the Canadian commissioner, Mr. J. J. McArthur, D. L. S., and by Mr. James H. Van Wagenen, engineer to the United States section of the commission.

As a result of cooperative arrangements between the International Boundary Commission and the United States Coast and Geodetic Survey and the Geodetic Survey of Canada, as referred to elsewhere herein, the arc of first-order triangulation and traverse to be done jointly by these two governmental agencies from Lake Superior westward along the boundary to Lake of the Woods and thence along the forty-ninth parallel to Red River was completed in 1924. This made available along this section of the international boundary line the first-order control which was to become a part of the continental arc of first-order triangulation necessary for the establishment of the new geodetic datum later to be known as the North American datum of 1927. As the commissioners had decided to describe and certify the course of the boundary line in terms of the geographic positions of all the boundary turning points and to publish in their report the geographic positions of all triangulation stations and monuments as coordinates of this new datum, a joint party was sent to the field in 1925 to properly tie this first-order control to the boundary triangulation.

The party, which consisted of an engineer from each section of the commission and several hands, went to the field on June 5 and did the triangulation and traverse necessary to make connections between the boundary triangulation and the first-order control traverse along Rainy River, Rainy Lake, and Namakan Lake. Eastward of Namakan Lake adequate ties had already been made between the

boundary triangulation and the first-order control, so that as soon as the party reached the eastern end of Namakan Lake their work was completed. The party disbanded at International Falls, Minn., on July 3.

A small United States party in 1926 made a final inspection of the boundary reference monuments from International Falls, Minn., to Loman, Minn., where trouble had heretofore been occasioned by high water. During the course of this work the party also measured with invar tape several lines of the minor triangulation along the river to strengthen the scheme of long, narrow quadrilaterals, which necessarily had to be used for the minor control of this part of the boundary.

The work on Rainy River was inspected in June by Mr. J. A. Pounder, D. L. S., engineer to the Canadian section of the commission.

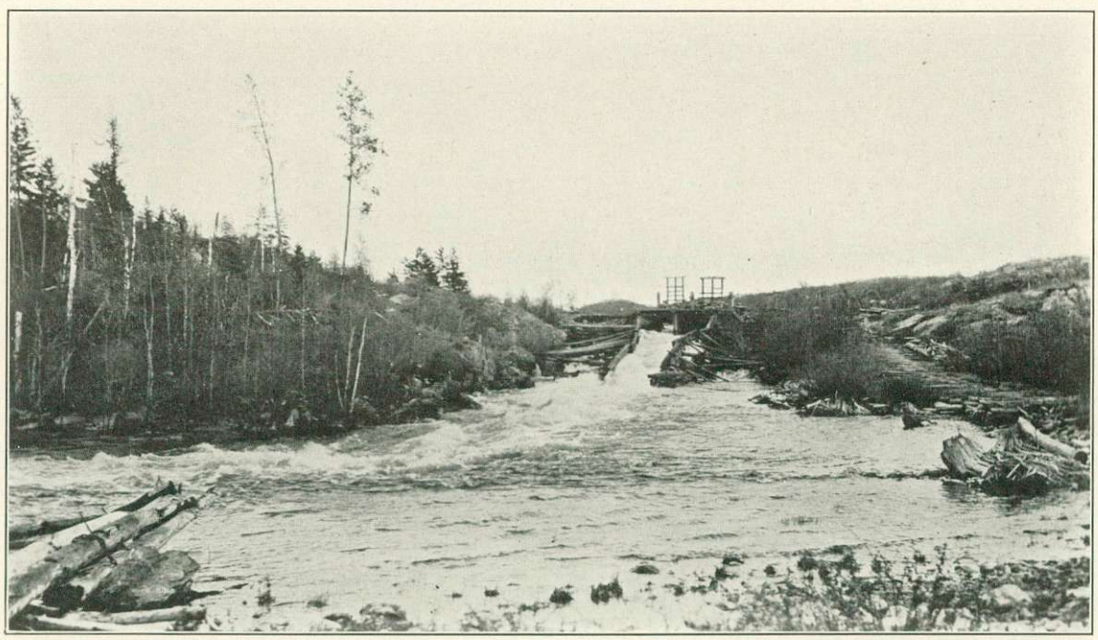
The personnel of the several small field parties from 1921 to 1926 was as follows:

For His Britannic Majesty: Chief of party, G. T. Prinsep, D. L. S.; assistant, T. P. Reilly; and two hands.

For the United States: Chief of party, Jesse Hill; assistant, J. J. Bachtel; and two hands.

A recapitulation of the foregoing work of the surveyors of the International Boundary Commission engaged on the demarcation of the boundary from Lake of the Woods to Lake Superior, shows: That 1,382 monuments were set to mark the 426 miles of boundary line; that approximately 5,100 geodetic positions were determined by triangulation or traverse; and that 1,740 square miles of terrain along the boundary were topographically surveyed for the 36 joint boundary maps.

The results of this work by the boundary commission, aside from their necessary value in carrying out the provisions of Article V of the treaty of 1908, have proved to be of great value to other governmental agencies of the two countries.



The short boundary stream flowing from Sucker Lake to Basswood Lake

The results of the surveys—the maps and control data—have been furnished to the Dominion Water Power and Reclamation Service of the Department of the Interior of Canada and to the Corps of Engineers, United States Army, and incorporated in comprehensive surveys that were made by those organizations for the International Joint Commission. Data have also been furnished to the Corps of Engineers for the control of their hydrographic survey of Lake of the Woods. The maps and geodetic data of the International Boundary Commission have been furnished from time to time to many local surveyors and engineers.

During the period in which the surveys of the boundary from Lake of the Woods to Lake Superior were being made, similar operations were being carried on by field parties of the boundary commission on the other sections of the boundary—in Passamaquoddy Bay and the St. Croix River; from the source of the St. Croix River to the St. Lawrence River; along the forty-ninth parallel; through Georgia, Haro, and Juan de Fuca Straits; and on the boundary between Alaska and Canada. The personnel of the commission available from year to year for work on the boundary from Lake of the Woods to Lake Superior was therefore limited, being dependent upon the necessity for survey work on the other sections of the boundary line.

The size of the field parties and the localities in which they operated are shown in the following chronological summary.

SUMMARY OF PERSONNEL ENGAGED ON THE FIELD WORK, 1908–1926

Year	Location of work	Section of commission	Personnel engaged	Work in charge of—	Chiefs of parties and assistants engaged on—				
					Triangulation	Leveling	Topography	Monumenting	Inspection
1908	Pigeon River	United States	5	W. B. Fairfield	W. B. Fairfield				
		Canada							J. J. McArthur, D. L. S. (1918)
1909	Pigeon River	United States	10	W. B. Fairfield	W. B. Fairfield		Rudolph Luscher		
		Canada							J. J. McArthur, D. L. S. (1918)
1910	South Fowl Lake, North Fowl, Moose, Lily, Mountain, Watap, and Rose Lakes.	United States	10	W. B. Fairfield	W. B. Fairfield		Kai Hendriksen		
		Canada							G. T. Prinsep, D. L. S. (1921)
1911	Rose Lake, Rat, South, North, Gunflint, Magnetic, Pine, and Round Lakes.	United States	14	W. B. Fairfield	W. B. Fairfield J. J. Phelan		J. J. Phelan		
		Canada							G. T. Prinsep, D. L. S. (1921)
1912	Round Lake, Maraboeuf, Saganaga, Swamp, Cypress, and Knife Lakes.	United States	17	W. B. Fairfield	W. B. Fairfield J. J. Phelan		J. J. Phelan		
		Canada							G. T. Prinsep, D. L. S. (1921)
	Lake of the Woods	United States	3			F. D. Granger	F. D. Granger		F. D. Granger (1912) James H. Van Wagenen (1922)
		Canada	16	J. J. McArthur, D. L. S.	F. P. Steers H. P. Moulton		H. M. Barton H. P. Moulton J. M. Perrier A. Albrecht	J. M. Perrier	
	Lake of the Woods	United States	25	E. C. Barnard	James H. Van Wagenen	F. C. Warner W. V. Hagar	James H. Van Wagenen H. C. O. Clarke E. V. Perkinson R. K. Lynt	R. W. McGuire	
		Canada	2		J. L. Rannie, D. L. S.				J. L. Rannie, D. L. S. (1912) J. J. McArthur, D. L. S. (1917, 1918)
1913	Lake of the Woods, Rainy River, Rainy Lake, and Namakan Lake	United States	42	E. C. Barnard C. H. Sinclair	James H. Van Wagenen Jesse Hill E. R. Martin F. C. Warner R. P. Strough F. S. Ryus G. A. Perry	H. C. O. Clarke R. K. Lynt F. C. Warner	James H. Van Wagenen H. C. O. Clarke R. K. Lynt E. V. Perkinson F. S. Ryus	E. R. Martin	
		Canada	2		I. R. Pounder, D. L. S.				I. R. Pounder, D. L. S. (1913) J. J. McArthur, D. L. S. (1917, 1918)

SUMMARY OF PERSONNEL ENGAGED ON THE FIELD WORK, 1908–1926—Continued

Year	Location of work	Section of commission	Personnel engaged	Work in charge of—	Chiefs of parties and assistants engaged on—				
					Triangulation	Leveling	Topography	Monumenting	Inspection
1913	Lake of the Woods and Rainy River	United States	3			F. D. Granger	F. D. Granger		F. D. Granger (1913) James H. Van Wagenen (1922)
		Canada	20	J. J. McArthur, D.L.S.	F. P. Steers, D. L. S. H. M. Barton, D. L. S. H. P. Moulton, D.L.S.	G. B. Herridge	H. M. Barton, D. L. S. H. P. Moulton, D. L. S. G. B. Herridge J. M. Perrier	H. M. Barton, D. L. S. J. M. Perrier	
	Carp Lake, Birch, Sucker, and Basswood Lakes	United States	17	W. B. Fairfield	W. B. Fairfield J. J. Phelan		J. J. Phelan		
		Canada							G. T. Prinsep, D. L. S. (1921)
1914	Rainy River, Rainy Lake, and Namakan Lake	United States	29	E. C. Barnard	James H. Van Wagenen Jesse Hill G. A. Perry H. C. O. Clarke		James H. Van Wagenen H. C. O. Clarke R. K. Lynt E. V. Perkinson Lee Morrison	Jesse Hill G. A. Perry	
		Canada	2		I. R. Pounder, D. L. S.				I. R. Pounder, D. L. S. (1914) G. T. Prinsep, D. L. S. (1921)
	Namakan and Sand Point Lakes and Lac LaCroix	United States							Jesse Hill (1921)
		Canada	24	J. J. McArthur, D L. S.	F. P. Steers, D. L. S. H. M. Barton, D. L. S. J. M. Sheppard		G. B. Herridge L. C. Nesham Arthur Wilkins A. A. Brown	J. M. Sheppard J. M. Perrier	
	Basswood Lake, Basswood River, and Crooked Lake	United States	15	W. B. Fairfield	W. B. Fairfield J. J. Phelan		J. J. Phelan		
		Canada							G. T. Prinsep, D. L. S. (1921)
1915	Little Vermilion Lake, Loon River, Loon Lake, and Lac LaCroix	United States							Jesse Hill (1921)
		Canada	26	J. J. McArthur, D. L. S.	F. P. Steers, D. L. S. H. M. Barton, D. L. S. J. M. Sheppard G. T. Prinsep		G. E. Wait A. Wilkins J. A. Snow	J. M. Perrier J. M. Sheppard	
	Crooked Lake, Basswood River, and Basswood and Knife Lakes	United States	21	W. B. Fairfield	W. B. Fairfield E. R. Martin	J. J. Charters	J. J. Phelan J. J. Charters H. C. Corrigan W. C. Bastian	E. R. Martin	
		Canada							W. F. King, D. T. S. (1915) G. T. Prinsep, D. L. S. (1921)

1916	Basswood Lake	United States	8	W. B. Fairfield	W. B. Fairfield E. R. Martin				
	Lac LaCroix and Iron Lake	United States							E. C. Barnard (1916) Jesse Hill (1921)
		Canada	16	J.J. McArthur, D. L. S.	G. T. Prinsep		G. T. Prinsep J. Q. Coughlan J. A. Snow G. O. Rochester	J. M. Perrier J. M. Sheppard	
	Crooked Lake to North Lake	United States	31	J. J. Phelan	E. R. Martin	R. K. Lynt	R. K. Lynt J. J. Charters D. W. Eaton W. C. Bastian G. C. Phillips	E. R. Martin	
		Canada							G. T. Prinsep, D. L. S. (1921)
1917	Rainy River and Lake of the Woods	United States							Jesse Hill (1921)
		Canada	5	J.J. McArthur, D. L. S.	James Bowie	James Bowie	James Bowie	S. G. Lindsay	J.J. McArthur, D.L.S.
	Cypress Lake to Lake Superior	United States	40	J. J. Phelan	E. R. Martin	R. K. Lynt	R. K. Lynt J. J. Charters C. E. Carl G. C. Phillips P. W. Huddleston C. L. Dunklee P. H. Dunklee	E. R. Martin R. K. Lynt	
		Canada							G. T. Prinsep, D. L. S. (1921)
	Lake of the Woods; and Gunflint Lake to Mountain Lake	United States	13	Jesse Hill	Jesse Hill J. J. Bachtel J. E. Bump				
		Canada							G. T. Prinsep, D. L. S. (1921)
1918	Lake of the Woods, Rainy River, Namakan and Sand Point Lakes, and Loon River	United States							Jesse Hill (1921)
		Canada	3	J.J. McArthur, D.L.S.			J. J. McArthur, D.L.S.	S. G. Lindsay	J.J. McArthur, D.L.S.
	Mountain Lake to Lake Superior	United States	16	Jesse Hill	Jesse Hill E. R. Martin R. K. Lynt J. E. Bump		R. K. Lynt	Jesse Hill E. R. Martin S. G. Lindsay	
		Canada							J. J. McArthur, D.L.S.
1921	Rainy River; and Namakan Lake to head of Pigeon River	United States	4	Jesse Hill	Jesse Hill		Jesse Hill	Jesse Hill J. J. Bachtel	Jesse Hill
		Canada	4	G. T. Prinsep, D. L. S.	G. T. Prinsep, D. L. S.		G. T. Prinsep, D. L. S.	T. P. Reilly	G. T. Prinsep, D. L. S.
1922	Lake of the Woods and Rainy River	United States							James H. Van Wagenen
		Canada	3	G. T. Prinsep, D. L. S.	G. T. Prinsep, D. L. S.			G. T. Prinsep, D. L. S.	J.J. McArthur, D.L.S.
1925	Rainy River, and Rainy and Namakan Lakes	United States	2	Jesse Hill	Jesse Hill				Jesse Hill
		Canada	2	G. T. Prinsep, D. L. S.	G. T. Prinsep, D. L. S.				G. T. Prinsep, D. L. S.
1926	Rainy River	United States	4	Jesse Hill	Jesse Hill J. J. Bachtel				
		Canada							J. A. Pounder, D. L. S.

DESCRIPTION OF FIELD AND OFFICE METHODS AND RESULTS

HORIZONTAL CONTROL

The horizontal control for the topographic surveys[1] and for the determination of the geographic positions of the monuments and turning points of the boundary from the Northwesternmost Point of Lake of the Woods to Lake Superior consists of schemes of major and minor triangulation which are in turn controlled by part of a continental scheme of first-order triangulation and traverse by the United States Coast and Geodetic Survey and by the Geodetic Survey of Canada, which extends from Lake Superior to the Pacific Ocean.

The general plan of control is shown on 40 triangulation and traverse sketches which accompany the report under a separate cover.

The geographic positions and descriptions of the triangulation and traverse stations are listed in Appendix V, pages 228 to 585.



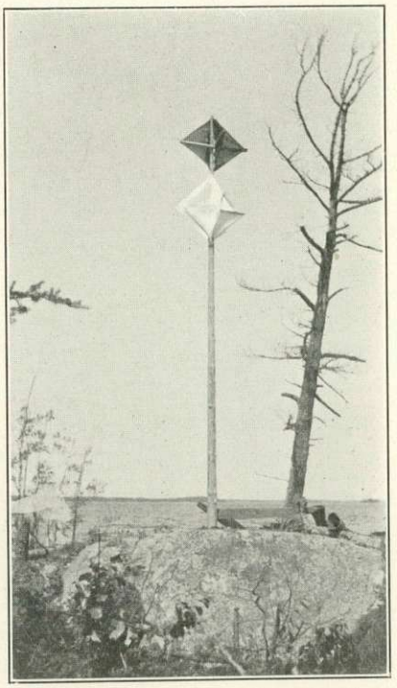
Measuring base line on the ice on Basswood Lake, February, 1916

The first-order control is part of a loop approximately 1,000 miles in length, that is made up of the following units of first-order triangulation and first-order traverse: From a point on the international boundary, at its intersection with the United States Coast and Geodetic Survey's ninety-eighth meridian scheme of triangulation, to Warroad, Minn., the control consists of traverse done by the Geodetic Survey of Canada; from Warroad to Namakan Lake, of traverse by the United States Coast and Geodetic Survey; from Namakan Lake to Basswood Lake, of triangulation by the United States Coast and Geodetic Survey; from Basswood Lake by the way of Pigeon River to Isle Royal in Lake Superior, of triangulation by the Geodetic Survey of Canada; from Isle Royal to Duluth, Minn., of triangulation by the United States Lake Survey; from Duluth to the intersection of the North Dakota, South Dakota, and Minnesota State boundaries and thence north

[1] Topography, p. 95. (Detailed control.)

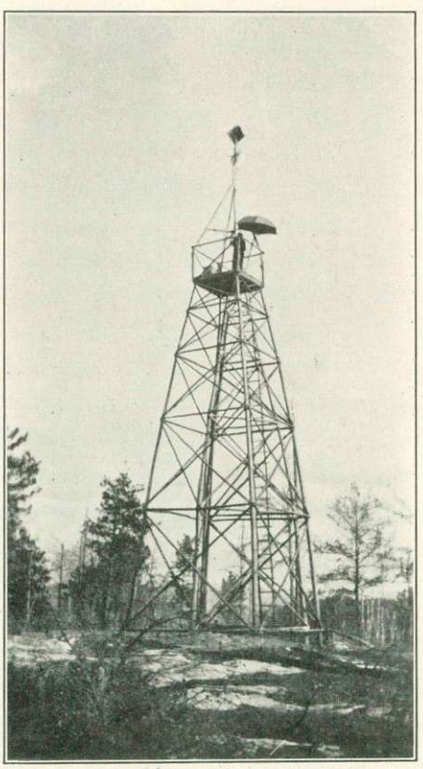
along the ninety-eighth meridian scheme of triangulation to the international boundary, of triangulation by the United States Coast and Geodetic Survey.

The discrepancy in the closure of this loop of first-order triangulation and traverse was 0″.256 of latitude and 0″.472 of longitude, equivalent to 12.5 meters. This discrepancy represents a proportional error of 1 part in 130,000. It was distributed throughout the loop as follows: 0″.044 of latitude and 0″.184 of longitude in the traverse from the ninety-eighth meridian to Namakan Lake; and 0″.102 of latitude and 0″.198 of longitude in the triangulation from Namakan Lake to the mouth of Pigeon River. The remainder, 0″.110 of latitude and 0″.090 of longitude, was distributed throughout the triangulation of the United States Lake Survey and of the United States Coast and Geodetic Survey.



Type of signal used on minor triangulation, Lake of the Woods and Rainy Lake

The wide part of Lake of the Woods, through which the boundary passes, is covered by first-order triangulation, which is tied at Warroad, Minn., to the first-order traverse. From this first-order triangulation, a minor scheme extends to the head of Northwest Angle Inlet, where it is tied to an invar-tape traverse which was run along the meridian boundary from the Northwesternmost Point of Lake of the Woods to Buffalo Bay to determine the geographic positions of the monuments. This traverse is tied at its southern end to the first-order triangulation of Lake of the Woods.



Triangulator at work at station "Big Island," Rainy Lake, 1913

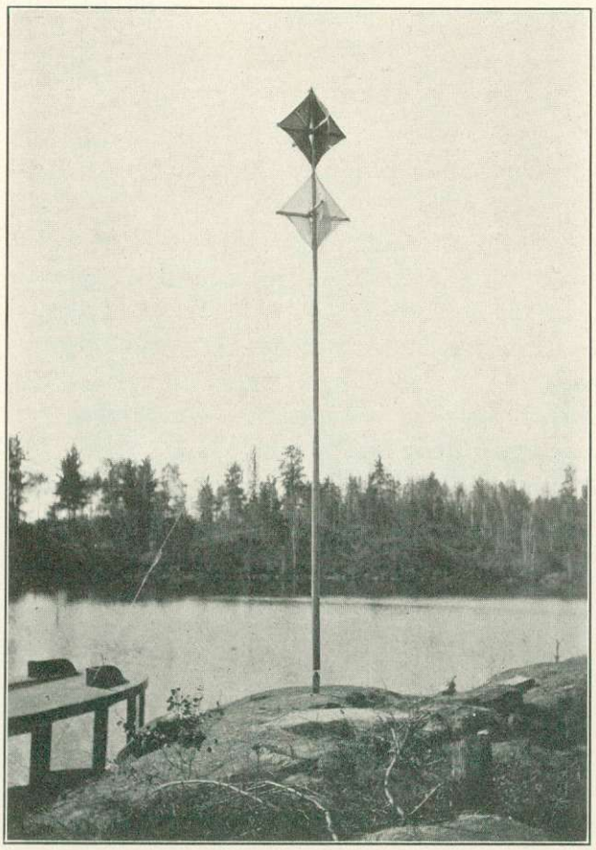
The sites for the triangulation stations along Northwest Angle Inlet were so chosen that they would be suitable for monuments to reference the turning points of the boundary. Along the narrow part of the inlet, a field location of the boundary was made, during which the position of each turning point of the line was determined by measuring the direction and distance from the nearest monument or by measuring directions from two near-by monuments. This method of determining in the field the positions of the turning points from monuments or traverse stations was also used on other parts of the boundary wherever the waterway was extremely narrow.

Through the wide part of Lake of the Woods and, in general, through the larger waterways, the reference monuments were set at stations of the

minor scheme of triangulation, and were, where practicable, set in pairs near each turning point, one on each side of the boundary. Wherever possible, the monuments were so placed that they and the turning point would lie in the same straight line.

Rainy River, the boundary stream connecting Rainy Lake with Lake of the Woods, is covered by a scheme of major triangulation controlled by the United States Coast and Geodetic Survey's first-order traverse to which it is tied at five points. Immediately adjacent to the river banks there is a scheme of minor triangulation, tied to the major triangulation at 11 points. This minor scheme was extended the entire length of the river, the stations being placed near the river for the purpose of determining the positions of the boundary reference monuments and also in order to furnish the topographers with numerous control points at locations most convenient for the mapping. From Baudette, Minn., to Birchdale Landing, Minn., this minor scheme was carried along the river as a chain of single triangles. In this chain there were 183 triangles and 12 base lines. The average triangle closure was 4″.0 and the average length closure between bases was 1 part in 15,000.

On Rainy Lake the principal control is the first-order traverse of the United States Coast and Geodetic Survey, the stations of which are located on the shores of the mainland or on islands. The angles of this traverse were measured during the summer at the same time that the stations were marked; the distances between stations were measured on the ice with invar tapes during the following winter. Subsidiary to this first-order traverse is a major scheme of well-shaped quadrilaterals with sides 2 to 5 miles long, the stations of which are located on or near the lake shores. Detached minor schemes, with stations on the numerous islands, were developed from and controlled by the major scheme, and, at many of the minor stations, reference monuments were set. From the major scheme also, a graphic triangulation scheme consisting of chains of well-shaped quadrilaterals was extended into the deep bays by means of a large plane-table board and a telescopic alidade with long rule. A rigid control for the topographic mapping was thus obtained.

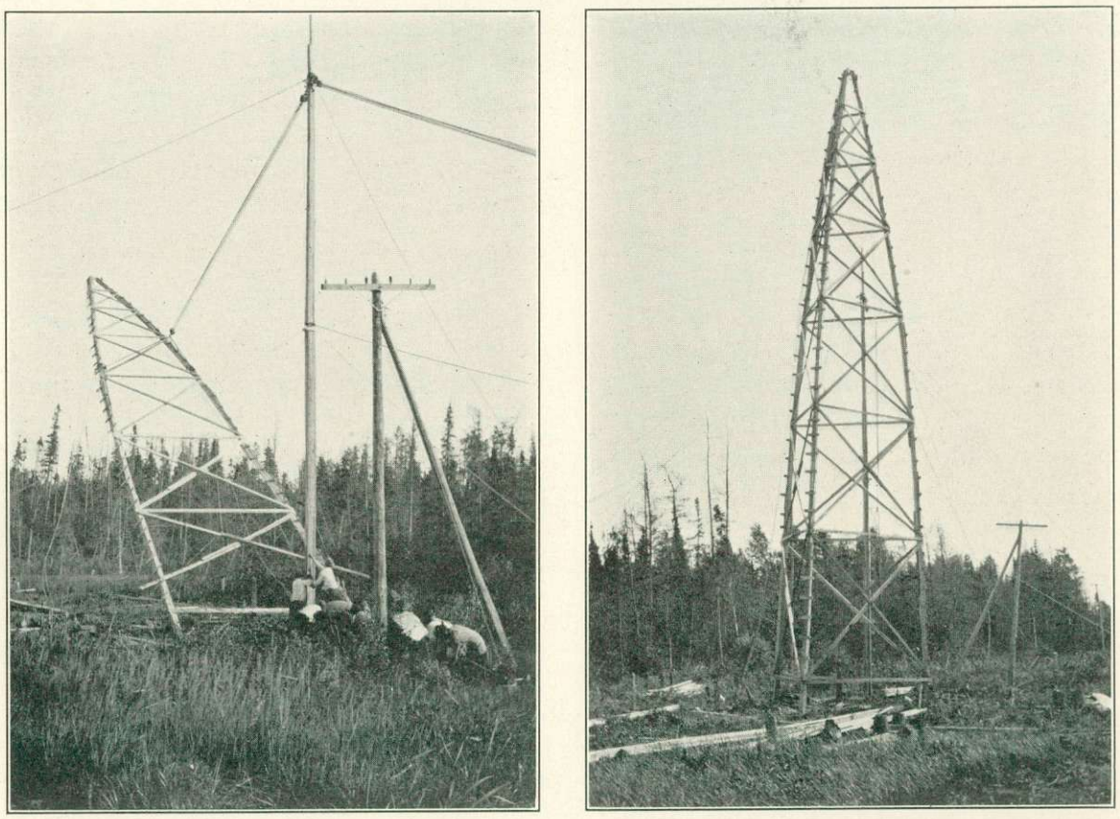


Triangulation signal centered over bronze-post boundary reference monument; Kettle Channel, Rainy Lake

From the eastern end of Rainy Lake to the head of Pigeon River the principal control is as follows: First-order traverse on the western end of

Namakan Lake by the United States Coast and Geodetic Survey; first-order triangulation from the eastern end of the first-order traverse to Basswood Lake by the United States Coast and Geodetic Survey; and first-order triangulation from Basswood Lake to Lake Superior by the Geodetic Survey of Canada. Major triangulation by the International Boundary Commission straddles the boundary through this region though not in a continuous chain; the stations of the major scheme are, as a rule, on prominent hills a few hundred feet above the lake level and about one-half mile back from the shores of the lakes. This scheme is tied to the first-order triangulation and traverse at 32 points. Twenty-two stations of the first-order and major triangulation are points common to both schemes. Continuous chains of minor triangulation were extended along these boundary waterways to determine the geographic positions of the reference monuments and to furnish control for the topographic maps, and these minor schemes were tied to and controlled by the major triangulation.

Along Pigeon River the principal control is the first-order triangulation of the Geodetic Survey of Canada to which the major triangulation of the International Boundary Commission is tied. The positions of the boundary reference monuments along the river were determined directly from a carefully run stadia traverse which was run along the banks and tied to the major scheme at intervals of



Tower building by United States party at Warroad North Base; (left) raising one side of instrument tripod; (right) instrument tripod in place ready for erection of scaffold



Native-timber tower erected by United States triangulation party at station "Bear," Rainy Lake, 1914

about 4 miles, and which checked with the control points with a maximum error of 1 part in 700.

Triangulation towers were built at many stations of the western part of the work in order to obtain intervisibility without cutting long lines of sight through the timber. They were erected principally at stations of the major schemes on Lake of the Woods, Rainy River, Rainy Lake, Namakan Lake, and Lac LaCroix. In 1913 one United States party built 7 towers of sawed lumber on Lake of the Woods and 17 on Rainy River. The height of these towers, measured from the ground to the instrument stand, ranged from 30 to 90 feet. In the same season on Rainy and Namakan Lakes, another United States party built 15 native-timber towers from 25 to 70 feet in height. In 1914 and 1915 a Canadian party on Namakan Lake and Lac LaCroix built 12 towers ranging in height from 25 to 75 feet. In 1917, on a scheme of first-order triangulation on Lake of the Woods, a United States party built 9 towers, the highest of which was 85 feet.

MONUMENTS AND MONUMENTING

The boundary from the Northwesternmost Point of Lake of the Woods to Lake Superior is marked by 1,373 reference monuments set on the shores of the lakes and streams through which the line passes, and by 9 boundary monuments set to mark the line on the three portages where there are no waterways and the line approximately follows the portage trails.

Types of Monuments

The monuments referencing the boundary through the waterways are of four types:

1. Bronze post. (Fig. 1, p. 89.)
2. Bronze disk. (Fig. 2, p. 89.)
3. Wrought-iron post. (Fig. 3, p. 89.)
4. Cast-iron obelisk. (Fig. 4, p. 89.)

The monuments marking the land portions of the line on the three above-mentioned portages are of two types:

1. Conical bronze post. (Fig. 5, p. 90.)
2. Bronze obelisk. (Fig. 6, p. 90.)

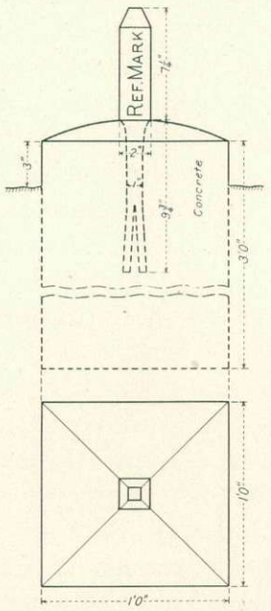
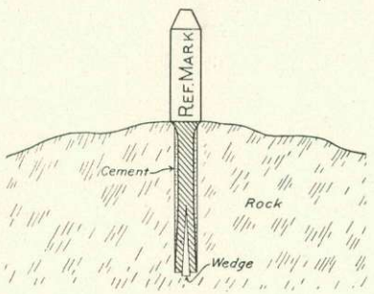


Fig. 1.—Bronze post reference monument



Reference monument (Fig. 1.) set in rock

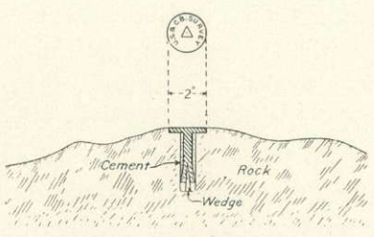


Fig. 2.—Bronze disk reference monument

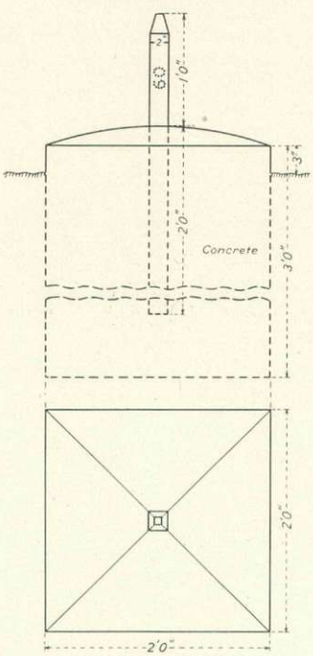


Fig. 3.—Wrought-iron post reference monument

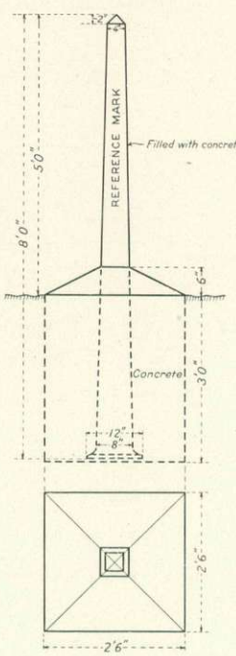


Fig. 4.—Cast-iron obelisk reference monument

The bronze-post reference monuments (fig. 1) are made of manganese bronze containing 59 per cent copper, 38 per cent zinc, 2 per cent iron, and 1 per cent manganese. The part that projects above the surface of the concrete base or the rock in which the monument is set is a 2-inch square post 7¼ inches high and beveled at the top; the part that extends below the surface is a 1-inch round shank 9¾ inches long split at the lower end to take a metal wedge which, when the shank is driven into a hole drilled in the rock to receive it, expands the end so as to hold the monument firmly. The number assigned to each monument is outlined with drill holes, about one-fourth inch in diameter and spaced about one-fourth inch apart, on the smooth side of the post; and the words "REF. MARK," "INT. BDRY.," and either "CANADA" or "U. S." are cast in raised letters on the other three sides. In general these posts were set in solid ledge rock along the shores of the waterways, but where there were no outcropping ledges they were set in large bowlders or in concrete bases 12 inches square extending to a solid foundation below the frost line. Of the 1,373 reference monuments which mark the international boundary from the Northwesternmost Point of Lake of the Woods to Lake Superior, 1,279 are of this type.

The bronze-disk reference monuments (fig. 2), of which there are only seven, were set on Pigeon River to supplement certain reference monuments of the bronze-post type at important places along the boundary. The disks are 2 inches in diameter and ¼ inch thick, and are firmly held in place by a ¾-inch shank, 3 inches long, split to take a metal wedge which expands the shank as it is driven into place in a drill hole in the rock. Two-inch and three-inch disks of this type were used also to mark triangulation and traverse stations.

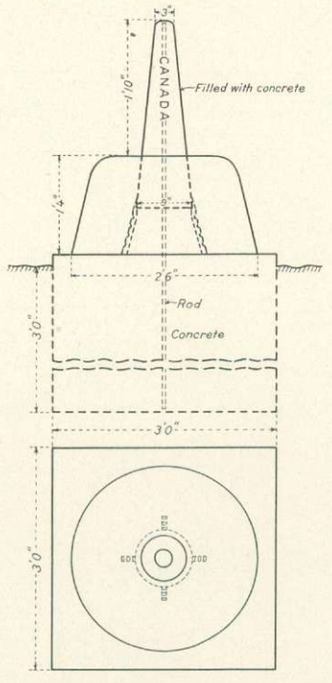


Fig. 5.—Conical bronze post boundary monument

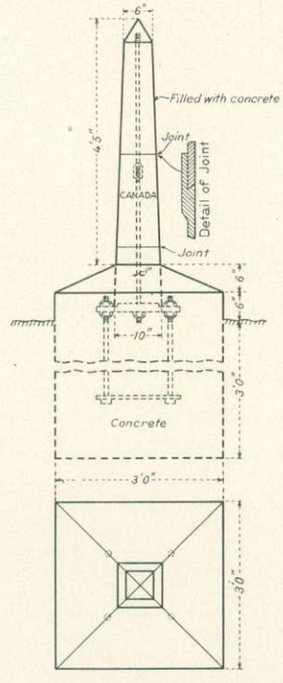
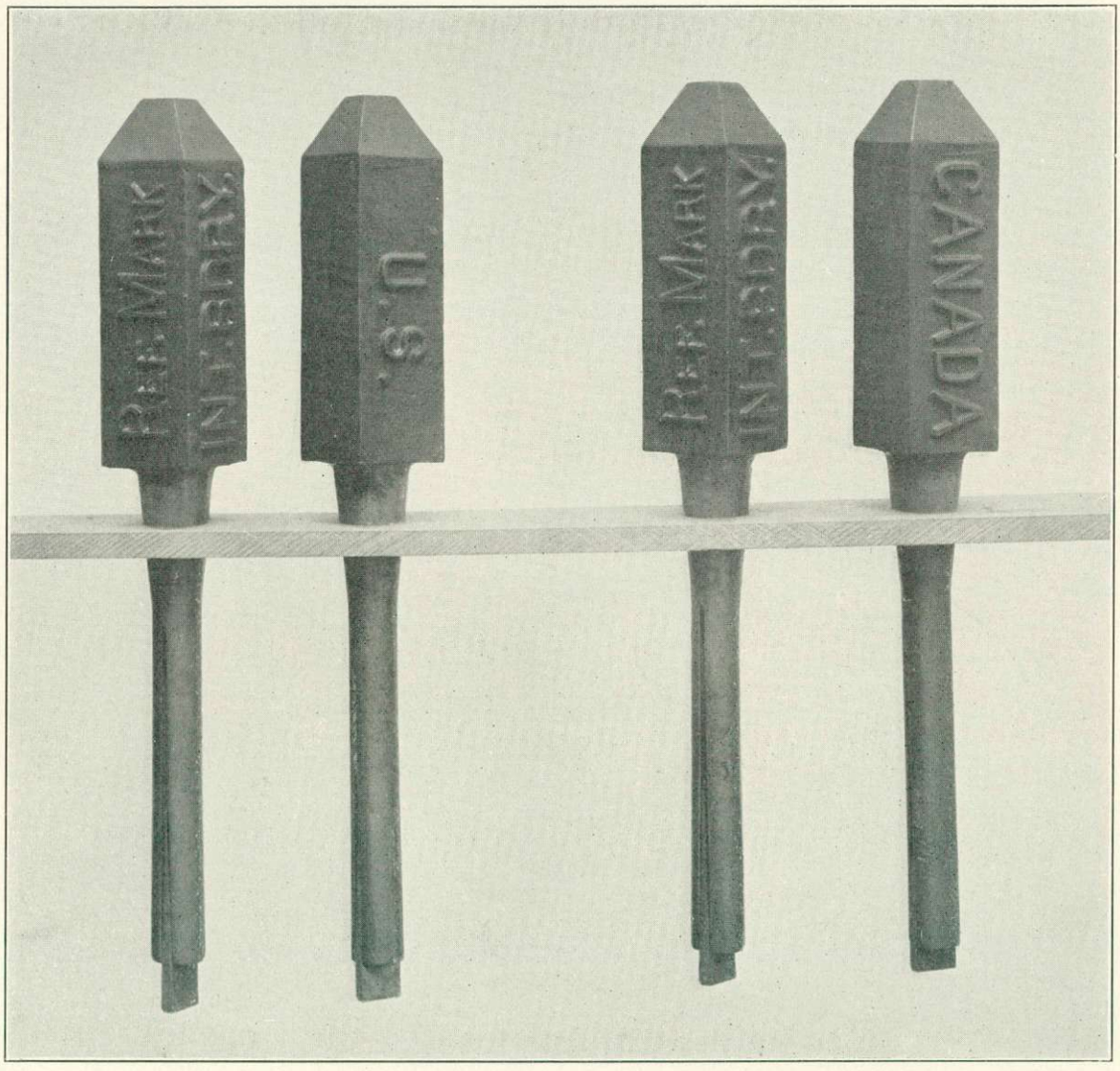


Fig. 6.—Bronze obelisk boundary movement

The wrought-iron post reference monuments (fig. 3), of which there are 84, were set to reference the boundary through Lake of the Woods and through Rainy River from its mouth to Baudette, Minn. (Rainy River, Ontario). Each of these monuments is a wrought-iron bar, the cross section of which is 2 inches square, set in a square concrete base. The part of the post that projects above the surface of the concrete is 1 foot long and is beveled at the top. The lower part of the post extends about 2 feet into the concrete. The number of the monument is outlined with drill holes, about one-fourth inch in diameter and spaced about one-fourth inch apart, on one side of the post; and the letters "U. S." or "C." are marked in the same way on the opposite side.

The cast-iron obelisks (fig. 4), of which there are only two, reference the initial point of this portion of the boundary, that is, turning point No. 1 in Northwest Angle Inlet of Lake of the Woods. These monuments, Nos. 1 and 2, set especially to



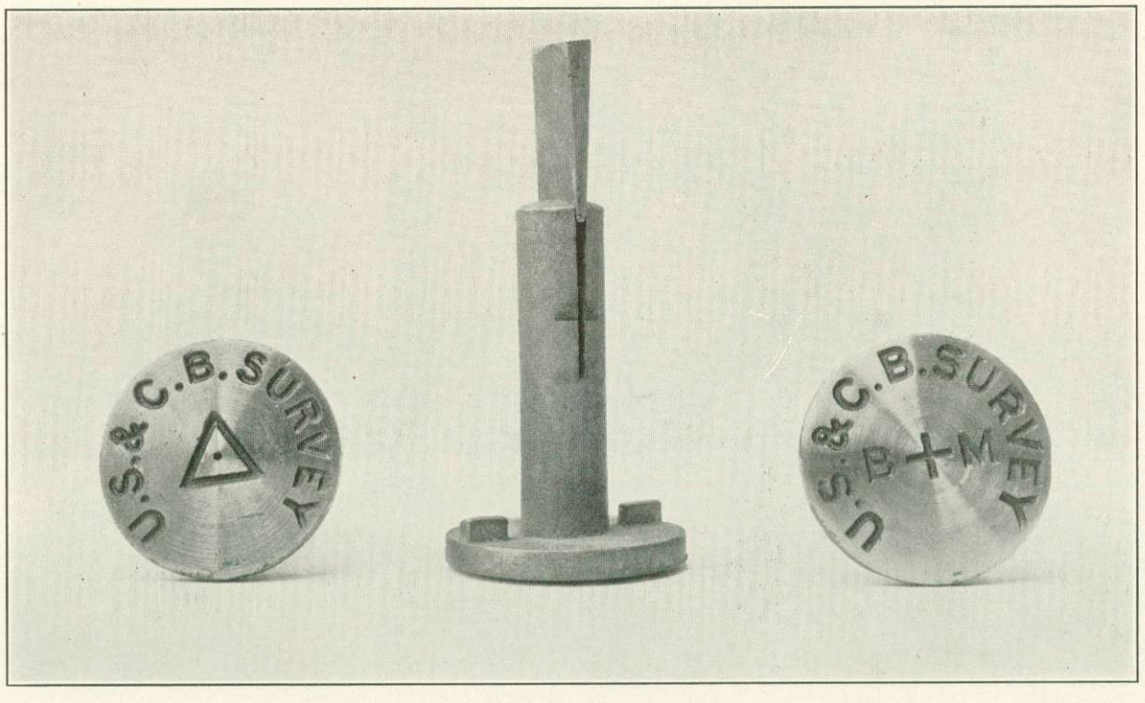
Bronze-post type of boundary reference monument

reference turning point No. 1, are of the same type as those on the meridian boundary south of this point. The two nearest monuments of the meridian boundary, Nos. 924 and 925, serve as a range which is an additional reference for turning point No. 1. These four monuments are cast-iron obelisks set in concrete bases with the top of the obelisk 5 feet above the ground. Reference monuments 1 and 2 bear the inscription "REFERENCE MARK," cast in raised letters on one side of the obelisk; the other sides bear no inscriptions. Monuments 924 and 925 bear these inscriptions: On the north side, "CONVENTION OF 1818"; on the east side, "UNITED STATES"; on the south side, "TREATY OF 1908"; and on the west side, "CANADA." The number on each of these two monuments is outlined with drill holes on the south side of the obelisk.

The conical bronze-post monuments (fig. 5) were set only on the three portages where there are no boundary waterways, the only land portions of the international boundary from Lake of the Woods to Lake Superior. There are seven monuments of this type, three on Watap Portage, three on Height-of-Land Portage, and one on Swamp Portage.

The composition of these bronze posts is about 10 per cent aluminum and 90 per cent copper. They are set in concrete bases which extend below the frost line; the tops of the bases rise 1½ feet above the surface of the ground. The conical bronze posts rise about 2 feet above their concrete bases. On opposite sides of these posts are cast in raised letters, "UNITED STATES" and "CANADA," and the number of the monument is outlined on the posts with drill holes.

The bronze obelisks (fig. 6) were set only on the boundary on Swamp Portage. There are only two monuments of this type. They rise about 4½ feet above their



Bronze-disk triangulation station mark and boundary bench mark

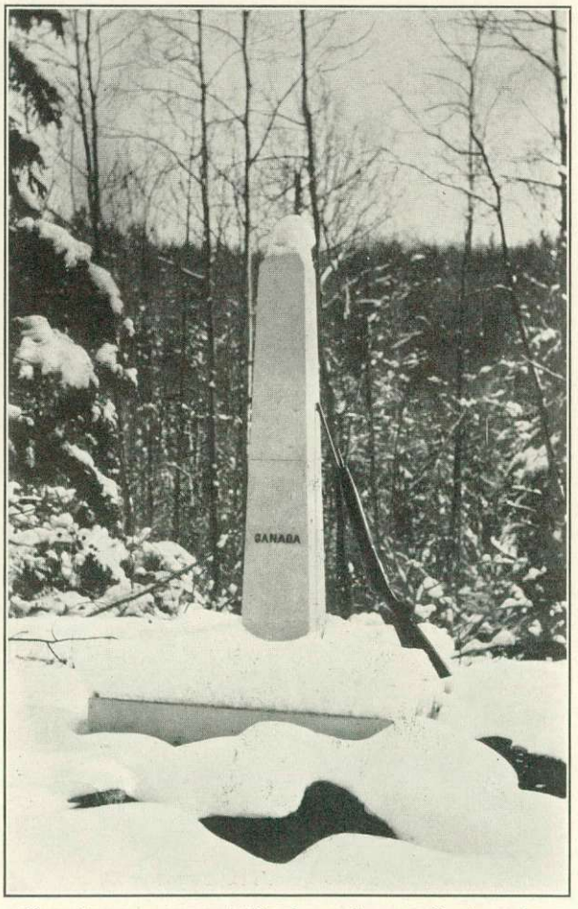
concrete bases and their composition and inscriptions are similar to those of the conical bronze-post monuments.

Beginning at the northern point of the meridian boundary in Northwest Angle Inlet of Lake of the Woods, all of the monuments set on the shores for the purpose of referencing the boundary turning points in the several international waterways are identified by numbers which run consecutively eastward to Lake Superior. The nine monuments which mark the land portions of the line are numbered in a separate series, in which Nos. 1, 2, and 3, mark the line across Swamp Portage between Swamp and Cypress Lakes; Nos. 4, 5, and 6 mark the line across Height-of-Land Portage between North and South Lakes; and Nos. 7, 8, and 9, mark the line across Watap Portage between Watap and Mountain Lakes.

Construction of Monuments

Sites for the reference monuments could generally be chosen on outcrops of ledge rock or on large bowlders. On such a site, the setting of a bronze-post or bronze-disk reference monument was begun by drilling in the rock a hole of sufficient diameter and depth to receive the shank of the post or disk. (Figs. 1 and 2, p. 89.) The hole was filled with neat cement mortar and the shank, with the metal wedge started in the split, was inserted in the drill hole; the disk or post was then driven home, the wedge spreading the shank and the cement filling the voids. Where wrought-iron posts were set as reference monuments in solid rock, a rough hole about 2 feet square was blasted. The post was plumbed and centered in the hole, and concrete was tamped around it and carried up above the surface of the rock.

Where solid rock could not be found for monument sites, the reference monuments were set in concrete bases. On Lake of the Woods and the lower part of Rainy River, the wrought-iron post monuments were set in bases 2 feet square. The bases of the monuments were slightly smaller in cross section along the remainder of the boundary, which was referenced, with a few exceptions, by manganese-bronze posts. The depth of the excavation for the bases in solid ground was 3 to 4 feet, but where the ground was swampy, the excavation was carried, if necessary, to a greater depth in order to secure a solid



Boundary monument No. 1, on Swamp Portage, between Swamp Lake and Cypress Lake

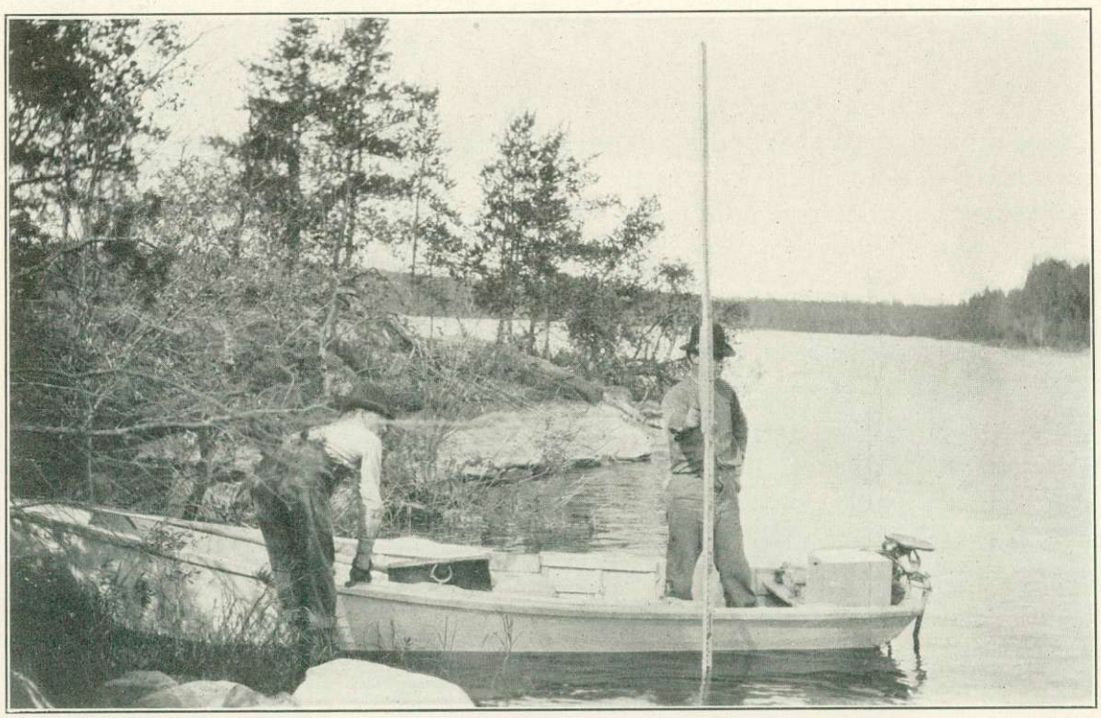
foundation. Of the monuments on the portages (Nos. 1 to 9, inclusive) the bases for the two obelisks were built nearly flush with the surface of the ground; the bases for the seven conical bronze posts were continued above ground in a circular form to a height of about 2 feet. All of the hollow shafts of these monuments were filled with concrete before they were put in place.

The proportions of the materials used in mixing the concrete for the large bases were 1 part Portland cement, 2½ parts sand, and 5 parts broken stone or gravel, the top being finished with a richer mixture from which the broken stone or gravel was omitted. For the small bases, a mixture of 1 part Portland cement to 4 parts coarse sand and fine gravel was used.

TOPOGRAPHY

From the Northwesternmost Point of Lake of the Woods to Lake Superior the boundary follows an almost continuous system of waterways broken only at three places by short portages whose combined length is less than 1 mile. The line follows the old canoe route of the early fur traders which traversed a region of irregularly shaped lakes joined by streams comprising, as a rule, a series of ponds or pools connected by rapids or falls.

The topographic features have been shaped largely by the heavy sheet of ice that covered this region during the glacial period. The leveling action of the ice has resulted in a terrain characterized by relatively small differences of elevation; the highest hills in the area covered by the boundary maps, though often marked by precipitous cliffs, are only about 500 feet above the lakes in the neighboring valleys.



Topographic work, Rainy Lake; plane-table rodman and transportation equipment

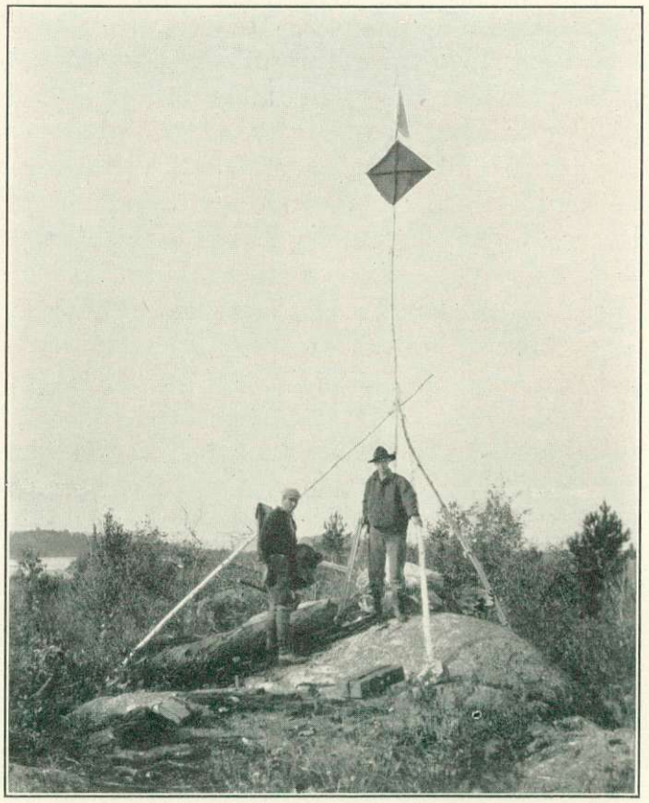
Many of these lakes have been formed by dams of glacial drift that has been deposited across eroded valleys. In the Rainy River region and along the southern shores of Lake of the Woods and the western part of Rainy Lake where an extensive deposit of glacial drift was left by the ice, there is much partly-forested swamp land. The region to the northward and eastward, where little drift was deposited, is a heavily-forested region of scanty soil and glaciated rocks.

When the survey of this part of the international boundary was begun in 1908, no maps of the region had been made that could be used to fulfill the requirements of Article V of the treaty of 1908 that the course of the entire boundary as monumented by the commissioners should be "marked by them upon quadruplicate sets of accurate modern charts prepared or adopted by them for that purpose." Topographic surveys for maps for this purpose were therefore made coincident with the geodetic surveys necessary to determine the geographic positions of the monuments and the turning points of the boundary.

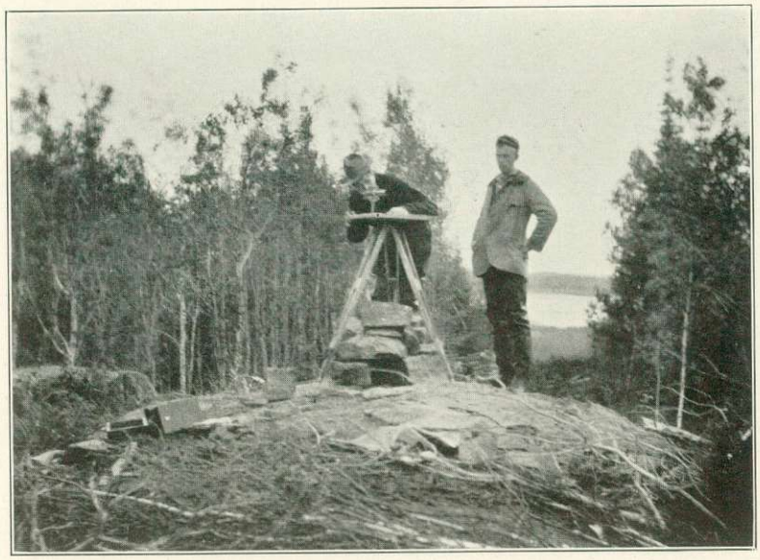
The field maps were made on several scales ranging from 1:2,500 to 1:45,000, depending upon the detail necessary to show the location of the boundary line and monuments with respect to the topographic features. A contour interval of 5 feet was used with the 1:2,500 and 1:5,000 scales; with the smaller scales, a 10-foot interval was used. The field mapping was always done on a larger scale than that upon which the official maps were to be published.

The horizontal control for the topographic survey was furnished by triangulation and traverse carried along the boundary for this purpose and for the purpose of determining the geographic positions of the monuments and boundary turning points. (See Horizontal Control, p. 84.)

On Lake of the Woods and Rainy Lake additional control for the mapping of the islands and bays was obtained by plane-table triangulation developed from lines of the major scheme. In the development of this plane-table triangulation, the triangulation towers as well as the ground stations were occupied with a large plane table and a telescopic alidade with long rule. Chains of quadrilaterals were extended into the deepest bays, and, from the stations of the major triangulation, flags in trees on the hills and tall poles on prominent points of the shore line



Topographer and rodman at a plane-table station on Rainy Lake, 1914



Topographer at minor-triangulation station "New Rice," near Northwesternmost Point of Lake of the Woods, 1912

were cut in. With these numerous control points available, many of the stations of the stadia traverses, which were run along the shore line, were checked by resecting on near-by signals or by a determination of position by the graphic solution of the 3-point problem. Landlocked bays into which the triangulation could not be easily carried, were controlled by a line from outside the bay for orientation and a resection on one of the signals on the hills to determine the position of the plane table, with a resection on a second signal for a check on the determination.

In general the topography was mapped with a 15 by 15 inch or 18 by 24 inch Johnson-head plane table, telescopic alidade, and stadia, the size of the board depending upon the distribution of control stations and the character of the country to be mapped. The plane table was oriented by compass. The areas that were too densely wooded for stadia readings, were covered with a network of short lines run with open-sight alidades, paraffined cloth tapes, and aneroid barometers. These lines were tied at both ends to stations of stadia traverses and were adjusted for closure. The topography in the wooded areas was thus mapped without the slow and expensive method of cutting lines through brush and timber.

For the mapping of the shore lines of the large lakes and streams, each party was equipped with a row boat or canoe driven by an outboard motor which, after the plane-table man had set up at a station, carried the rodman from point to point along the shore. During the mapping of the shore lines all submerged rocks that had been found were located on the plane-table sheet.

The vertical control was furnished by lines of spirit levels and by water levels based on bench marks of the Geodetic Survey of Canada, the United States Geological Survey, the United States Engineer Corps, and the Duluth and Iron Range Railroad. (See Leveling, p. 97.)

A small part of the topography between Crooked Lake and Lake Superior was mapped in the years 1910 to 1914 when elevations based on vertical angles were all that were available. Later, in 1915, 1916, and 1917, elevations based on combined spirit and water levels were determined for vertical control of the topographic work in this region. These later and more accurate elevations were found to agree closely with the earlier elevations determined by vertical angles.

LEVELING

The vertical control for the topographic maps consists of a continuous system of leveling carried along the boundary from Lake of the Woods to Lake Superior. Spirit levels were run along the banks of the longer boundary streams and across the portages between the adjoining boundary lakes. Water levels were carried from one end of each boundary lake to the other, by taking simultaneous readings of the water surface elevations on two staff gages, one at each end of the lake.

The spirit levels were run in closed circuits with the accuracy required at that time for second-order levels, that is, with the requirement for closure of circuits that the discrepancy in feet should not exceed $0.05\sqrt{M}$ in which M is the length of the circuit in miles. It is believed that the water levels were carried from one staff gage to the next with an average error of less than 0.03 foot for each transfer of elevation.

The elevations published in this report (see p. 220) have been adjusted to agree with the latest adjustment (made in 1929) of the elevations above mean sea-level datum of bench marks of the Geodetic Survey of Canada to which the scheme of boundary levels has been tied in four places. The bench-mark elevations on the boundary maps are those used by the topographers in mapping the contours. They were determined from reliable data, such as the elevations of the bench marks of the Geodetic Survey of Canada as published in 1914, the bench marks of the United States Geological Survey, the United States Engineer Corps, and the Duluth & Iron Range Railroad. They were, however, determined (by the topographers) some years before the data for the final adjustment of the elevations were available. The elevations shown on the maps may, therefore, differ slightly from the elevations published in Appendix IV of this report.

The elevations in black on the official boundary maps refer to bench marks; the elevations in brown refer to the ground at monuments, section corners, or other marked points.

For the vertical control of the survey of Lake of the Woods, staff gages were established at Warroad, Minn., Oak Island, Oak Point (near the mouth of Rainy River), and in Northwest Angle Inlet. The elevation of the zero of the gage at Warroad was determined in May, 1912, by connecting it by means of a double line of spirit levels with the United States Army Engineers' bench mark at Warroad, the elevation of which had been determined by the United States Geological Survey. Readings of the elevation of the water surface were made on this gage three times each day from June 1 to October 31, 1912, and from April 28 to October 31, 1913. A similar series of readings was made on the Oak Island gage from June 8 to October 31, 1912, and from May 4 to October 27, 1913, and on the other gages for shorter periods. From these readings an accurate determination of the elevations of the Oak Island, Oak Point, and Northwest Angle Inlet gages was made by comparison with the readings of the Warroad gage. The elevation of a gage and bench mark, established at Zippel, Minn., by the United States Army Engineers, was determined during the winter of 1913, when the lake was covered with ice, by simultaneous observations made at Warroad and Zippel. A check on the accuracy of

this determination was made by running a double line of spirit levels from the United States Geological Survey bench mark at Williams, Minn., to the bench mark at Zippel.

Gage readings for short intervals for use locally were also taken at Buckete, Blackbird, Bear, and Big Islands.

After the elevations of the zeros of these gages had been well determined, the vertical control for the topographic work was usually obtained by reading the elevation of the water surface on the nearest gage at the beginning of the day's work. The water surface was then used as a reference plane throughout the day and at the close of the day's work the gage was again read to make sure that the elevation of the water surface had remained constant.

Elevations for the control of the surveying operations along Rainy River were obtained from bench marks of the United States Geological Survey which had been set at intervals of about 10 miles between Baudette, Minn., and International Falls, Minn.

For the vertical control of the topographic work on Rainy and Namakan Lakes temporary bench marks were established at intervals of about 5 miles along the shores. The determination of their elevations was made in February, 1913, while the temperature was from 10° to 40° below zero and the lakes were covered with ice 3 to 4 feet thick. The elevation of each bench mark, usually a spike in a stump or root of a tree near the lake, was determined by cutting a hole through the ice and running a spirit-level line from the water surface to the bench mark. During these operations, readings of the elevation of the water surface of Rainy Lake were made on two staff gages, one at Ranier, Minn., and the other near the foot of Kettle Falls. From these data and from the known elevations of the zeros of the gages above sea level, the elevations of the Rainy Lake bench marks were determined.

From the bench mark at the head of Rainy Lake a double line of spirit levels was run along Kettle Channel to the bench mark and staff gage below Kettle Falls; the results showed that there was no appreciable difference in the elevation of the water surfaces at these two points. This line was continued across the Canadian portage to a bench mark and gage on Namakan Lake.

The vertical control was carried ahead from Namakan Lake to the western end of Lac LaCroix by two different routes. Early in the season of 1915, during low water, the elevation of Namakan Lake was determined from a bench mark at Steamboat Narrows and the difference in elevation between Namakan Lake and Sand Point Lake was determined by spirit levels. A double line of spirit levels was then run along the old Dawson Trail from Portage Bay in Sand Point Lake to Lac LaCroix, where a permanent bench mark was established. Later in the season during an extremely high stage of water, the rapids in Namakan Narrows and Little Vermilion Narrows became submerged, and while this condition prevailed water levels were carried from the Steamboat Narrows bench mark to the head of dead water on Loon River at a point just below Little Rapids. Spirit levels were then run from that point to the south end of Loon Lake and from the north end of Loon Lake to a permanent bench mark on Lac LaCroix at Beatty Portage. The

agreement between these independent determinations of the elevation of Lac LaCroix was very close. From these bench marks at the west end of Lac LaCroix the elevations were carried by water levels to the east end of the lake and to a permanent bench mark on the small island near the northwest end of Bottle Portage.

The vertical control for the survey of Iron Lake, Crooked Lake, Basswood River, and Basswood Lake was brought from bench marks of the Duluth & Iron Range Railroad at Winton and Ely, Minn., by combined spirit and water levels to Hoist Portage on one of the southern arms of Basswood Lake. From this point the vertical control was carried along the boundary by a combination of water levels and spirit levels, until a junction was made at the east end of Lac LaCroix with the levels that had been carried along the boundary from the west. The discrepancy developed by this closure was small and was easily taken up in making the adjustment of the elevations of the bench marks.

The levels were continued from Basswood Lake eastward along the boundary waterways, by water levels on the lakes and dead-water streams and by spirit levels where rapids or falls were encountered, until North Lake was reached. There a closure was made on a precise-level bench mark of the Geodetic Survey of Canada.

From North Lake to the head of Pigeon River vertical control was carried along the boundary by combined spirit levels and water levels. Along Pigeon River a double line of spirit levels was run to a closure on the water surface of Lake Superior.

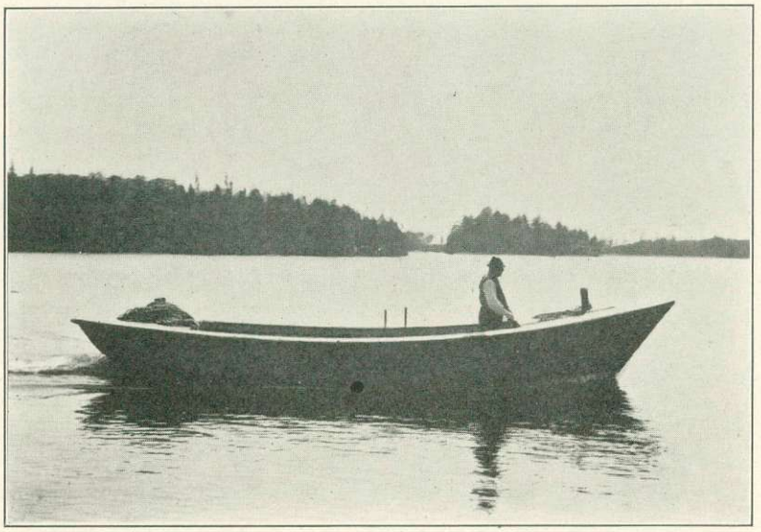
The elevations east of the west end of Crooked Lake, determined in 1909–1914 by vertical angles (see Field Operations), were considered as preliminary values and were superseded by the elevations determined in 1915, 1916, and 1917 by combined spirit levels and water levels. The contours of the boundary maps of this region are based on these later determinations which did not differ materially from the preliminary elevations.

A list of the permanent bench marks that were established, together with their elevations and descriptions, is given in Appendix IV, page 220.

FIELD TRANSPORTATION

As has been noted in the accounts of the work of the several field seasons, the problem of the economical transportation of equipment and supplies from the nearest railroad towns to the camps of the surveying parties, and of the rapid and orderly movement of camp outfits from point to point along the boundary, was always an important consideration. The survey camps were often 30 or 40 miles from their bases of supplies and, except along part of Rainy River, no railroads or highways paralleled the boundary. In general the only available means of transportation along the boundary was by motor launches or canoes and by back-packing. Water transportation on the smaller lakes was always hampered by the necessity of portaging the canoes and their loads between the lakes and around the falls and rapids of the streams. There were 35 places where back-packing had to be done over portages and along narrow streams, for distances of 40 feet to 1½ miles, in following the boundary from the west end of Rainy Lake to the head of Pigeon River.

On Lake of the Woods and on Rainy Lake, where severe storms were not uncommon, it was necessary for each of the large field parties to have at least one motor launch capable of navigating with safety in heavy weather. These boats were



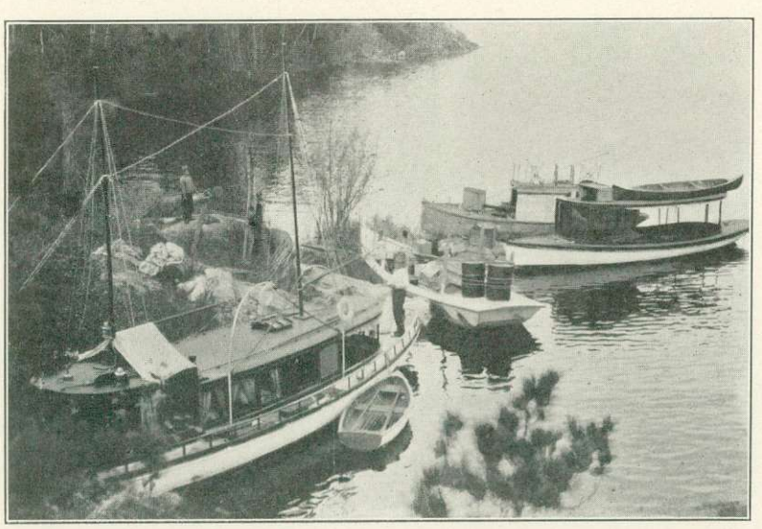
Type of flat-bottomed boat used by United States parties on Rainy Lake, 1913 and 1914

from 40 to 48 feet in length, of about 3-foot draft, of 18 to 24 horsepower, and usually with plenty of deck room for rapid and easy handling of camp equipment and supplies.

In addition to one launch of this type, the large United States organization in 1913 and 1914 had one 32-foot launch and two flat-bottomed light-draft fish boats, 23 and 26 feet long, respectively. The flat-bottomed boats were found to be very serviceable on Rainy Lake where, outside the regular channels, numerous submerged rocks made navigation hazardous for other types of boats. These boats could land almost anywhere along the lake shore and were seldom damaged when they struck submerged rocks or logs.

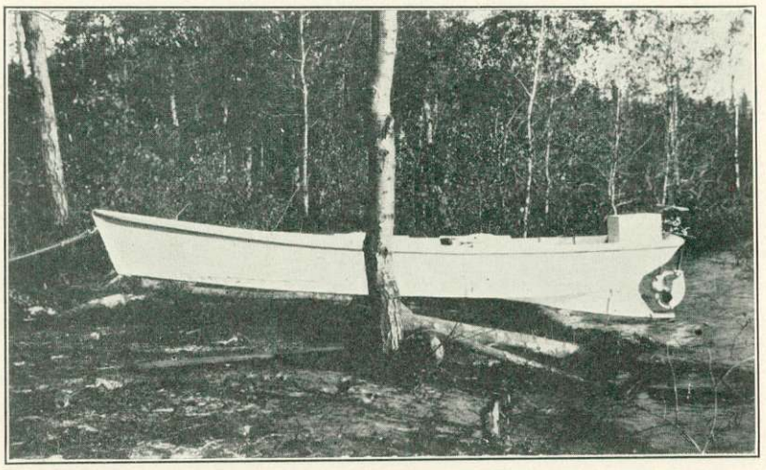
A 16-foot rowboat driven by a 2½-horsepower Waterman "Porto" outboard motor was part of the equipment of each topographic unit. In such a boat, during the mapping of the lakes, the plane-table rodman could go rapidly from point to point giving readings along the shore of the mainland or islands—a procedure which would have been slow and costly without the motor. When mapping the terrain near camp each topographic unit went to and from the working grounds under the power of its own motor, but when the distance was considerable the small boats were towed to and from work by one of the large launches. The triangulation units, which usually traveled longer distances than the topographic units, used the larger boats.

Supplies and mail were brought to the parties while camped on Rainy Lake by freight boats which made regular trips between International Falls and Kettle Falls. These boats were of deep draft and for this reason a survey launch met them on the lake



United States launches moving camp to mouth of Seine River, Rainy Lake, 1914

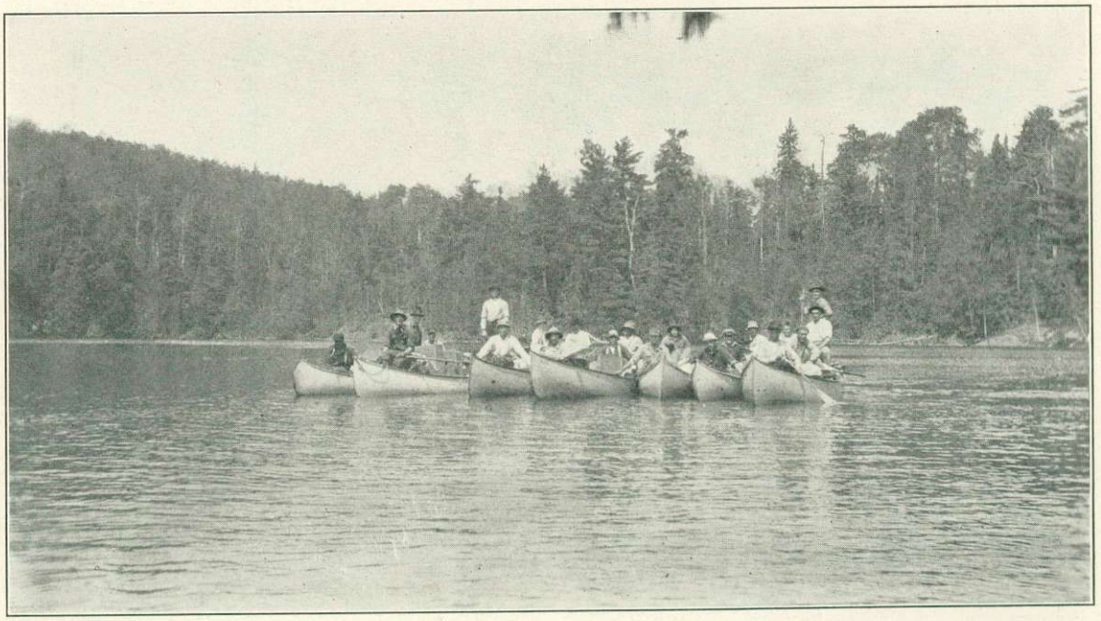
to receive the mail and supplies. When it became necessary to move camp, a large barge towed by the 48-foot launch was used in order to take the entire outfit at one trip.



Type of flat-bottomed boat and outboard motor equipment used by topographers of United States parties on Lake of the Woods and Rainy Lake

The topographic party working along Rainy River used an 18-foot open launch and a 16-foot rowboat. Camp was moved by means of a 16-foot barge which was towed by the launch. Similar but larger boats were used by the triangulation and monumenting parties along Rainy River. The party engaged on major triangulation along Rainy River depended principally upon horses and wagons for transportation.

On Namakan, Sand Point, Little Vermilion, and Loon Lakes and on Lac LaCroix the transportation equipment included three launches (the largest of which was 36 feet long), rowboats, canoes (some with outboard motors), and a "wanigan" or houseboat. All supplies, outfit, and men were transported by the boats of the survey party. Between Loon Rapids and Lac LaCroix, only the smaller boats were used, as the larger ones could not be taken over the portages.



Transportation equipment used by the United States parties, from the head of Pigeon River to Crooked Lake



Locally hired outfit used on the ice by triangulation party, Lake of the Woods, 1913

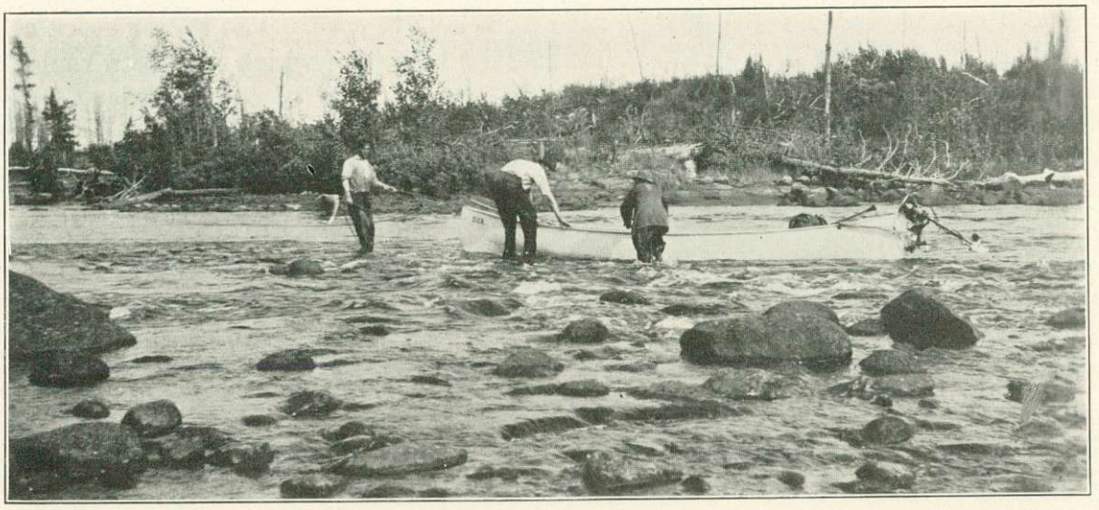
From Curtain Falls, at the west end of Crooked Lake, to the head of Pigeon River, the region where portages were most numerous, canoes were the principal means of transportation. On Crooked and Basswood Lakes, however, the party was able to hire motor boats of a fishing company to move camp and to transport supplies. From Mountain Lake eastward, teams belonging to the Pigeon River Lumber Co. were of assistance in moving camp, following the rough tote roads built by the company.

Along Pigeon River dependence was placed principally upon the lumber company's teams for supplying camp and moving the outfits, but on the dead-water stretches between the head of the river and The Cascades, transportation along the boundary was principally by canoes.

For the short season of triangulation on Lake Superior the steam launch *Picket* was hired to enable the party to establish stations on the islands off the mouth of Pigeon River and to tie the work to the triangulation of the United States Lake Survey.

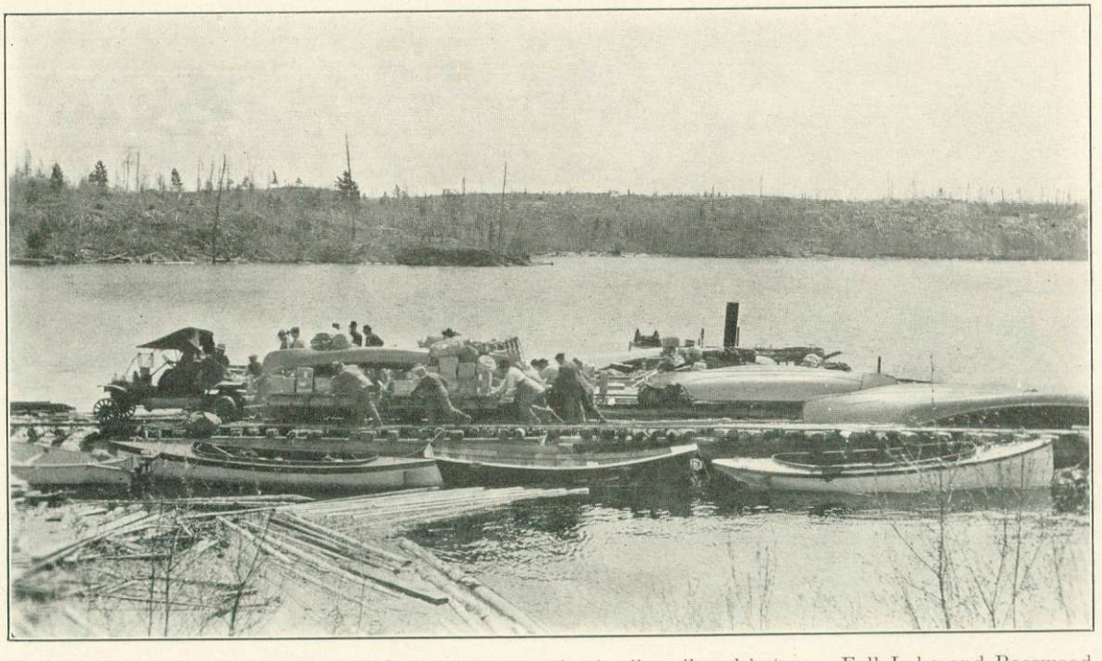


Portaging equipment used by United States party on Prairie Portage, from Birch Lake to Carp Lake



Transportation on Granite River

At times during the several seasons of field work, the survey parties made use of rather unusual means of transportation. Toboggans hauled by members of the party were used to transport supplies and equipment during the measurement of a base line (the line "Had–Garb") on the ice on Basswood Lake in the winter of 1915–16. Bobsleds with light teams of horses were used during the winter of 1913 by the level party on Rainy and Namakan Lakes to haul camp equipment and supplies and by the triangulation party on Lake of the Woods to haul lumber to sites at which towers were to be built. The 4-mile portage between Fall and Basswood Lakes, over which all supplies and equipment for the survey parties in that vicinity had to pass, was used by the courtesy of the St. Croix Lumber Co. which



Ford car and trailer used by United States party on the 4-mile railroad between Fall Lake and Basswood Lake

had laid a narrow-gage track of steel rails from lake to lake. The rolling stock consisted of a flat car pulled by an automobile, the wheels of which had been replaced by flanged car-wheels. On the portages between several of the boundary lakes, tracks of poles had been built by fishermen and lumbermen, and over these tracks the loads were portaged on flat cars, which were pulled up the steepest inclines with a rope and windlass.

Back-packing by members of the party was unavoidable. Across the portages that were not equipped with tramways the only way that the canoes and their loads could be transferred from one lake to the next was by back-packing. So, too, in the construction of the triangulation towers on Rainy Lake and the lakes to the eastward, the blocks and ropes, which constituted the hoisting equipment, together with saws, axes, and spikes, had to be back-packed through the woods from the nearest waterway to the tower site. This meant, on an average, a half mile of rough traveling with a load of 100 pounds on each man's back.

THE OFFICIAL MAPS

Article V of the treaty of 1908, pertaining to the boundary from the Northwesternmost Point of Lake of the Woods to Lake Superior, stipulates that "the course of the entire boundary as described and laid down as aforesaid and as monumented by said Commissioners shall be marked by them upon quadruplicate sets of accurate modern charts prepared or adopted by them for that purpose, and that said charts so marked shall be certified and signed by them and two duplicate originals thereof shall be filed with each Government * * *."

The charts upon which the commissioners have marked the boundary line from the Northwesternmost Point of Lake of the Woods to Lake Superior, in accordance with the above provisions of the treaty of 1908, are topographic maps prepared from the surveys made by the field force of the commission. They comprise a series of 36 sheets arranged and numbered as shown on the index map on the opposite page. They have been engraved on copper plates and printed from lithographic stones. The engraved plates will be preserved by the two Governments as permanent records of the work. The four official sets of maps, two sets for each Government, signed by the commissioners, are transmitted in atlas form with this report. The maps for distribution to the public are identical with those of the official sets except that they bear the word "Copy," the year of publication, and the commissioners' signatures in facsimile.

The size of each map, inside the border, is 23 by 35 inches. The conventional signs used to represent the topographic features are those adopted by the United States Board of Surveys and Maps. The boundary line, monuments and other culture, and lettering appear in black, relief (contour lines) in brown, drainage in blue, and timber in green. The maps are constructed on the polyconic projection on scales of 1:6,000, 1:24,000, and 1:62,500, the scale depending upon the detail needed to show clearly the location of the boundary line with respect to important topographic features. Insert maps of the very narrow boundary channels are shown

ARRANGEMENT OF
THE BOUNDARY MAPS

PREPARED UNDER ARTICLE V OF THE TREATY OF 1908 AND ARTICLE I OF THE TREATY OF 1925

SCALES OF THE MAPS

Sheets 1, 2	Sheets 3–28	Sheets 29–36
1/62500	1/24000	1/6000

Size of all maps 23 x 35 inches inside border

Scale 1/2217600 1 inch = 35 Miles

25 0 25 50 75 100

BASE MAP TAKEN FROM ENGRAVED PLATE PREPARED BY THE DEPT. OF THE INTERIOR, CANADA

PRINTED BY THE U.S. GEOLOGICAL SURVEY



on 1:3,000, 1:6,000, 1:10,000, and 1:12,000 scales. A contour interval of 5 feet is used on the inserts and on the Pigeon River maps. On the rest of the maps a 10-foot interval is used. At the top of each map are the title, the number of the sheet, the names of the commissioners, and copies of the seals of the two countries. In the lower right corner is the commissioners' certificate, which reads as follows:

Sheet 1—

We certify that this map is one of the quadruplicate set of thirty-six (36) maps prepared under Article V of the Treaty between Great Britain and the United States of America, signed at Washington, April 11, 1908, and that we have marked hereon the Boundary Line as reestablished by the Commissioners designated above, in accordance with the provisions of Article V of the Treaty of 1908 and of Article I of the Treaty between the United States and His Britannic Majesty, in respect of the Dominion of Canada, signed at Washington, February 24, 1925.

Signed, January 16, 1928

(Signed) J. D. Craig
His Britannic Majesty's Commissioner

(Signed) E. Lester Jones
United States Commissioner

Sheet 2—typical of sheets 2–36—

We certify that this map is one of the quadruplicate set of thirty-six (36) maps prepared under Article V of the Treaty between Great Britain and the United States of America, signed at Washington, April 11, 1908, and that we have marked hereon the Boundary Line as reestablished by the Commissioners designated above, in accordance with the provisions of the said Treaty.

Signed, January 16, 1928

(Signed) J. D. Craig
His Britannic Majesty's Commissioner

(Signed) E. Lester Jones
United States Commissioner

Preparation of the Maps

The first step in the preparation of the maps, after the completion of the surveys in the field, was to ink the penciled plane-table sheets. This was done in the office at the close of each field season, usually by the topographers who had done the mapping. The field drawings that were made on 15 by 15 inch plane-table sheets, after being inked, were photographed and printed on transparent celluloid sheets, the black lines of which were dusted with powdered graphite. The celluloid sheets were then adjusted to projection lines drawn on 24 by 36 inch office sheets and the field drawings were transferred to these by rubbing the celluloid with an oiled steel burnisher. The graphite lines which were thus transferred were inked in the three colors in which they were to be printed and the large assembled sheets were then delivered to the engraver, together with the geographic positions of control points, monuments, and boundary turning points. Where there were numerous control points on each field sheet, as on the 18 by 24 inch sheets used along Rainy River, it was unnecessary to transfer the topography to a larger sheet; after the sheet was inked it was delivered directly to the engraver.

In preparing the engraved plates for each map the engraver first cut on a copper plate the lines of a polyconic projection carefully laid out to the scale of publication. From these parallels of latitude and meridians of longitude he then plotted the geographic positions of the control points, monuments, and boundary turning points. This was done under the supervision of the cartographer of the United States

section of the commission, who verified the projection and checked the positions of the plotted points. By a wax-transfer process the projection and control points were then transferred from this plate to two other copper plates, one for the brown lines of the map and one for the blue lines. The topographic drawings, which had been furnished to the engraver, were photographed to the scale of the engraved projection and wax impressions on transparent celluloid were made of the negatives, and these were transferred to the three copper plates. The features to be shown in brown were then engraved on one plate, those to be shown in blue on the second, and those to be shown in black on the third, the plate on which the projection lines were engraved.

The three engraved plates were then delivered to the printer together with a timber sheet showing the outlines of the wooded areas, the character of the forest growth, and sufficient control points for fitting the timber sheet to the map projection. The printer "pulled" an impression from each of these three plates and transferred each impression to a separate lithographic stone. Likewise from standard timber-symbol patterns, he transferred to a fourth stone the proper symbols for the wooded areas outlined on the timber sheet which were to be shown on the finished map in green. From these four stones the finished map was then printed, each map being run through the press four times to receive an impression from each of the four stones.

A limited edition of the maps has been printed for each Government for distribution to other governmental agencies having use for them, to libraries, and to others interested in the exact location of any part of the international boundary line. In the United States, copies of the report and maps are on file in the Library of Congress and in other libraries designated by the Government as "depository libraries"—that is, those which receive all United States Government publications. In Canada they are on file in the Dominion Archives, in the libraries of the Dominion Parliament and of the provincial legislative assemblies, and in university and reference libraries throughout the country.

ESTABLISHMENT OF THE POINT ADOPTED IN LIEU OF THE ORIGINAL NORTHWESTERNMOST POINT OF LAKE OF THE WOODS IN ACCORDANCE WITH THE PROVISIONS OF THE TREATY OF 1925

In 1824 David Thompson, surveyor and astronomer for the British Government, received instructions from the commissioners under Article VII of the treaty of Ghent to determine the "most northwestern point" of Lake of the Woods originally named in the treaty of peace, 1783, as the point to which the international boundary was to run westward through the waterways from Lake Superior. Accordingly, in the course of his surveys of the western and northern portions of Lake of the Woods in 1824, Thompson selected, monumented, and determined the astronomical positions of three points which, in his opinion, came nearest to meeting the requirements of the treaty—a point in Northwest Angle Inlet; a second point in Monument Bay, east and a little north of Northwest Angle Inlet; and a third in Portage Bay still farther north.[1] Another point which was later to be given consideration as the probable site of the Northwesternmost Point was at Rat Portage (Kenora), where an extensive series of astronomical observations had been made by Thompson during the previous year.

As a result of Thompson's work it was apparently realized that it would be necessary, in finally selecting the "most northwestern point," to choose between Rat Portage and the locality of the first point marked by Thompson in 1824, near the head of Northwest Angle Inlet. Accordingly, in the following year, 1825, Dr. J. L. Tiarks, astronomer for the British Government, inspected these two localities and decided that a point nearly a mile north of Thompson's monument in Northwest Angle Inlet was the true "most northwestern point" of Lake of the Woods.[2] Tiarks's astronomic determination of the position of this point placed it in latitude 49° 23′ 55″, longitude 95° 14′ 38″.[3]

Accordingly, in 1842 this point was accepted by the two Governments, and until the treaty of 1925 it figured in boundary history as the western terminus of the section of the line from Lake Superior to Lake of the Woods and the initial point of the section of the line running south therefrom to the forty-ninth parallel and thence westward to the Rocky Mountains.

It was indicated, however, on a map made by the boundary commission of 1872–1876,[4] and the fact was definitely established by the surveys made in 1912 [5]

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[1] For Thompson's account of the selection of these points see Appendix III, p. 217.

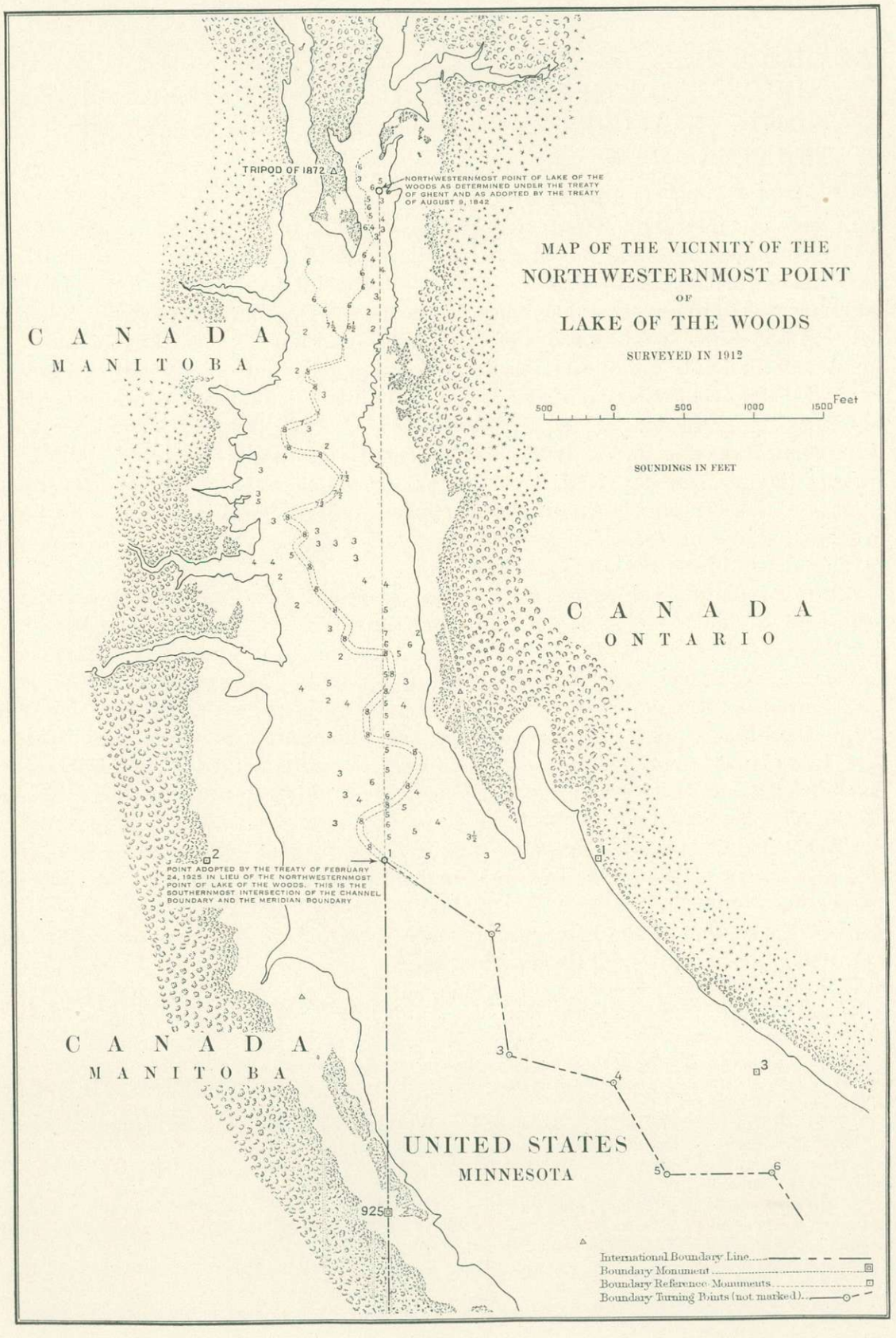
[2] A statement of Tiarks's reasons for selecting the point in Northwest Angle Inlet will be found in Appendix III, p. 218.

[3] Art. II, treaty of 1842, p. 211 of Appendix II. Also Journal of the Commissioners under the Treaty of Ghent, U. S. House of Representatives Document No. 451, 25th Cong., 2d sess., p. 48.

On the North American datum of 1927 the coordinates of the Northwesternmost Point are latitude 49° 23′ 51″.35, longitude 95° 09′ 11″.36.

[4] See map published in Report upon the Survey of the Boundary between the Territory of the United States and the Possessions of Great Britain from the Lake of the Woods to the Summit of the Rocky Mountains, by Archibald Campbell, United States commissioner, p. 83.

[5] See map, p. 108.


TRIPOD OF 1872
NORTHWESTERNMOST POINT OF LAKE OF THE WOODS AS DETERMINED UNDER THE TREATY OF GHENT AND AS ADOPTED BY THE TREATY OF AUGUST 9, 1842
MAP OF THE VICINITY OF THE
NORTHWESTERNMOST POINT
OF
LAKE OF THE WOODS
SURVEYED IN 1912
500 0 500 1000 1500 Feet
SOUNDINGS IN FEET
C A N A D A
M A N I T O B A
C A N A D A
O N T A R I O
C A N A D A
M A N I T O B A
UNITED STATES
MINNESOTA
POINT ADOPTED BY THE TREATY OF FEBRUARY 24, 1925 IN LIEU OF THE NORTHWESTERNMOST POINT OF LAKE OF THE WOODS. THIS IS THE SOUTHERNMOST INTERSECTION OF THE CHANNEL BOUNDARY AND THE MERIDIAN BOUNDARY
925
International Boundary Line
Boundary Monument
Boundary Reference Monuments
Boundary Turning Points (not marked)

under the treaty of 1908 that the straight course of boundary running due south from the Northwesternmost Point was intersected at five points by the winding course of boundary which follows the deep-water channel of Northwest Angle Inlet, thereby leaving two small areas of United States waters entirely surrounded by Canadian waters, a territorial delimitation neither intended nor desired by either Government.[6]

The commissioners acting under the treaty of 1908 therefore agreed that the southernmost point of intersection of these lines, as determined in 1912, should be permanently fixed and monumented and were prepared to recommend to the two Governments, as they later did, that this point be adopted in lieu of the original Northwesternmost Point specified in Articles V and VI of the treaty of 1908, so as to eliminate from the general line of demarcation between the two countries the intersecting portions of the boundary north of this point.[7]

The commissioners' recommendations that this point be adopted in lieu of the Northwesternmost Point were acceptable to the two Governments, and in 1925 the point was formally adopted by Article I of the treaty of that year, which in part reads as follows:

> The Contracting Parties, in order to provide for a more practical definition of the boundary between the United States and the Dominion of Canada in Lake of the Woods, hereby agree that this most southerly point of intersection, being in latitude 49° 23′ 04″.49 north, and longitude 95° 09′ 11″.61 west, shall be the terminus of the boundary line heretofore referred to as the international boundary line between the United States and the Dominion of Canada from the mouth of Pigeon River, at the western shore of Lake Superior, to the northwesternmost point of Lake of the Woods and the initial point of the boundary line heretofore referred to as the international boundary between the United States and the Dominion of Canada from the northwesternmost point of Lake of the Woods to the summit of the Rocky Mountains, in lieu of the said northwesternmost point.

Article I of the treaty of 1925 further provides that "The aforesaid most southerly point shall be located and monumented by the Commissioners appointed under the said Treaty of April 11, 1908, and shall be marked by them on the chart or charts prepared in accordance with the provisions of Articles V and VI of the said Treaty, and a detailed account of the work done by the Commissioners in locating said point, together with a description of the character and location of the several monuments erected, shall be included in the report or reports prepared pursuant to the said Articles."

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[6] In 1902 the question of jurisdiction was raised by the General Land Office of the United States with respect to the areas inclosed between the meridian boundary and the channel boundary, and an opinion regarding this question was requested of the Department of State. The solicitor of that department, in a letter from the Secretary of State to the Secretary of the Interior dated June 25, 1904, advised against disposing of any lands in these areas and made the following reference to the boundary line in this vicinity:

"It has been suggested that since it was the intendment of the treaty [of 1842] to settle finally the continuous boundary line between the two countries, all that portion of the line described in the treaty which lies north of the first intersection of the meandering and the meridional lines should be rejected. This would leave a single continuous boundary line running along the line described from Rainy Lake to its first point of intersection with the meridian line, thence south along the meridian line to the 49th parallel, thence west to the Rocky Mountains."

[7] This peculiar situation was given some consideration by the commissioners of the survey of the boundary from Lake of the Woods to the Rocky Mountains, made in 1872 to 1876, as is shown by the report of the British commissioner on file in the archives of the Canadian Government at Ottawa, but no formal action was taken.

In setting forth herein, as prescribed by the foregoing paragraph of the treaty, the detailed account of the work done by the commissioners in locating said point, etc., it should be stated at the onset that practically all of the work of determining, locating, and monumenting the point specified by the treaty in lieu of the Northwesternmost Point was actually done several years prior to the adoption of the point by the two Governments in 1925.

Late in the fall of 1912 a United States party under Mr. E. C. Barnard, surveyor in charge, made a detailed geodetic, topographic, and hydrographic survey of the northern part of Northwest Angle Inlet for the purpose of determining the position of the Northwesternmost Point and the course of the channel boundary southward therefrom. Although the surveyors of the boundary commission of 1872–1876 had redetermined the position of the Northwesternmost Point [8] and had monumented the meridian line southward therefrom with durable cast-iron monuments, they had not monumented the point itself. It was necessary therefore, in connection with the survey of 1912, that the point again be redetermined, and as the party could find no trace of the reference monument erected by David Thompson in 1824, the work of recovering the Northwesternmost Point had to be done entirely from the records of the survey of 1872, that is, by projecting the meridian line northward from monument 925 and laying off thereon the recorded distance from monument 925 to the Northwesternmost Point.

Accordingly, an 833-meter base line was measured with invar tape along the western shore of the inlet in the vicinity of the meridian line, and from this base a small scheme of triangulation was expanded up the inlet to include the site of the Northwesternmost Point and also southward to a junction with the general scheme of triangulation of Lake of the Woods which had been begun in Northwest Angle Inlet earlier that year by a Canadian party. Monument 925 of the meridian boundary was included in the triangulation, and the azimuth of that line was checked by an astronomic azimuth which was observed at station "New Rice." The meridian line was then projected north from monument 925, and on this projected line a signal was erected near the probable site of the Northwesternmost Point and tied to the scheme of triangulation. The position and distance of this point relative to monument 925 were then computed, and the precise location of the Northwesternmost Point was determined therefrom by laying off from this arbitrarily chosen point such distance on the meridian line as would make the distance from monument 925 to the Northwesternmost Point precisely 7,307 feet, which was the distance determined originally by the surveyors of the boundary commission of 1872–1876.[9]

[8] The surveyors of 1872 recovered the position of the Northwesternmost Point from the reference monument erected by David Thompson in 1824. This monument is described by Thompson as consisting of "a square monument of logs of 12 feet high by 7 feet width, the lower part of oak, the upper part of aspen." One charred log of this monument was recovered by the surveyors in 1872; the rest of the monument had evidently been destroyed by forest fires or carried away by high water. (Report upon the Survey of the Boundary between the Territory of the United States and the Possessions of Great Britain from the Lake of the Woods to the Summit of the Rocky Mountains, by Archibald Campbell, United States commissioner, pp. 305 and 307.)

[9] Report upon the Survey of the Boundary between the Territory of the United States and the Possessions of Great Britain from the Lake of the Woods to the Summit of the Rocky Mountains, by Archibald Campbell, United States commissioner, p. 35. Also U. S. Senate Executive Document No. 41, 44th Cong., 2d sess., p. 44.

The point as thus established was accepted as being on the site of the original Northwesternmost Point. Its geographic position computed through the triangulation done in 1912 was latitude 49° 23′ 51″.70, longitude 95° 09′ 11″.63. On the North American datum of 1927, the datum on which all the boundary triangulation, turning points, and monuments are based, the position of the point is latitude 49° 23′ 51″.35, longitude 95° 09′ 11″.36.

On a narrow tongue of land a few hundred feet west of the Northwesternmost Point the party found an old native-timber tripod which was a station mark left by the surveyors of the boundary commission of 1872–1876.[10] This tripod was tied in to the general scheme of triangulation, and its position relative to the Northwesternmost Point, as shown on the map on page 108, was found to check closely with that recorded in the manuscript copy of the report of the British commissioner of the survey of 1872–1876, quoted in the footnote on this page. A photograph of the tripod as it appeared in 1912 will be found on page 40.

As soon as the triangulation was completed and the location of the Northwesternmost Point determined, a detailed topographic and hydrographic survey, controlled by the triangulation, was made to accurately determine the location of the shore line of the northern part of the inlet and the course of the deep-water channel. This survey was made with plane table and stadia on a field scale of 400 feet to the inch. The deep-water channel was carefully sounded throughout its width and length with a graduated rod, and the positions of the soundings were determined with telescopic alidade and stadia from plane-table stations on the shore and plotted directly on the plane-table sheet at the time the soundings were taken. A photolithographic reproduction of this plane-table sheet showing the course of the channel as thus run out appears in map form on page 108.

The survey showed that the boundary channel was a well-defined open-water channel of a uniform width of about 60 feet; that it was from 2 to 3 feet deeper than the water on either side of it; that within a distance of less than 1 mile south of the Northwesternmost Point its winding course intersected the meridian boundary at five points; and that these intersecting lines of boundary, the meridian boundary and the line along the channel, inclosed between each intersection a small area of possibly indeterminate jurisdiction.

With the development of these facts, the southernmost of these points of intersection began to assume considerable importance. A signal was therefore erected at the point and its position was carefully determined by triangulation.[11] Later in 1912 the commissioners, after carefully studying the situation, decided that they would permanently monument this point and that they would recommend to the

[10] A reference to this station, on p. 306 of the report of the United States commissioner of the boundary survey of 1872–1876, shows that the tripod was erected by Capt. James F. Gregory, one of the engineers of the United States section of the commission. The following reference, from a manuscript copy of the report of the British commissioner of the same survey, further identifies the tripod as a station of the survey of 1872–1876: "A trigonometrical station 36 feet high was erected on the spit of land immediately to the west of the assumed N.W. Point, from which it bears North 59° 09′ West (true bearing) distant 377.3 feet."

[11] The position of the point of southernmost intersection (boundary turning point No. 1), as determined by the commissioners and as later adopted by the treaty of 1925, is shown on Sheet No. 1 of the official maps of the section of the international boundary from the Northwesternmost Point of Lake of the Woods to Lake Superior, and on Sheet No. 59 of the official maps of the section of the international boundary from the Gulf of Georgia to the Northwesternmost Point of Lake of the Woods.

two Governments that it be adopted in lieu of the original Northwesternmost Point so as to eliminate from the boundary line the intersecting portions north of this point.

This monumenting was done early the following spring. While the lake and the adjacent swamps were still frozen two cast-iron reference monuments and the materials for their concrete bases were transported on sleds from the railroad at Warroad, Minn., to Northwest Angle Inlet and were erected on the shores of the inlet, on either side of the southernmost point of intersection which had been carefully located and marked the year before. The monuments had been specially cast for the purpose. They were 8-foot hollow cast-iron posts,[12] and when set they projected 5 feet above their concrete bases, which were 2½ feet square, resting on a solid foundation below the frost line. Each monument bears the inscription "REFERENCE MARK" cast in raised letters on one side of the iron post. Before being set, each monument was filled with concrete to increase its durability and its resistance to forest fires.

The two reference monuments are designated No. 1 and No. 2. They are set on a straight line which passes through the point which they reference. Reference monument No. 1 is 1,526 feet east of this point, and reference monument No. 2 is 1,268 feet west.[13]

The geographic positions of the reference monuments and the point which they reference were carefully determined by triangulation. The geographic positions of the reference monuments as thus determined were: Reference monument No. 1, latitude 49° 23′ 04″.50, longitude 95° 08′ 48″.55; reference monument No. 2, latitude 49° 23′ 04″.48, longitude 95° 09′ 30″.77. The geographic position of the point which these monuments reference, as thus determined by triangulation, was latitude 49° 23′ 04″.49, longitude 95° 09′ 11″.61, which is the position of the point as later designated in the treaty of 1925. Expressed in terms of North American datum of 1927, the datum on which all points in this report are based, this position is latitude 49° 23′ 04″.14, longitude 95° 09′ 11″.34.[13] The point is 4,785 feet south of the original Northwesternmost Point and 2,522 feet north of monument 925 of the meridian line. This point, adopted by the treaty of 1925 and established by the commissioners, is the most northern point on the international boundary between the United States and the Dominion of Canada.

[12] See fig. 4, p. 89.

[13] See Description and Definition of the Boundary Line, p. 114

DESCRIPTION AND DEFINITION OF THE INTERNATIONAL BOUNDARY LINE FROM THE NORTHWESTERNMOST POINT OF LAKE OF THE WOODS TO LAKE SUPERIOR

The section of the international boundary line between the United States and the Dominion of Canada from the Northwesternmost Point of Lake of the Woods to Lake Superior as now reestablished consists of a series of 1,796 straight-line courses joining consecutively numbered "turning points". It is referenced by 1,373 boundary reference monuments set along the shores of the waterways, and is marked by nine boundary monuments on three short portages.[1] The total length of the line is 425.79 miles, 425.01 miles through waterways and 0.78 mile across land at the portages.

The description of the line, as reestablished by the commissioners and as marked by them on the 36 boundary maps which accompany this report, is set forth in tabular form, pages 114 to 187, inclusive. The tables give the geographic positions of all the boundary turning points, together with the lengths and azimuths of the connecting straight-line courses. They also give the geographic positions of the boundary monuments, the boundary reference monuments, and the lengths and azimuths of the lines from the reference monuments to the boundary turning points which they reference.

The lengths of the courses and other tabulated distances are given in meters, and the azimuths are reckoned clockwise from due south. All distances have been reduced to mean sea level. To obtain the actual horizontal distances between points at known elevations above sea level, the distances given in the tables should be increased by an amount equal to $0.0000000478\ L\ E$, in which L is the tabulated length of the course in meters and E is the mean elevation of the ends of the course in feet. The maximum value of this increase for any course on this part of the international boundary is less than 1 part in 12,000.

All latitudes and longitudes are given on the North American datum of 1927. This is the standard geodetic datum recently adopted by the United States Coast and Geodetic Survey and the Geodetic Survey of Canada for the western part of North America and it supersedes the former North American datum. It is the result of a readjustment of the western network of arcs of the first-order triangulation, retaining the latitude and longitude of the station "Meades Ranch" of the former North American datum, but controlling the orientation in the new adjustment by many more Laplace azimuths distributed throughout the network.[2]

[1] Swamp Portage, Height-of-Land Portage, and Watap Portage.

[2] A geographic position is said to be on the North American datum of 1927 when the station is connected with stations of the western network of arcs of the readjusted first-order triangulation by continuous triangulation or traverse computed on the Clarke spheroid of 1866, as expressed in meters.

GEOGRAPHIC POSITIONS OF BOUNDARY TURNING POINTS DEFINING THE INTERNATIONAL BOUNDARY THROUGH LAKE OF THE WOODS

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
LAKE OF THE WOODS	° ′ ″	° ′		
T. P. 1*	49 23 04.14	89 59	Ref. Mon. 2	386.6
	95 09 11.34	269 59	Ref. Mon. 1	465.1
		306 28	T. P. 2	278.5
		359 59	Mon. 924	1,561.5
		359 59	Mon. 925	768.8
T. P. 2	49 22 58.78	126 28	T. P. 1	278.5
	95 09 00.23	235 30	Ref. Mon. 1	292.6
		352 01	T. P. 3	262.6
T. P. 3	49 22 50.36	172 01	T. P. 2	262.6
	95 08 58.43	205 41	Ref. Mon. 1	472.4
		284 33	T. P. 4	232.5
T. P. 4	49 22 48.47	104 34	T. P. 3	232.5
	95 08 47.27	177 36	Ref. Mon. 1	484.6
		267 40	Ref. Mon. 3	320.0
		329 26	T. P. 5	235.4
T. P. 5	49 22 41.91	149 26	T. P. 4	235.4
	95 08 41.34	168 29	Ref. Mon. 1	701.0
		222 50	Ref. Mon. 3	294.2
		269 40	T. P. 6	229.4
T. P. 6	49 22 41.95	89 41	T. P. 5	229.4
	95 08 29.96	172 12	Ref. Mon. 3	216.4
		287 59	Ref. Mon. 5	969.9
		327 47	T. P. 7	288.6
T. P. 7	49 22 34.05	147 47	T. P. 6	288.6
	95 08 22.34	158 13	Ref. Mon. 3	493.8
		274 08	Ref. Mon. 5	770.6
		298 56	T. P. 8	584.8
T. P. 8	49 22 24.89	20 06	Ref. Mon. 4	751.8
	95 07 56.97	118 57	T. P. 7	584.8
		228 28	Ref. Mon. 5	343.1
		319 58	T. P. 9	453.9
T. P. 9	49 22 13.64	56 55	Ref. Mon. 4	656.9
	95 07 42.49	139 58	T. P. 8	453.9
		176 30	Ref. Mon. 5	576.1
		294 47	T. P. 10	1,022.4
T. P. 10	49 21 59.77	114 47	T. P. 9	1,022.4
	95 06 56.49	246 18	Ref. Mon. 7	538.8
		273 04	T. P. 11	445.8
		319 35	Ref. Mon. 6	562.0
T. P. 11	49 21 59.00	11 20	Ref. Mon. 6	412.0
	95 06 34.42	93 05	T. P. 10	445.8
		191 20	Ref. Mon. 7	245.1
		286 22	T. P. 12	500.3
T. P. 12	49 21 54.43	64 53	Ref. Mon. 6	619.5
	95 06 10.63	106 22	T. P. 11	500.3
		131 27	Ref. Mon. 7	576.1
		358 35	T. P. 13	177.0
T. P. 13	49 21 48.71	81 21	Ref. Mon. 6	571.9
	95 06 10.42	142 00	Ref. Mon. 7	708.5
		178 35	T. P. 12	177.0
		285 00	T. P. 14	1,005.5
T. P. 14	49 21 40.28	105 01	T. P. 13	1,005.5
	95 05 22.29	178 44	Ref. Mon. 9	715.7
		291 05	T. P. 15	2,449.9
		358 44	Ref. Mon. 8	235.7
T. P. 15	49 21 11.73	111 07	T. P. 14	2,449.9
	95 03 29.02	241 10	Ref. Mon. 11	1,440.6
		271 25	T. P. 16	638.1
		324 33	Ref. Mon. 10	503.1
T. P. 16	49 21 11.22	41 18	Ref. Mon. 10	524.4
	95 02 57.41	91 25	T. P. 15	638.1
		221 18	Ref. Mon. 11	945.7
		261 42	T. P. 17	2,593.5
T. P. 17	49 21 23.33	81 43	T. P. 16	2,593.5
	95 00 50.25	175 09	Ref. Mon. 13	746.0
		232 51	T. P. 18	2,296.2
		355 09	Ref. Mon. 14	1,117.9
T. P. 18	49 22 08.20	52 52	T. P. 17	2,296.2
	94 59 19.53	171 19	Ref. Mon. 15	616.5
		277 19	T. P. 19	1,076.8
		351 19	Ref. Mon. 16	727.1
T. P. 19	49 22 03.76	97 19	T. P. 18	1,076.8
	94 58 26.60	172 52	Ref. Mon. 17	200.1
		257 17	T. P. 20	1,258.2
		352 52	Ref. Mon. 18	235.7
T. P. 20	49 22 12.73	77 17	T. P. 19	1,258.2
	94 57 25.76	149 44	Ref. Mon. 19	217.8
		292 52	T. P. 21	419.7
		329 44	Ref. Mon. 20	404.0
T. P. 21	49 22 07.45	44 35	Ref. Mon. 20	261.0
	94 57 06.59	112 52	T. P. 20	419.7
		224 35	Ref. Mon. 23	198.5
		303 29	T. P. 22	3,745.2
T. P. 22	49 21 00.53	22 38	Ref. Mon. 26	52.4
	94 54 31.92	123 31	T. P. 21	3,745.2
		309 39	Ref. Mon. 25	269.6
		316 21	T. P. 23	271.9
T. P. 23	49 20 54.16	125 31	Ref. Mon. 26	255.4
	94 54 22.62	136 21	T. P. 22	271.9
		218 43	Ref. Mon. 25	31.7
		309 06	T. P. 24	2,645.1
T. P. 24	49 20 00.14	129 07	T. P. 23	2,645.1
	94 52 40.95	173 06	Ref. Mon. 29	198.8
		299 42	T. P. 25	2,026.9
		353 06	Ref. Mon. 30	197.5
T. P. 25	49 19 27.64	119 43	T. P. 24	2,026.9
	94 51 13.76	160 39	Ref. Mon. 31	292.0
		270 18	T. P. 26	1,283.4
		340 39	Ref. Mon. 32	240.1
T. P. 26	49 19 27.41	90 19	T. P. 25	1,283.4
	94 50 10.21	102 20	Ref. Mon. 33	636.7
		282 20	Ref. Mon. 35	1,584.3
		282 20	T. P. 27	1,498.7
T. P. 27	49 19 17.05	23 01	T. P. 28	1,504.2
	94 48 57.71	102 20	Ref. Mon. 33	2,135.5
		102 20	T. P. 26	1,498.7
		282 20	Ref. Mon. 35	85.5
T. P. 28	49 18 32.24	3 02	T. P. 29	1,625.6
	94 49 26.83	96 36	Ref. Mon. 36	134.2
		203 01	T. P. 27	1,504.2
		276 36	Ref. Mon. 37	139.2
T. P. 29	49 17 39.69	83 36	Ref. Mon. 38	367.6
	94 49 31.09	183 02	T. P. 28	1,625.6
		263 36	Ref. Mon. 39	375.8
		347 00	T. P. 30	9,132.1
T. P. 30	49 12 51.66	1 29	T. P. 31	1,834.2
	94 47 49.55	103 27	Ref. Mon. 40	321.8
		167 01	T. P. 29	9,132.1
		283 27	Ref. Mon. 41	278.1
T. P. 31	49 11 52.31	157 33	Ref. Mon. 42	269.0
	94 47 51.89	181 29	T. P. 30	1,834.2
		337 33	Ref. Mon. 43	532.7
		347 56	T. P. 32	8,796.8
T. P. 32	49 07 13.84	134 22	Ref. Mon. 44	512.0
	94 46 21.21	167 57	T. P. 31	8,796.8
		314 22	Ref. Mon. 47	2,985.2
		325 05	T. P. 33	2,951.5
T. P. 33	49 05 55.48	53 12	Ref. Mon. 46	299.3
	94 44 57.93	145 06	T. P. 32	2,951.5
		233 12	Ref. Mon. 47	555.6
		348 30	T. P. 34	24,352.8
T. P. 34	48 53 02.90	2 41	T. P. 35	1,310.6
	94 40 59.69	42 46	Ref. Mon. 48	1,140.9
		168 33	T. P. 33	24,352.8
		222 46	Ref. Mon. 49	867.1
T. P. 35	48 52 20.53	58 02	T. P. 36	700.4
	94 41 02.71	123 28	Ref. Mon. 48	855.0
		182 41	T. P. 34	1,310.6
		198 29	Ref. Mon. 49	2,051.2
T. P. 36	48 52 08.52	171 57	Ref. Mon. 48	850.5
	94 41 31.87	208 15	Ref. Mon. 49	2,629.3
		238 02	T. P. 35	700.4
		345 14	T. P. 37	628.2
T. P. 37	48 51 48.86	10 30	T. P. 38	1,146.9
	94 41 24.01	16 51	Ref. Mon. 50	2,083.9
		165 14	T. P. 36	628.2
		320 02	Ref. Mon. 51	1,197.5
T. P. 38	48 51 12.37	24 29	Ref. Mon. 50	952.7
	94 41 34.27	190 30	T. P. 37	1,146.9
		257 54	Ref. Mon. 51	1,000.5
		339 44	T. P. 39	1,584.3

* The geographic coordinates used by the two Governments in the treaty of 1925 to define the location of this point are latitude 49° 23′ 04″.49, longitude 95° 09′ 11″.61. These coordinates were based on the original North American datum which, since the treaty of 1925, has been superseded by the North American datum of 1927, the geodetic datum on which all geographic positions of this section of the international boundary line are based.

GEOGRAPHIC POSITIONS OF BOUNDARY TURNING POINTS DEFINING THE INTERNATIONAL BOUNDARY THROUGH RAINY RIVER

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
RAINY RIVER	° ′ ″	° ′		
T. P. 39	48 50 24.25	8 42	Ref. Mon. 53	591.1
	94 41 07.35	59 59	T. P. 40	1,013.9
		70 31	Ref. Mon. 52	536.4
		159 44	T. P. 38	1,584.3
T. P. 40	48 50 07.83	39 01	T. P. 41	524.9
	94 41 50.28	228 23	Ref. Mon. 52	494.4
		239 58	T. P. 39	1,013.9
		275 36	Ref. Mon. 53	789.8
T. P. 41	48 49 54.64	11 13	T. P. 42	862.4
	94 42 06.48	27 54	Ref. Mon. 56	966.3
		108 29	Ref. Mon. 54	166.9
		219 01	T. P. 40	524.9
T. P. 42	48 49 27.25	88 21	Ref. Mon. 56	284.6
	94 42 14.70	191 13	T. P. 41	862.4
		268 21	Ref. Mon. 55	316.3
		338 06	T. P. 43	1,805.5
T. P. 43	48 48 33.03	3 26	T. P. 44	1,059.3
	94 41 41.69	56 46	Ref. Mon. 60	389.3
		158 06	T. P. 42	1,805.5
		236 46	Ref. Mon. 59	376.3
T. P. 44	48 47 58.80	74 42	Ref. Mon. 62	176.6
	94 41 44.79	183 26	T. P. 43	1,059.3
		254 42	Ref. Mon. 61	253.9
		354 09	T. P. 45	1,140.3
T. P. 45	48 47 22.08	29 04	Ref. Mon. 66	223.5
	94 41 39.09	174 09	T. P. 44	1,140.3
		209 04	Ref. Mon. 63	300.5
		348 34	T. P. 46	1,298.5
T. P. 46	48 46 40.88	28 00	Ref. Mon. 68	240.0
	94 41 26.49	168 34	T. P. 45	1,298.5
		281 36	Ref. Mon. 65	316.5
		318 34	T. P. 47	424.1
T. P. 47	48 46 30.58	105 06	Ref. Mon. 68	407.3
	94 41 12.74	138 34	T. P. 46	424.1
		186 37	Ref. Mon. 65	256.0
		297 17	T. P. 48	845.9
T. P. 48	48 46 18.03	89 14	Ref. Mon. 70	511.9
	94 40 35.93	117 18	T. P. 47	845.9
		269 14	Ref. Mon. 67	320.4
		310 39	T. P. 49	935.7
T. P. 49	48 45 58.30	130 39	T. P. 48	935.7
	94 40 01.16	147 36	Ref. Mon. 67	727.0
		247 26	Ref. Mon. 69	246.7
		321 42	T. P. 50	816.3
T. P. 50	48 45 37.56	25 07	Ref. Mon. 74	196.4
	94 39 36.39	141 42	T. P. 49	816.3
		205 07	Ref. Mon. 71	234.0
		307 52	T. P. 51	772.5
T. P. 51	48 45 22.21	60 36	Ref. Mon. 76	286.1
	94 39 06.53	127 52	T. P. 50	772.5
		240 36	Ref. Mon. 73	175.9
		328 09	T. P. 52	926.4
T. P. 52	48 44 56.73	50 59	Ref. Mon. 78	293.6
	94 38 42.60	148 09	T. P. 51	926.4
		337 24	Ref. Mon. 75	491.9
		359 56	T. P. 53	561.5
T. P. 53	48 44 38.55	148 43	Ref. Mon. 78	440.7
	94 38 42.57	179 56	T. P. 52	561.5
		240 19	Ref. Mon. 75	216.8
		316 05	T. P. 54	432.6
T. P. 54	48 44 28.47	33 25	Ref. Mon. 80	224.9
	94 38 27.88	136 05	T. P. 53	432.6
		213 25	Ref. Mon. 77	231.5
		286 51	T. P. 55	854.2
T. P. 55	48 44 20.45	22 32	Ref. Mon. 82	200.9
	94 37 47.87	105 51	T. P. 54	854.2
		202 32	Ref. Mon. 79	196.6
		283 20	T. P. 56	832.3
T. P. 56	48 44 14.24	51 56	Ref. Mon. 84	253.0
	94 37 08.23	103 20	T. P. 55	832.3
		231 56	Ref. Mon. 81	187.3
		314 07	T. P. 57	873.0
RAINY RIVER—Continued				
T. P. 57	48 43 54.56	40 58	Ref. Mon. 86	252.7
	94 36 37.56	134 08	T. P. 56	873.0
		220 58	Ref. Mon. 83	183.8
		299 49	T. P. 58	801.2
T. P. 58	48 43 41.66	119 50	T. P. 57	801.2
	94 36 03.55	254 50	Ref. Mon. 85	257.7
		316 52	T. P. 59	527.3
		347 53	Ref. Mon. 88	346.2
T. P. 59	48 43 29.20	99 09	Ref. Mon. 88	291.6
	94 35 45.91	136 52	T. P. 58	527.3
		166 07	Ref. Mon. 85	465.8
		327 43	T. P. 60	676.8
T. P. 60	48 43 10.68	58 05	Ref. Mon. 89	167.1
	94 35 28.23	147 44	T. P. 59	676.8
		238 05	Ref. Mon. 87	167.1
		309 25	T. P. 61	355.3
T. P. 61	48 43 03.38	108 15	Ref. Mon. 89	438.4
	94 35 14.80	129 25	T. P. 60	355.3
		157 06	Ref. Mon. 87	340.8
		279 14	T. P. 62	1,424.7
T. P. 62	48 42 55.97	1 15	Baraba	181.2
	94 34 06.01	99 14	T. P. 61	1,424.7
		181 15	Ref. Mon. 90	196.2
		265 08	T. P. 63	938.2
		304 04	Ref. Mon. 91	344.5
T. P. 63	48 42 58.55	4 17	Fuzzy	150.0
	94 33 20.28	67 15	Ref. Mon. 91	704.3
		85 08	T. P. 62	938.2
		184 17	Rainy River water tank.	161.7
		212 29	Ref. Mon. 92	161.1
		288 20	T. P. 64	527.3
T. P. 64	48 42 53.18	46 39	Steam	185.9
	94 32 55.79	108 21	T. P. 63	527.3
		126 06	Ref. Mon. 92	512.4
		226 39	Phone	183.1
		317 07	T. P. 65	356.5
		345 12	Ref. Mon. 93	375.5
T. P. 65	48 42 44.72	55 13	Ref. Mon. 93	178.5
	94 32 43.92	130 37	Ref. Mon. 92	865.0
		157 07	T. P. 64	356.5
		235 13	Crow	200.0
		333 43	T. P. 66	1,201.6
T. P. 66	48 42 09.84	112 13	Ref. Mon. 94	302.1
	94 32 17.91	153 44	T. P. 65	1,201.6
		262 20	Ref. Mon. 95	349.5
		291 56	T. P. 67	441.7
T. P. 67	48 42 04.50	111 56	T. P. 66	441.7
	94 31 57.87	163 21	Ref. Mon. 95	220.9
		266 24	T. P. 68	603.7
		279 50	Ref. Mon. 96	803.7
T. P. 68	48 42 05.72	86 24	T. P. 67	603.7
	94 31 28.40	104 38	Ref. Mon. 95	688.0
		279 58	T. P. 69	550.7
		312 46	Ref. Mon. 96	258.0
T. P. 69	48 42 02.64	77 15	Ref. Mon. 96	361.9
	94 31 01.88	99 59	T. P. 68	550.7
		272 06	T. P. 70	595.0
		297 26	Ref. Mon. 97	393.3
T. P. 70	48 42 01.93	57 01	Ref. Mon. 97	292.7
	94 30 32.80	92 07	T. P. 69	595.0
		278 47	Ref. Mon. 98	739.2
		291 33	T. P. 71	768.5
T. P. 71	48 41 52.79	5 21	Calf	154.2
	94 29 57.84	97 18	Ref. Mon. 97	968.1
		111 33	T. P. 70	768.5
		185 21	Ref. Mon. 98	170.2
		270 18	T. P. 72	973.1
T. P. 72	48 41 52.62	90 19	T. P. 71	973.1
	94 29 10.26	177 51	Ref. Mon. 99	168.5
		277 17	T. P. 73	1,166.8
		284 36	Ref. Mon. 100	1,215.9

BOUNDARY TURNING POINTS—RAINY RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
RAINY RIVER—Continued	° ′ ″	° ′		
T. P. 73	48 41 47.82	97 18	T. P. 72	1,166.8
	94 28 13.66	173 05	Ray	175.8
		267 24	Ref. Mon. 101	589.8
		285 35	T. P. 74	572.5
		353 05	Ref. Mon. 100	159.6
T. P. 74	48 41 42.84	11 48	Lid	168.6
	94 27 46.69	89 31	Ref. Mon. 100	532.2
		105 36	T. P. 73	572.5
		191 48	Ref. Mon. 101	184.5
		294 55	T. P. 75	511.3
T. P. 75	48 41 35.86	22 38	Ref. Mon. 102	168.4
	94 27 24.02	114 55	T. P. 74	511.3
		132 55	Ref. Mon. 101	581.6
		286 09	T. P. 76	344.3
T. P. 76	48 41 32.76	81 26	Ref. Mon. 102	400.0
	94 27 07.85	106 09	T. P. 75	344.3
		229 04	Ref. Mon. 103	253.1
		262 19	T. P. 77	430.2
T. P. 77	48 41 34.62	82 19	T. P. 76	430.2
	94 26 47.00	114 44	Ref. Mon. 103	258.9
		249 36	T. P. 78	609.2
		257 50	Ref. Mon. 104	708.2
T. P. 78	48 41 41.50	69 36	T. P. 77	609.2
	94 26 19.08	82 39	Ref. Mon. 103	812.8
		222 54	T. P. 79	1,585.9
		297 30	Ref. Mon. 104	136.8
T. P. 79	48 42 19.10	42 55	T. P. 78	1,585.9
	94 25 26.27	167 03	Ref. Mon. 105	199.5
		209 08	T. P. 80	421.0
		224 51	Ref. Mon. 106	619.4
T. P. 80	48 42 31.00	29 09	T. P. 79	421.0
	94 25 16.25	55 15	Ref. Mon. 105	304.0
		224 20	T. P. 81	259.5
		252 53	Ref. Mon. 106	242.6
T. P. 81	48 42 37.01	44 20	T. P. 80	259.5
	94 25 07.38	50 13	Ref. Mon. 105	560.9
		250 27	T. P. 82	240.8
		336 07	Ref. Mon. 106	124.9
T. P. 82	48 42 39.62	42 10	Ref. Mon. 106	262.8
	94 24 56.28	70 27	T. P. 81	240.8
		243 57	Ref. Mon. 107	257.5
		274 19	T. P. 83	723.6
T. P. 83	48 42 37.85	94 19	T. P. 82	723.6
	94 24 20.98	108 52	Ref. Mon. 107	518.0
		262 37	T. P. 84	1,266.0
		283 20	Ref. Mon. 108	389.9
T. P. 84	48 42 43.12	73 56	Ref. Mon. 108	911.8
	94 23 19.57	82 38	T. P. 83	1,266.0
		253 56	Ref. Mon. 109	391.8
		272 09	T. P. 85	360.4
T. P. 85	48 42 42.68	92 09	T. P. 84	360.4
	94 23 01.95	187 40	Ref. Mon. 109	123.0
		287 40	T. P. 86	300.4
		315 54	Ref. Mon. 110	328.2
T. P. 86	48 42 39.73	21 48	Ref. Mon. 110	155.7
	94 22 47.95	107 40	T. P. 85	300.4
		128 18	Ref. Mon. 109	343.8
		300 59	T. P. 87	978.0
T. P. 87	48 42 23.42	26 54	Limb	137.3
	94 22 06.95	121 00	T. P. 86	978.0
		206 54	Ref. Mon. 111	144.6
		264 50	Ref. Mon. 112	423.9
		282 59	T. P. 88	1,167.1
T. P. 88	48 42 14.94	20 16	King	150.8
	94 21 11.32	103 00	T. P. 87	1,167.1
		200 16	Ref. Mon. 113	149.6
		275 59	T. P. 89	755.2
		288 39	Ref. Mon. 114	800.3
T. P. 89	48 42 12.38	96 00	T. P. 88	755.2
	94 20 34.59	107 24	Ref. Mon. 113	732.8
		177 40	McGee	160.9
		263 42	T. P. 90	1,065.5
		357 40	Ref. Mon. 114	177.2
T. P. 90	48 42 16.16	83 43	T. P. 89	1,065.5
	94 19 42.79	241 42	Ref. Mon. 116	1,638.3
		246 12	T. P. 91	1,603.0
		344 27	Ref. Mon. 115	182.1
T. P. 91	48 42 37.10	59 54	Ref. Mon. 115	1,639.1
	94 18 31.05	66 13	T. P. 90	1,603.0
		169 30	Ref. Mon. 116	131.8
		281 54	T. P. 92	1,325.4
T. P. 92	48 42 28.24	12 30	Ref. Mon. 117	197.3
	94 17 27.62	101 55	T. P. 91	1,325.4
		279 54	Ref. Mon. 118	633.1
		291 51	T. P. 93	655.5
T. P. 93	48 42 20.34	94 30	Ref. Mon. 117	653.1
	94 16 57.86	111 51	T. P. 92	655.5
		186 28	Ref. Mon. 118	135.9
		316 05	T. P. 94	887.4
T. P. 94	48 41 59.65	69 05	Trail	170.6
	94 16 27.76	103 52	Ref. Mon. 119	281.5
		136 05	T. P. 93	887.4
		249 05	Ref. Mon. 120	228.1
		277 31	T. P. 95	747.8
T. P. 95	48 41 56.48	97 31	T. P. 94	747.8
	94 15 51.50	316 43	T. P. 96	365.5
		320 41	Ref. Mon. 122	906.5
		348 36	Ref. Mon. 121	233.3
T. P. 96	48 41 47.87	100 22	Ref. Mon. 121	207.8
	94 15 39.25	136 43	T. P. 95	365.5
		323 21	Ref. Mon. 122	542.5
		337 50	T. P. 97	586.8
T. P. 97	48 41 30.28	157 50	T. P. 96	586.8
	94 15 28.42	223 26	Ref. Mon. 122	149.1
		327 45	T. P. 98	705.6
		339 05	Ref. Mon 123	697.3
T. P. 98	48 41 10.96	66 48	Ref. Mon. 123	138.8
	94 15 10.01	147 45	T. P. 97	705.6
		316 51	Ref. Mon. 124	377.3
		339 36	T. P. 99	324.0
T. P. 99	48 41 01.13	78 56	End	162.6
	94 15 04.49	136 00	Ref. Mon. 123	346.2
		159 36	T. P. 98	324.0
		258 56	Ref. Mon. 124	147.9
		355 12	T. P. 100	612.8
T. P. 100	48 40 41.36	9 50	T. P. 101	1,001.2
	94 15 01.98	18 26	Ref. Mon. 126	958.3
		175 12	T. P. 99	612.8
		272 47	Ref. Mon. 125	162.5
T. P. 101	48 40 09.42	0 40	Ref. Mon. 127	566.8
	94 15 10.35	12 34	T. P. 102	601.6
		120 23	Ref. Mon. 126	153.0
		189 50	T. P. 100	1,001.2
T. P. 102	48 39 50.41	6 17	Ref. Mon. 128	487.0
	94 15 16.74	192 34	T. P. 101	601.6
		260 41	Ref. Mon. 127	126.0
		357 27	T. P. 103	281.8
T. P. 103	48 39 41.30	17 59	Ref. Mon. 128	213.0
	94 15 16.13	177 27	T. P. 102	281.8
		200 20	Ref. Mon. 127	321.9
		331 29	T. P. 104	574.1
T. P. 104	48 39 24.97	59 38	Ref. Mon. 129	136.8
	94 15 02.74	131 37	Ref. Mon. 128	454.6
		151 30	T. P. 103	574.1
		314 41	T. P. 105	431.0
T. P. 105	48 39 15.16	118 52	Ref. Mon. 129	484.6
	94 14 47.77	134 41	T. P. 104	431.0
		258 33	Ref. Mon. 130	205.3
		295 18	T. P. 106	185.4
T. P. 106	48 39 12.59	115 18	T. P. 105	185.4
	94 14 39.58	117 53	Ref. Mon. 129	669.8
		196 03	Ref. Mon. 130	125.0
		279 04	T. P. 107	818.4
T. P. 107	48 39 08.42	99 04	T. P. 106	818.4
	94 14 00.10	273 55	Ref. Mon. 132	484.2
		294 40	T. P. 108	757.7
		337 57	Ref. Mon. 131	240.1
T. P. 108	48 38 58.18	98 54	Ref. Mon. 131	605.7
	94 13 26.46	114 41	T. P. 107	757.7
		144 03	Ref. Mon. 132	349.9
		271 05	T. P. 109	716.2
T. P. 109	48 38 57.74	63 53	Ref. Mon. 133	494.2
	94 12 51.48	91 05	T. P. 108	716.2
		107 51	Ref. Mon. 132	968.1
		260 43	T. P. 110	1,106.7

BOUNDARY TURNING POINTS—RAINY RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
RAINY RIVER—Continued	° ′ ″	° ′		
T. P. 110	48 39 03.51	80 44	T. P. 109	1,106.7
	94 11 58.11	127 02	Ref. Mon. 134	216.1
		274 23	T. P. 111	814.4
		307 02	Ref. Mon. 135	263.4
T. P. 111	48 39 01.50	80 54	Ref. Mon. 135	609.4
	94 11 18.44	94 23	T. P. 110	814.4
		185 15	Ref. Mon. 136	147.2
		279 12	T. P. 112	1,553.8
T. P. 112	48 38 53.45	15 44	Ref. Mon. 137	177.8
	94 10 03.51	99 13	T. P. 111	1,553.8
		279 25	Ref. Mon. 138	819.7
		289 27	T. P. 113	808.1
T. P. 113	48 38 44.74	19 05	Bare	145.2
	94 09 26.28	109 28	T. P. 112	808.1
		199 05	Ref. Mon. 138	142.8
		273 50	T. P. 114	389.5
		293 42	Ref. Mon. 139	414.0
T. P. 114	48 38 43.89	3 54	Ref. Mon. 139	140.7
	94 09 07.30	93 51	T. P. 113	389.5
		115 13	Ref. Mon. 138	377.9
		266 42	T. P. 115	963.5
T. P. 115	48 38 45.68	86 43	T. P. 114	963.5
	94 08 20.31	100 23	Ref. Mon. 140	311.5
		280 47	T. P. 116	981.9
		294 18	Ref. Mon. 141	508.8
T. P. 116	48 38 39.74	87 05	Ref. Mon. 141	501.5
	94 07 33.19	100 47	T. P. 115	981.9
		199 43	Ref. Mon. 142	151.4
		270 24	T. P. 117	1,182.7
T. P. 117	48 38 39.46	58 14	Ref. Mon. 144	226.5
	94 06 35.41	90 25	T. P. 116	1,182.7
		238 14	Ref. Mon. 145	659.0
		256 35	T. P. 118	763.8
T. P. 118	48 38 45.20	76 36	T. P. 117	763.8
	94 05 59.12	132 55	Ref. Mon. 145	249.4
		291 00	T. P. 119	684.8
		298 38	Ref. Mon. 146	815.4
T. P. 119	48 38 37.25	111 01	T. P. 118	684.8
	94 05 27.89	247 02	Ref. Mon. 147	349.3
		264 19	T. P. 120	464.9
		332 19	Ref. Mon. 146	164.1
T. P. 120	48 38 38.74	63 39	Ref. Mon. 146	431.1
	94 05 05.29	84 19	T. P. 119	464.9
		122 38	Ref. Mon. 147	167.4
		268 55	T. P. 121	608.0
T. P. 121	48 38 39.11	69 32	Ref. Mon. 148	254.0
	94 04 35.59	88 55	T. P. 120	608.0
		155 04	Ref. Mon. 149	89.9
		243 53	T. P. 122	433.8
T. P. 122	48 38 45.29	63 53	T. P. 121	433.8
	94 04 16.56	65 58	Ref. Mon. 148	687.1
		75 38	Ref. Mon. 149	441.2
		266 00	T. P. 123	411.3
T. P. 123	48 38 46.22	35 19	Ref. Mon. 152	125.1
	94 03 56.52	86 00	T. P. 122	411.3
		168 40	Ref. Mon. 151	129.4
		336 28	T. P. 124	294.5
T. P. 124	48 38 37.48	156 28	T. P. 123	294.5
	94 03 50.78	263 17	Ref. Mon. 153	277.7
		283 16	T. P. 125	301.8
		299 58	Ref. Mon. 154	266.3
T. P. 125	48 38 35.24	44 42	Ref. Mon. 154	89.6
	94 03 36.43	103 17	T. P. 124	301.8
		170 02	Ref. Mon. 153	103.3
		260 04	T. P. 126	581.7
T. P. 126	48 38 38.48	7 48	Ref. Mon. 156	80.7
	94 03 08.44	80 04	T. P. 125	581.7
		120 47	Ref. Mon. 155	170.3
		275 04	T. P. 127	685.4
T. P. 127	48 38 36.52	95 05	T. P. 126	685.4
	94 02 35.09	105 22	Ref. Mon. 157	368.6
		295 31	T. P. 128	623.2
		348 22	Ref. Mon. 158	159.9
T. P. 128	48 38 27.83	115 32	T. P. 127	623.2
	94 02 07.61	158 00	Ref. Mon. 159	201.9
		272 17	T. P. 129	447.5
		300 59	Ref. Mon. 160	376.5
T. P. 129	48 38 27.25	35 14	Ref. Mon. 160	215.5
	94 01 45.77	92 17	T. P. 128	447.5
		205 57	Ref. Mon. 161	195.2
		260 53	T. P. 130	1,685.9
T. P. 130	48 38 35.89	80 54	T. P. 129	1,685.9
	94 00 24.46	144 42	Ref. Mon. 162	160.9
		276 26	T. P. 131	459.9
		294 46	Ref. Mon. 163	469.0
T. P. 131	48 38 34.22	12 09	Ref. Mon. 163	148.2
	94 00 02.13	96 27	T. P. 130	459.9
		108 24	Ref. Mon. 162	579.6
		287 33	T. P. 132	854.8
T. P. 132	48 38 25.87	107 33	T. P. 131	854.8
	93 59 22.32	146 44	Ref. Mon. 164	342.3
		276 07	T. P. 133	416.4
		293 37	Ref. Mon. 165	628.6
T. P. 133	48 38 24.44	96 07	T. P. 132	416.4
	93 59 02.10	273 16	Ref. Mon. 166	491.5
		291 17	T. P. 134	499.6
		322 01	Ref. Mon. 165	263.2
T. P. 134	48 38 18.57	9 20	Bat	138.6
	93 58 39.36	85 04	Ref. Mon. 165	304.7
		111 17	T. P. 133	499.6
		189 20	Ref. Mon. 166	155.3
		270 22	T. P. 135	719.2
T. P. 135	48 38 18.42	8 18	Ref. Mon. 167	142.2
	93 58 04.23	90 23	T. P. 134	719.2
		267 05	Ref. Mon. 168	484.7
		282 53	T. P. 136	629.2
T. P. 136	48 38 13.87	21 21	Ref. Mon. 169	144.9
	93 57 34.27	102 53	T. P. 135	629.2
		141 55	Ref. Mon. 168	209.6
		304 33	T. P. 137	597.1
T. P. 137	48 38 02.91	124 33	T. P. 136	597.1
	93 57 10.25	189 45	Ref. Mon. 170	190.9
		276 48	T. P. 138	1,406.6
		349 06	Ref. Mon. 171	186.6
T. P. 138	48 37 57.51	96 49	T. P. 137	1,406.6
	93 56 02.03	190 48	Ref. Mon. 172	146.2
		268 50	T. P. 139	1,261.3
		303 48	Ref. Mon. 173	401.7
T. P. 139	48 37 58.34	88 50	T. P. 138	1,261.3
	93 55 00.45	116 18	Ref. Mon. 174	221.2
		224 07	T. P. 140	367.6
		320 15	Ref. Mon. 175	192.5
T. P. 140	48 38 06.88	44 07	T. P. 139	367.6
	93 54 47.95	61 58	Ref. Mon. 176	163.3
		277 23	T. P. 141	576.8
		354 43	Ref. Mon. 177	113.5
T. P. 141	48 38 04.48	86 03	Ref. Mon. 177	562.9
	93 54 20.01	97 24	T. P. 140	576.8
		146 28	Ref. Mon. 178	201.1
		286 59	T. P. 142	835.1
T. P. 142	48 37 56.58	107 00	T. P. 141	835.1
	93 53 41.00	191 19	Ref. Mon. 179	151.4
		264 36	Ref. Mon. 180	775.9
		275 14	T. P. 143	775.9
T. P. 143	48 37 54.29	95 14	T. P. 142	775.9
	93 53 03.27	179 55	Ref. Mon. 180	143.9
		268 54	T. P. 144	640.0
		290 11	Ref. Mon. 181	374.1
T. P. 144	48 37 54.69	63 55	Ref. Mon. 181	321.5
	93 52 32.01	88 54	T. P. 143	640.0
		101 37	Ref. Mon. 180	653.5
		280 48	T. P. 145	438.7
T. P. 145	48 37 52.03	85 18	Ref. Mon. 181	722.1
	93 52 10.97	100 48	T. P. 144	438.7
		185 24	Ref. Mon. 182	172.1
		271 18	T. P. 146	1,610.0
T. P. 146	48 37 50.84	79 53	Ref. Mon. 183	800.3
	93 50 52.36	91 19	T. P. 145	1,610.0
		267 05	Ref. Mon. 184	433.8
		282 13	T. P. 147	278.7
T. P. 147	48 37 48.93	85 36	Ref. Mon. 183	1,063.4
	93 50 39.06	102 13	T. P. 146	278.7
		243 15	Ref. Mon. 184	180.2
		297 05	T. P. 148	649.3

BOUNDARY TURNING POINTS—RAINY RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
RAINY RIVER—Continued	° ′ ″	° ′		
T. P. 148	48 37 39.36	3 37	Ref. Mon. 185	183.5
	93 50 10.83	117 05	T. P. 147	649.3
		310 52	Ref. Mon. 186	602.1
		314 04	T. P. 149	314.2
T. P. 149	48 37 32.28	98 29	Ref. Mon. 185	240.0
	93 49 59.80	134 04	T. P. 148	314.2
		307 24	Ref. Mon. 186	288.9
		341 00	T. P. 150	939.2
T. P. 150	48 37 03.53	161 00	T. P. 149	939.2
	93 49 44.87	247 14	Ref. Mon. 187	187.9
		325 29	T. P. 151	623.0
		328 36	Ref. Mon. 188	620.0
T. P. 151	48 36 46.92	62 11	Ref. Mon. 188	34.0
	93 49 27.63	145 29	T. P. 150	623.0
		162 57	Ref. Mon. 187	613.0
		331 56	T. P. 152	482.7
T. P. 152	48 36 33.13	89 21	Ref. Mon. 189	176.2
	93 49 16.54	147 55	Ref. Mon. 188	484.0
		151 56	T. P. 151	482.7
		347 59	T. P. 153	1,386.1
T. P. 153	48 35 49.24	148 39	Ref. Mon. 190	687.1
	93 49 02.46	168 00	T. P. 152	1,386.1
		238 46	Ref. Mon. 191	213.7
		341 55	T. P. 154	1,053.0
T. P. 154	48 35 16.83	161 55	T. P. 153	1,053.0
	93 48 46.51	251 48	Ref. Mon. 192	70.4
		332 08	T. P. 155	1,063.8
		341 53	Ref. Mon. 193	1,185.2
T. P. 155	48 34 46.38	34 41	Ref. Mon. 193	226.2
	93 48 22.26	152 09	T. P. 154	1,063.8
		342 05	Ref. Mon. 194	1,054.8
		351 07	T. P. 156	1,046.3
T. P. 156	48 34 12.92	6 34	T. P. 157	653.7
	93 48 14.37	22 13	Ref. Mon. 195	678.6
		171 07	T. P. 155	1,046.3
		259 31	Ref. Mon. 194	165.5
T. P. 157	48 33 51.89	14 14	T. P. 158	863.0
	93 48 18.01	96 38	Ref. Mon. 195	183.1
		186 34	T. P. 156	653.7
		199 16	Ref. Mon. 194	719.8
T. P. 158	48 33 24.81	21 47	T. P. 159	785.5
	93 48 28.37	182 02	Ref. Mon. 195	858.2
		194 14	T. P. 157	863.0
		287 19	Ref. Mon. 196	137.6
T. P. 159	48 33 01.20	201 46	T. P. 158	785.5
	93 48 42.58	319 24	Ref. Mon. 197	223.7
		340 14	Ref. Mon. 198	689.6
		348 50	T. P. 160	664.9
T. P. 160	48 32 40.08	7 59	T. P. 161	392.7
	93 48 36.30	28 07	Ref. Mon. 199	377.6
		168 50	T. P. 159	664.9
		268 09	Ref. Mon. 198	104.5
T. P. 161	48 32 27.49	37 46	T. P. 162	846.8
	93 48 38.95	114 20	Ref. Mon. 199	135.5
		187 59	T. P. 160	392.7
		202 03	Ref. Mon. 198	423.2
		294 20	Luttrell	147.3
T. P. 162	48 32 05.82	0 16	Ref. Mon. 201	789.9
	93 49 04.23	5 13	T. P. 163	389.9
		217 46	T. P. 161	846.8
		340 55	Ref. Mon. 200	278.8
T. P. 163	48 31 53.25	185 13	T. P. 162	389.9
	93 49 05.96	225 26	Ref. Mon. 200	177.8
		332 02	T. P. 164	367.5
		355 28	Ref. Mon. 201	402.9
T. P. 164	48 31 42.74	61 16	Ref. Mon. 201	160.2
	93 48 57.56	152 02	T. P. 163	367.5
		174 12	Ref. Mon. 200	451.7
		318 59	T. P. 165	566.6
T. P. 165	48 31 28.90	124 23	Ref. Mon. 201	620.7
	93 48 39.44	138 59	T. P. 164	566.6
		296 30	T. P. 166	668.6
		324 17	Ref. Mon. 202	350.0
T. P. 166	48 31 19.24	92 04	Ref. Mon. 202	394.3
	93 48 10.28	116 30	T. P. 165	668.6
		297 23	Ref. Mon. 203	507.0
		311 23	T. P. 167	950.7
RAINY RIVER—Continued	° ′ ″	° ′		
T. P. 167	48 30 58.89	9 41	Ref. Mon. 204	154.0
	93 47 35.52	131 23	T. P. 166	950.7
		146 21	Ref. Mon. 203	474.9
		277 21	T. P. 168	400.4
T. P. 168	48 30 57.23	76 38	Ref. Mon. 204	434.8
	93 47 16.17	97 21	T. P. 167	400.4
		179 15	Ref. Mon. 205	147.8
		268 02	T. P. 169	1,477.9
T. P. 169	48 30 58.86	88 03	T. P. 168	1,477.9
	93 46 04.20	102 41	Ref. Mon. 206	545.1
		173 36	Lumber	127.1
		266 24	T. P. 170	463.0
		353 36	Ref. Mon. 207	44.9
T. P. 170	48 30 59.80	80 51	Ref. Mon. 207	463.0
	93 45 41.68	86 24	T. P. 169	463.0
		263 59	Ref. Mon. 208	756.3
		278 34	T. P. 171	616.2
T. P. 171	48 30 56.83	98 34	T. P. 170	616.2
	93 45 11.99	219 53	Ref. Mon. 208	222.8
		254 02	T. P. 172	1,108.9
		262 51	Ref. Mon. 209	1,271.0
T. P. 172	48 31 06.70	74 03	T. P. 171	1,108.9
	93 44 20.04	81 46	Ref. Mon. 208	932.9
		270 34	T. P. 173	593.9
		307 00	Ref. Mon. 209	244.3
T. P. 173	48 31 06.51	70 31	Ref. Mon. 209	423.0
	93 43 51.10	90 34	T. P. 172	593.9
		268 04	Ref. Mon. 210	1,010.8
		276 48	T. P. 174	775.0
T. P. 174	48 31 03.54	87 35	Ref. Mon. 209	1,169.4
	93 43 13.60	96 48	T. P. 173	775.0
		242 27	Ref. Mon. 210	271.4
		261 38	T. P. 175	728.5
T. P. 175	48 31 06.97	81 38	T. P. 174	728.5
	93 42 38.48	92 20	Ref. Mon. 210	480.5
		277 58	T. P. 176	354.1
		335 55	Ref. Mon. 211	146.4
T. P. 176	48 31 05.38	74 09	Ref. Mon. 211	293.0
	93 42 21.39	97 58	T. P. 175	354.1
		277 29	Ref. Mon. 212	832.7
		288 33	T. P. 177	1,018.1
T. P. 177	48 30 54.89	108 34	T. P. 176	1,018.1
	93 41 34.36	147 02	Ref. Mon. 212	256.6
		267 19	T. P. 178	475.8
		341 35	Ref. Mon. 213	163.4
T. P. 178	48 30 55.61	67 18	Ref. Mon. 213	459.3
	93 41 11.20	87 19	T. P. 177	475.8
		107 26	Ref. Mon. 212	644.5
		256 24	T. P. 179	665.9
T. P. 179	48 31 00.68	76 24	T. P. 178	665.9
	93 40 39.66	265 18	Ref. Mon. 215	1,385.1
		271 47	T. P. 180	1,369.7
		309 32	Ref. Mon. 214	221.2
T. P. 180	48 30 59.29	91 48	T. P. 179	1,369.7
	93 39 32.95	184 11	Ref. Mon. 215	156.6
		261 03	T. P. 181	897.2
		268 08	Ref. Mon. 216	926.0
T. P. 181	48 31 03.80	81 04	T. P. 180	897.2
	93 38 49.76	91 07	Ref. Mon. 215	875.1
		243 50	T. P. 182	325.6
		340 19	Ref. Mon. 216	116.2
T. P. 182	48 31 08.45	45 00	Ref. Mon. 216	357.9
	93 38 35.52	63 50	T. P. 181	325.6
		206 21	Ref. Mon. 217	416.1
		222 02	T. P. 183	422.2
T. P. 183	48 31 18.60	42 02	T. P. 182	422.2
	93 38 21.74	43 24	Ref. Mon. 216	779.8
		121 09	Ref. Mon. 217	114.5
		200 40	T. P. 184	788.6
		301 09	Law	103.4
T. P. 184	48 31 42.49	20 40	T. P. 183	788.6
	93 38 08.18	29 00	Ref. Mon. 217	775.9
		226 54	T. P. 185	463.9
		241 10	Ref. Mon. 218	269.0
T. P. 185	48 31 52.75	28 51	Ref. Mon. 218	213.7
	93 37 51.67	46 54	T. P. 184	463.9
		230 15	Ref. Mon. 219	245.2
		251 18	T. P. 186	212.0

BOUNDARY TURNING POINTS—RAINY RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
RAINY RIVER—Continued	° ′ ″	° ′		
T. P. 186	48 31 54.95	71 18	T. P. 185	212.0
	93 37 41.88	172 07	Ref. Mon. 219	89.7
		283 22	T. P. 187	211.1
		312 04	Ref. Mon. 220	226.3
T. P. 187	48 31 53.37	20 00	Ref. Mon. 220	109.4
	93 37 31.87	103 22	T. P. 186	211.1
		122 19	Ref. Mon. 219	257.6
		329 35	T. P. 188	655.1
T. P. 188	48 31 35.08	141 23	Ref. Mon. 220	591.5
	93 37 15.70	149 35	T. P. 187	655.1
		224 05	Ref. Mon. 221	121.5
		311 32	T. P. 189	445.4
T. P. 189	48 31 25.52	131 32	T. P. 188	445.4
	93 36 59.45	146 57	Ref. Mon. 221	456.4
		293 55	T. P. 190	356.7
		353 32	Ref. Mon. 222	151.9
T. P. 190	48 31 20.84	88 50	Ref. Mon. 222	309.0
	93 36 43.56	113 55	T. P. 189	356.7
		239 01	Ref. Mon. 223	381.9
		261 44	T. P. 191	528.5
T. P. 191	48 31 23.30	81 44	T. P. 190	528.5
	93 36 18.07	121 40	Ref. Mon. 223	229.8
		226 53	T. P. 192	901.2
		276 58	Ref. Mon. 224	135.4
T. P. 192	48 31 43.24	46 53	T. P. 191	901.2
	93 35 46.01	173 12	Ref. Mon. 225	101.0
		246 27	T. P. 193	494.7
		278 36	Ref. Mon. 226	306.1
T. P. 193	48 31 49.64	31 46	Ref. Mon. 226	286.3
	93 35 23.91	66 27	T. P. 192	494.7
		78 11	Ref. Mon. 225	475.5
		298 44	T. P. 194	765.8
T. P. 194	48 31 37.72	118 44	T. P. 193	765.8
	93 34 51.18	160 33	Hathway	243.0
		252 14	Ref. Mon. 228	892.8
		271 42	T. P. 195	357.8
		340 33	Ref. Mon. 227	176.8
T. P. 195	48 31 37.38	62 25	Ref. Mon. 227	337.1
	93 34 33.75	91 42	T. P. 194	357.8
		240 06	Ref. Mon. 228	568.1
		255 56	T. P. 196	1,213.4
T. P. 196	48 31 46.92	75 57	T. P. 195	1,213.4
	93 33 36.38	89 02	Ref. Mon. 228	684.6
		250 13	Ref. Mon. 229	321.4
		272 03	T. P. 197	928.6
T. P. 197	48 31 45.84	92 04	T. P. 196	928.6
	93 32 51.15	102 48	Ref. Mon. 229	641.5
		259 30	T. P. 198	390.0
		307 51	Ref. Mon. 230	222.4
T. P. 198	48 31 48.14	45 03	Ref. Mon. 230	293.7
	93 32 32.46	79 30	T. P. 197	390.0
		243 58	T. P. 199	484.1
		258 54	Ref. Mon. 231	519.0
T. P. 199	48 31 55.02	56 50	Ref. Mon. 230	767.9
	93 32 11.26	63 58	T. P. 198	484.1
		251 46	T. P. 200	754.4
		326 35	Ref. Mon. 231	135.0
T. P. 200	48 32 02.66	61 30	Ref. Mon. 231	730.8
	93 31 36.34	71 46	T. P. 199	754.4
		241 30	Ref. Mon. 232	405.2
		263 12	T. P. 201	725.7
T. P. 201	48 32 05.45	83 12	T. P. 200	725.7
	93 31 01.21	106 24	Ref. Mon. 232	380.0
		238 29	T. P. 202	1,391.2
		259 25	Ref. Mon. 233	375.7
T. P. 202	48 32 28.99	58 30	T. P. 201	1,391.2
	93 30 03.39	187 23	Ref. Mon. 234	118.3
		252 53	T. P. 203	448.3
		271 39	Ref. Mon. 235	453.9
T. P. 203	48 32 33.26	72 53	T. P. 202	448.3
	93 29 42.50	87 59	Ref. Mon. 234	413.5
		263 43	T. P. 204	728.8
		350 08	Ref. Mon. 235	147.2
T. P. 204	48 32 35.84	72 11	Ref. Mon. 235	734.4
	93 29 07.18	83 43	T. P. 203	728.8
		161 00	Ref. Mon. 236	130.3
		254 59	T. P. 205	1,383.7
RAINY RIVER—Continued	° ′ ″	° ′		
T. P. 205	48 32 47.44	75 00	T. P. 204	1,383.7
	93 28 02.02	150 35	Ref. Mon. 237	137.4
		224 11	T. P. 206	509.1
		249 01	Ref. Mon. 238	290.6
T. P. 206	48 32 59.26	17 44	Ref. Mon. 238	274.1
	93 27 44.72	44 11	T. P. 205	509.1
		205 57	T. P. 207	487.1
		243 17	Ref. Mon. 239	221.8
T. P. 207	48 33 13.44	2 32	Ref. Mon. 239	338.6
	93 27 34.33	25 57	T. P. 236	487.1
		165 23	Ref. Mon. 240	285.4
		192 26	T. P. 208	688.9
T. P. 208	48 33 35.22	12 26	T. P. 207	688.9
	93 27 27.10	29 03	Ref. Mon. 240	453.7
		180 44	T. P. 209	823.9
		340 38	Ref. Mon. 241	228.9
T. P. 209	48 34 01.89	0 44	T. P. 208	823.9
	93 27 26.59	48 00	Ref. Mon. 242	172.0
		153 59	T. P. 210	737.3
		163 38	Ref. Mon. 243	726.2
T. P. 210	48 34 23.34	167 11	T. P. 211	1,746.5
	93 27 42.36	253 55	Ref. Mon. 243	123.5
		333 59	T. P. 209	737.3
		345 54	Ref. Mon. 242	861.9
T. P. 211	48 35 18.47	110 01	Ref. Mon. 244	206.1
	93 28 01.27	197 30	Ref. Mon. 245	184.2
		213 20	T. P. 212	207.4
		347 11	T. P. 210	1,746.5
T. P. 212	48 35 24.08	33 20	T. P. 211	207.4
	93 27 55.71	92 18	Ref. Mon. 245	58.6
		183 36	T. P. 213	186.3
		228 02	Ref. Mon. 246	240.3
T. P. 213	48 35 30.10	3 36	T. P. 212	186.3
	93 27 55.14	20 56	Ref. Mon. 245	196.6
		240 03	T. P. 214	235.1
		278 36	Ref. Mon. 246	168.9
T. P. 214	48 35 33.90	14 26	Ref. Mon. 246	147.3
	93 27 45.20	60 03	T. P. 213	235.1
		258 36	Ref. Mon. 247	599.4
		270 47	T. P. 215	588.2
T. P. 215	48 35 33.64	90 47	T. P. 214	588.2
	93 27 16.50	179 46	Ref. Mon. 247	126.6
		256 24	Ref. Mon. 248	956.6
		263 50	T. P. 216	1,105.1
T. P. 216	48 35 37.48	83 51	T. P. 215	1,105.1
	93 26 22.88	122 08	Ref. Mon. 248	199.5
		243 16	T. P. 217	417.6
		263 27	Ref. Mon. 249	299.9
T. P. 217	48 35 43.56	26 01	Ref. Mon. 249	170.9
	93 26 04.68	63 16	T. P. 216	417.6
		81 26	Ref. Mon. 248	548.0
		217 27	T. P. 218	599.9
T. P. 218	48 35 58.98	37 27	T. P. 217	599.9
	93 25 46.88	221 21	Ref. Mon. 250	440.3
		233 30	T. P. 219	657.9
		238 27	Ref. Mon. 251	897.6
T. P. 219	48 36 11.65	53 30	T. P. 218	657.9
	93 25 21.07	75 39	Ref. Mon. 250	245.6
		251 40	Ref. Mon. 251	248.7
		260 11	T. P. 220	251.8
T. P. 220	48 36 13.04	77 57	Ref. Mon. 250	497.0
	93 25 08.96	80 11	T. P. 219	251.8
		161 12	Ref. Mon. 251	37.3
		237 31	T. P. 221	351.5
T. P. 221	48 36 19.15	57 31	T. P. 220	351.5
	93 24 54.49	76 43	Ref. Mon. 252	62.0
		208 41	T. P. 222	134.3
		231 22	Ref. Mon. 253	946.3
T. P. 222	48 36 22.97	28 41	T. P. 221	134.3
	93 24 51.34	43 23	Ref. Mon. 252	181.7
		234 58	Ref. Mon. 253	824.0
		238 49	T. P. 223	753.7
T. P. 223	48 36 35.60	55 51	Ref. Mon. 252	930.1
	93 24 19.86	58 50	T. P. 222	753.7
		199 51	Ref. Mon. 253	88.0
		264 13	T. P. 224	161.2

BOUNDARY TURNING POINTS—RAINY RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
RAINY RIVER—Continued	° ′ ″	° ′		
T. P. 224	48 36 36.12	59 57	Ref. Mon. 252	1,074.8
	93 24 12.63	84 13	T. P. 223	161.2
		117 00	Ref. Mon. 253	146.5
		351 12	T. P. 225	260.1
T. P. 225	48 36 27.80	11 36	Ref. Mon. 254	167.3
	93 24 10.09	171 12	T. P. 224	260.1
		262 24	T. P. 226	118.2
		289 15	Ref. Mon. 255	72.0
T. P. 226	48 36 28.31	40 02	Ref. Mon. 254	234.5
	93 24 04.37	82 24	T. P. 225	118.2
		190 33	Ref. Mon. 256	70.0
		331 57	T. P. 227	428.0
T. P. 227	48 36 16.08	119 23	Ref. Mon. 254	404.0
	93 23 54.55	151 57	T. P. 226	428.0
		281 25	Ref. Mon. 257	711.6
		285 45	T. P. 228	249.7
T. P. 228	48 36 13.89	105 45	T. P. 227	249.7
	93 23 42.82	114 11	Ref. Mon. 254	649.3
		254 23	T. P. 229	892.1
		279 05	Ref. Mon. 257	463.0
T. P. 229	48 36 21.66	52 05	Ref. Mon. 257	509.6
	93 23 00.88	74 24	T. P. 228	892.1
		270 42	T. P. 230	904.9
		297 36	Ref. Mon. 258	395.0
T. P. 230	48 36 21.30	72 48	Ref. Mon. 258	580.8
	93 22 16.71	90 43	T. P. 229	904.9
		230 48	T. P. 231	397.4
		268 25	Ref. Mon. 259	286.0
T. P. 231	48 36 29.43	5 11	Ref. Mon. 259	244.2
	93 22 01.68	50 48	T. P. 230	397.4
		140 11	Ref. Mon. 260	281.2
		210 41	T. P. 232	764.7
T. P. 232	48 36 50.72	30 41	T. P. 231	764.7
	93 21 42.63	203 47	Ref. Mon. 263	304.5
		299 51	T. P. 233	587.2
		359 23	Ref. Mon. 261	502.4
T. P. 233	48 36 41.26	72 48	Ref. Mon. 264	148.0
	93 21 17.76	119 51	T. P. 232	587.2
		200 52	Ref. Mon. 266	419.4
		217 12	T. P. 234	291.4
T. P. 234	48 36 48.77	37 12	T. P. 233	291.4
	93 21 09.16	49 01	Ref. Mon. 264	420.7
		163 11	T. P. 235	168.5
		170 28	Ref. Mon. 266	162.0
T. P. 235	48 36 54.00	94 06	Ref. Mon. 265	85.0
	93 21 11.54	195 06	T. P. 236	1,326.7
		274 06	Ref. Mon. 266	22.0
		343 11	T. P. 234	168.5

GEOGRAPHIC POSITIONS OF BOUNDARY TURNING POINTS DEFINING THE INTERNATIONAL BOUNDARY FROM RANIER, MINN., TO CURTAIN FALLS

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
RAINY LAKE	° ′ ″	° ′		
T. P. 236	48 37 35.46	15 06	T. P. 235	1,326.7
	93 20 54.67	159 17	Ref. Mon. 267	1,222.8
		255 15	T. P. 237	7,164.1
		339 17	Ref. Mon. 268	1,061.6
T. P. 237	48 38 34.37	75 19	T. P. 236	7,164.1
	93 15 16.24	172 14	Ref. Mon. 269	1,343.4
		270 33	T. P. 238	3,473.0
		352 14	Ref. Mon. 270	1,705.3
T. P. 238	48 38 33.26	1 52	Ref. Mon. 272	291.2
	93 12 26.60	90 35	T. P. 237	3,473.0
		181 52	Ref. Mon. 271	243.9
		312 33	T. P. 239	2,354.1
T. P. 239	48 37 41.71	79 56	Ref. Mon. 273	92.5
	93 11 01.91	132 34	T. P. 238	2,354.1
		259 56	Ref. Mon. 274	105.8
		322 51	T. P. 240	687.1
T. P. 240	48 37 23.98	142 51	T. P. 239	687.1
	93 10 41.65	153 25	Ref. Mon. 275	420.9
		265 32	T. P. 241	6,509.7
		333 25	Ref. Mon. 276	1,178.5
T. P. 241	48 37 40.25	7 50	Ref. Mon. 278	517.2
	93 05 24.71	85 36	T. P. 240	6,509.7
		187 50	Ref. Mon. 277	292.6
		273 11	T. P. 242	7,809.1
T. P. 242	48 37 26.02	93 16	T. P. 241	7,809.1
	92 59 03.97	108 05	Ref. Mon. 280	577.3
		248 38	T. P. 243	2,357.6
		288 05	Ref. Mon. 281	841.4
T. P. 243	48 37 53.82	24 33	Ref. Mon. 282	424.2
	92 57 16.74	68 39	T. P. 242	2,357.6
		204 33	Ref. Mon. 283	619.5
		290 03	T. P. 244	392.3
T. P. 244	48 37 49.46	0 22	T. P. 245	2,444.5
	92 56 58.75	65 14	Ref. Mon. 282	600.0
		110 03	T. P. 243	392.3
		245 14	Ref. Mon. 284	1,211.2
T. P. 245	48 36 30.33	80 47	Ref. Mon. 285	525.4
	92 56 59.52	180 22	T. P. 244	2,444.5
		260 47	Ref. Mon. 286	778.6
		275 57	T. P. 246	1,516.4
T. P. 246	48 36 25.23	95 58	T. P. 245	1,516.4
	92 55 45.89	163 20	Ref. Mon. 287	227.7
		309 11	T. P. 247	1,854.9
		343 20	Ref. Mon. 288	912.9
T. P. 247	48 35 47.28	5 15	Ref. Mon. 290	327.2
	92 54 35.73	129 12	T. P. 246	1,854.9
		185 15	Ref. Mon. 289	401.8
		277 44	T. P. 248	1,158.7
T. P. 248	48 35 42.22	27 38	Ref. Mon. 291	313.0
	92 53 39.70	97 45	T. P. 247	1,158.7
		207 38	Ref. Mon. 292	355.2
		296 42	T. P. 249	13,730.3
T. P. 249	48 32 22.07	116 49	T. P. 248	13,730.3
	92 43 41.73	170 49	Ref. Mon. 295	430.4
		261 39	T. P. 250	5,264.4
		350 49	Ref. Mon. 296	362.3
T. P. 250	48 32 46.72	25 59	Ref. Mon. 299	1,268.1
	92 39 27.69	81 42	T. P. 249	5,264.4
		205 59	Ref. Mon. 300	1,542.5
		283 30	T. P. 251	1,743.4
T. P. 251	48 32 33.54	41 48	Ref. Mon. 301	1,373.9
	92 38 05.04	103 31	T. P. 250	1,743.4
		221 48	Ref. Mon. 302	333.5
		347 42	T. P. 252	2,316.9
T. P. 252	48 31 20.26	102 09	Ref. Mon. 303	604.5
	92 37 40.99	167 42	T. P. 251	2,316.9
		282 09	Ref. Mon. 304	173.4
		337 32	T. P. 253	518.8
RAINY LAKE—Continued				
T. P. 253	48 31 04.74	14 00	T. P. 254	427.6
	92 37 31.33	67 13	Ref. Mon. 305	212.4
		157 32	T. P. 252	518.8
		247 13	Ref. Mon. 306	219.5
T. P. 254	48 30 51.30	92 41	Ref. Mon. 307	142.8
	92 37 36.37	194 00	T. P. 253	427.6
		272 41	Ref. Mon. 308	99.2
		339 21	T. P. 255	88.9
T. P. 255	48 30 48.61	40 45	Ref. Mon. 309	136.9
	92 37 34.84	159 21	T. P. 254	88.9
		220 45	Ref. Mon. 308	103.7
		297 47	T. P. 256	119.0
T. P. 256	48 30 46.81	42 54	T. P. 257	327.8
	92 37 29.71	117 47	T. P. 255	119.0
		164 20	Ref. Mon. 308	139.2
		344 20	Ref. Mon. 310	83.0
T. P. 257	48 30 39.04	8 26	Ref. Mon. 312	54.5
	92 37 40.58	63 27	T. P. 258	53.7
		188 26	Ref. Mon. 309	194.0
		222 54	T. P. 256	327.8
T. P. 258	48 30 38.26	45 20	T. P. 259	221.1
	92 37 42.92	126 43	Ref. Mon. 311	48.2
		243 27	T. P. 257	53.7
		306 43	Ref. Mon. 312	50.0
T. P. 259	48 30 33.23	14 25	T. P. 260	112.3
	92 37 50.58	32 47	Ref. Mon. 314	129.3
		212 47	Ref. Mon. 311	219.1
		225 20	T. P. 258	221.1
T. P. 260	48 30 29.71	16 57	T. P. 261	167.9
	92 37 51.94	90 07	Ref. Mon. 314	42.1
		194 25	T. P. 259	112.3
		270 07	Ref. Mon. 313	25.4
T. P. 261	48 30 24.51	2 27	Ref. Mon. 315	128.2
	92 37 54.33	182 27	Ref. Mon. 314	160.8
		196 57	T. P. 260	167.9
		303 23	T. P. 262	199.4
T. P. 262	48 30 20.96	46 42	Ref. Mon. 316	64.8
	92 37 46.21	123 23	T. P. 261	199.4
		226 42	Ref. Mon. 317	57.5
		324 22	T. P. 263	336.0
T. P. 263	48 30 12.12	44 02	T. P. 264	386.6
	92 37 36.68	169 40	Ref. Mon. 319	201.5
		144 22	T. P. 262	336.0
		289 40	Ref. Mon. 320	109.0
T. P. 264	48 30 03.12	71 23	T. P. 265	503.2
	92 37 49.77	130 54	Ref. Mon. 322	26.9
		224 02	T. P. 263	386.6
		310 54	Ref. Mon. 321	57.4
T. P. 265	48 29 57.92	86 39	Ref. Mon. 326	122.1
	92 38 13.00	100 01	T. P. 266	115.4
		251 23	T. P. 264	503.2
		266 39	Ref. Mon. 324	130.8
T. P. 266	48 29 58.57	16 46	Ref. Mon. 326	28.4
	92 38 18.53	109 49	T. P. 267	110.5
		196 46	Ref. Mon. 325	23.6
		280 01	T. P. 265	115.4
NAMAKAN LAKE				
T. P. 267	48 29 59.78	20 08	Ref. Mon. 328	52.0
	92 38 23.60	90 16	T. P. 268	515.5
		200 08	Ref. Mon. 327	27.5
		289 49	T. P. 266	110.5
T. P. 268	48 29 59.86	15 42	Ref. Mon. 329	56.1
	92 38 48.71	111 10	T. P. 269	560.8
		195 42	Ref. Mon. 330	72.6
		270 16	T. P. 267	515.5

BOUNDARY TURNING POINTS—RANIER, MINN., TO CURTAIN FALLS—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
NAMAKAN LAKE—Contd.	° ′ ″	° ′		
T. P. 269	48 30 06.41	42 20	T. P. 270	808.8
	92 39 14.19	177 15	Ref. Mon. 332	58.3
		291 10	T. P. 268	560.8
		357 15	Ref. Mon. 331	89.4
T. P. 270	48 29 47.05	0 59	Ref. Mon. 333	60.4
	92 39 40.72	93 52	T. P. 271	1,799.2
		180 59	Ref. Mon. 334	53.0
		222 20	T. P. 269	808.8
T. P. 271	48 29 50.97	5 40	Ref. Mon. 335	149.3
	92 41 08.16	73 25	T. P. 272	996.3
		185 40	Ref. Mon. 336	358.6
		273 51	T. P. 270	1,799.2
T. P. 272	48 29 41.76	9 19	T. P. 273	1,146.5
	92 41 54.67	147 58	Ref. Mon. 338	260.5
		253 24	T. P. 271	996.3
		342 30	Ref. Mon. 337	278.2
T. P. 273	48 29 05.13	24 27	T. P. 274	1,441.6
	92 42 03.70	35 25	Ref. Mon. 340	213.7
		189 19	T. P. 272	1,146.5
		274 14	Ref. Mon. 339	224.2
T. P. 274	48 28 22.65	180 02	Ref. Mon. 342	342.8
	92 42 32.75	204 26	T. P. 273	1,441.6
		266 57	Ref. Mon. 341	239.2
		349 11	T. P. 275	288.9
T. P. 275	48 28 13.46	2 50	Ref. Mon. 343	402.8
	92 42 30.11	20 41	T. P. 276	871.3
		169 11	T. P. 274	288.9
		211 55	Ref. Mon. 341	349.3
T. P. 276	48 27 47.07	162 14	Ref. Mon. 344	488.8
	92 42 45.09	200 41	T. P. 275	871.3
		307 32	Ref. Mon. 345	364.8
		319 42	T. P. 277	2,810.0
T. P. 277	48 26 37.68	37 24	Ref. Mon. 348	369.0
	92 41 16.65	139 43	T. P. 276	2,810.0
		268 04	Ref. Mon. 347	526.8
		282 38	T. P 278	1,865.8
T. P. 278	48 26 24.45	102 40	T. P. 277	1,865.8
	92 39 48.07	266 18	Ref. Mon. 349	359.6
		306 16	T. P. 279	668.8
		340 33	Ref. Mon. 350	165.4
T. P. 279	48 26 11.64	15 15	Ref. Mon. 352	475.1
	92 39 21.83	126 16	T. P. 278	668.8
		251 35	Ref. Mon. 351	174.6
		265 32	T. P. 280	5,913.5
T. P. 280	48 26 26.48	27 12	Ref. Mon. 356	1,086.2
	92 34 34.99	85 35	T. P. 279	5,913.5
		207 12	Ref. Mon. 355	797.4
		254 49	T. P. 281	3,034.8
T. P. 281	48 26 52.19	11 39	Ref. Mon. 358	348.8
	92 32 12.47	74 50	T. P. 280	3,034.8
		191 39	Ref. Mon. 357	1,581.1
		267 45	T. P. 282	1,623.4
T. P. 282	48 26 54.25	45 21	Ref. Mon. 360	126.8
	92 30 53.53	87 46	T. P. 281	1,623.4
		225 21	Ref. Mon. 359	129.3
		273 46	T. P. 283	560.0
T. P. 283	48 26 53.06	59 28	Ref. Mon. 362	210.7
	92 30 26.33	93 47	T. P. 282	560.0
		239 28	Ref. Mon. 361	264.9
		323 59	T. P. 284	1,660.3
T. P. 284	48 26 09.58	74 13	Ref. Mon. 364	92.0
	92 29 38.84	144 00	T. P. 283	1,660.3
		254 13	Ref. Mon. 363	101.5
		329 51	T. P. 285	725.4
T. P. 285	48 25 49.27	125 37	Ref. Mon. 366	245.4
	92 29 21.11	149 51	T. P. 284	725.4
		286 56	T. P. 286	430.5
T. P. 286	48 25 45.21	106 56	T. P. 285	430.5
	92 29 01.08	283 50	Ref. Mon. 365	71.6
		305 19	T. P. 287	161.4
T. P. 287	48 25 42.19	70 00	Ref. Mon. 368	57.4
	92 28 54.67	125 19	T. P. 286	161.4
		354 39	T. P. 288	83.8
T. P. 288	48 25 39.49	135 51	Ref. Mon. 368	88.8
	92 28 54.29	174 39	T. P. 287	83.8
		315 51	Ref. Mon. 369	176.8
		328 08	T. P. 289	162.4
T. P. 289	48 25 35.03	9 03	T. P. 290	122.7
	92 28 50.12	73 36	Ref. Mon. 370	151.1
		148 08	T. P. 288	162.4
		253 36	Ref. Mon. 369	39.0
SAND POINT LAKE				
T. P. 290	48 25 31.10	122 01	Ref. Mon. 370	148.3
	92 28 51.05	189 03	T. P. 289	122.7
		302 01	Ref. Mon. 371	285.9
		323 59	T. P. 291	270.8
T. P. 291	48 25 24.01	50 58	Ref. Mon. 372	84.0
	92 28 43.31	143 59	T. P. 290	270.8
		230 58	Ref. Mon. 371	107.1
		333 55	T. P. 292	572.3
T. P. 292	48 25 07.37	4 16	Ref. Mon. 374	92.7
	92 28 31.07	153 55	T. P. 291	572.3
		184 16	Ref. Mon. 373	164.2
		289 43	T. P. 293	1,495.6
T. P. 293	48 24 51.04	109 43	T. P. 292	1,495.6
	92 27 22.60	204 35	Ref. Mon. 375	196.6
		359 54	T. P. 294	1,443.2
T. P. 294	48 24 04.32	24 39	T. P. 295	3,571.9
	92 27 22.48	116 08	Ref. Mon. 378	278.2
		179 54	T. P. 293	1,443.2
		296 08	Ref. Mon. 377	216.9
T. P. 295	48 22 19.21	166 54	Ref. Mon. 380	445.0
	92 28 34.86	204 38	T. P. 294	3,571.9
		281 05	Ref. Mon. 379	239.0
		347 14	T. P. 296	2,259.7
T. P. 296	48 21 07.87	76 57	Ref. Mon. 384	149.1
	92 28 10.61	167 14	T. P. 295	2,259.7
		256 57	Ref. Mon. 383	78.1
		334 16	T. P. 297	2,970.2
T. P. 297	48 19 41.24	63 06	Ref. Mon. 386	92.3
	92 27 08.01	154 17	T. P. 296	2,970.2
		243 06	Ref. Mon. 385	90.3
		328 52	T. P. 298	1,555.8
T. P. 298	48 18 58.12	77 42	Ref. Mon. 388	37.8
	92 26 28.97	148 53	T. P. 297	1,555.8
		257 42	Ref. Mon. 387	80.1
		333 17	T. P. 299	29.7
T. P. 299	48 18 57.26	110 12	Ref. Mon. 388	53.6
	92 26 28.32	153 17	T. P. 298	29.7
		236 05	Ref. Mon. 387	78.2
		313 24	T. P. 300	78.1
T. P. 300	48 18 55.52	11 02	Ref. Mon. 390	50.8
	92 26 25.56	133 24	T. P. 299	78.1
		296 23	Ref. Mon. 389	126.2
		339 18	T. P. 301	54.9
LITTLE VERMILION LAKE				
T. P. 301	48 18 53.86	92 54	Ref. Mon. 390	29.2
	92 26 24.62	159 18	T. P. 300	54.9
		272 54	Ref. Mon. 389	93.8
		342 53	T. P. 302	430.7
T. P. 302	48 18 40.53	114 48	Ref. Mon. 392	221.0
	92 26 18.47	162 53	T. P. 301	430.7
		193 46	Ref. Mon. 391	209.0
		330 38	T. P. 303	288.5
T. P. 303	48 18 32.39	40 57	Ref. Mon. 394	96.4
	92 26 11.60	150 38	T. P. 302	288.5
		220 57	Ref. Mon. 393	110.3
		318 58	T. P. 304	549.9
T. P. 304	48 18 18.96	87 30	Ref. Mon. 396	176.0
	92 25 54.08	138 58	T. P. 303	549.9
		156 39	Ref. Mon. 395	145.0
		248 34	T. P. 305	227.1
T. P. 305	48 18 21.64	68 35	T. P. 304	227.1
	92 25 43.82	265 49	Ref. Mon. 397	136.0
		299 57	T. P. 306	288.3
		359 06	Ref. Mon. 398	125.0

BOUNDARY TURNING POINTS—RANIER, MINN., TO CURTAIN FALLS—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
LITTLE VERMILION LAKE—Con.	° ′ ″	° ′		
T. P. 306	48 18 16.98	4 59	Ref. Mon. 400	158.0
	92 25 31.70	119 57	T. P. 305	288.3
		310 16	Ref. Mon. 399	274.0
		328 43	T. P. 307	737.8
T. P. 307	48 17 56.57	148 43	T. P. 306	737.8
	92 25 13.11	291 42	Ref. Mon. 401	726.0
		320 11	T. P. 308	559.4
		351 44	Ref. Mon. 402	576.0
T. P. 308	48 17 42.66	63 00	Ref. Mon. 402	309.1
	92 24 55.73	140 11	T. P. 307	559.4
		243 00	Ref. Mon. 401	355.1
		338 42	T. P. 309	2,830.2
T. P. 309	48 16 17.28	64 19	Ref. Mon. 406	396.6
	92 24 05.88	158 43	T. P. 308	2,830.2
		244 19	Ref. Mon. 405	169.6
		332 59	T. P. 310	1,416.8
T. P. 310	48 15 36.42	2 12	Ref. Mon. 410	121.3
	92 23 34.67	152 59	T. P. 309	1,416.8
		346 07	T. P. 311	125.5
LOON RIVER				
T. P. 311	48 15 32.48	19 45	T. P. 312	159.2
	92 23 33.21	90 53	Ref. Mon. 410	34.8
		166 07	T. P. 310	125.5
		270 53	Ref. Mon. 409	39.7
T. P. 312	48 15 27.62	187 12	Ref. Mon. 410	151.6
	92 23 35.82	199 45	T. P. 311	159.2
		313 24	T. P. 313	133.0
T. P. 313	48 15 24.67	133 24	T. P. 312	133.0
	92 23 31.14	162 12	Ref. Mon. 410	253.9
		327 22	T. P. 314	406.0
T. P. 314	48 15 13.60	26 48	Ref. Mon. 414	407.4
	92 23 20.53	33 54	T. P. 315	127.0
		147 23	T. P. 313	406.0
T. P. 315	48 15 10.18	23 36	Ref. Mon. 414	281.8
	92 23 23.96	102 29	T. P. 316	158.3
		213 54	T. P. 314	127.0
T. P. 316	48 15 11.29	14 17	T. P. 317	142.0
	92 23 31.45	282 29	T. P. 315	158.3
		351 53	Ref. Mon. 414	295.4
T. P. 317	48 15 06.84	194 17	T. P. 316	142.0
	92 23 33.15	333 37	Ref. Mon. 414	172.8
		341 10	T. P. 318	75.3
T. P. 318	48 15 04.53	161 10	T. P. 317	75.3
	92 23 31.97	294 34	T. P. 319	133.5
		327 53	Ref. Mon. 414	98.6
T. P. 319	48 15 02.73	67 53	Ref. Mon. 414	74.4
	92 23 26.09	114 34	T. P. 318	133.5
		247 53	Ref. Mon. 411	397.8
		265 15	T. P. 320	71.3
T. P. 320	48 15 02.92	76 23	Ref. Mon. 414	144.0
	92 23 22.64	85 15	T. P. 319	71.3
		234 12	T. P. 321	90.0
T. P. 321	48 15 04.63	54 12	T. P. 320	90.0
	92 23 19.10	67 53	Ref. Mon. 414	229.9
		247 53	Ref. Mon. 411	242.3
		247 53	T. P. 322	165.1
T. P. 322	48 15 06.64	67 53	Ref. Mon. 414	395.0
	92 23 11.69	67 53	T. P. 321	165.1
		247 53	Ref. Mon. 411	77.2
		306 37	T. P. 323	77.3
T. P. 323	48 15 05.15	126 37	T. P. 322	77.3
	92 23 08.68	187 13	Ref. Mon. 411	75.8
		339 28	T. P. 324	118.7
T. P. 324	48 15 01.55	159 28	T. P. 323	118.7
	92 23 06.66	319 52	Ref. Mon. 413	103.2
		339 38	T. P. 325	136.9
T. P. 325	48 14 57.39	90 28	T. P. 326	161.2
	92 23 04.35	159 38	T. P. 324	136.9
		200 52	Ref. Mon. 413	52.9
T. P. 326	48 14 57.44	255 02	Ref. Mon. 413	186.4
	92 23 12.17	270 28	T. P. 325	161.2
		348 37	T. P. 327	192.2
LOON RIVER—Continued	° ′ ″	° ′		
T. P. 327	48 14 51.34	53 34	Ref. Mon. 416	215.2
	92 23 10.33	63 21	T. P. 328	123.7
		168 37	T. P. 326	192.2
T. P. 328	48 14 49.54	21 30	T. P. 329	67.5
	92 23 15.69	40 52	Ref. Mon. 416	95.6
		220 52	Ref. Mon. 413	386.2
		243 21	T. P. 327	123.7
T. P. 329	48 14 47.51	75 52	Ref. Mon. 416	39.0
	92 23 16.89	201 30	T. P. 328	67.5
		343 36	T. P. 330	243.2
T. P. 330	48 14 39.95	163 41	T. P. 329	243.2
	92 23 13.58	299 33	T. P. 331	53.3
		334 59	Ref. Mon. 417	130.7
T. P. 331	48 14 39.10	119 33	T. P. 330	53.3
	92 23 11.33	239 11	T. P. 332	168.4
		354 29	Ref. Mon. 417	92.6
T. P. 332	48 14 41.89	2 39	Ref. Mon. 418	265.1
	92 23 04.32	59 11	T. P. 331	168.4
		298 25	T. P. 333	73.4
T. P. 333	48 14 40.76	11 00	T. P. 334	235.1
	92 23 01.19	18 30	Ref. Mon. 418	242.4
		118 25	T. P. 332	73.4
T. P. 334	48 14 33.29	91 39	Ref. Mon. 418	32.1
	92 23 03.36	191 00	T. P. 333	235.1
		359 23	T. P. 335	128.3
T. P. 335	48 14 29.14	165 29	Ref. Mon. 418	133.4
	92 23 03.30	179 23	T. P. 334	128.3
		346 22	T. P. 336	117.6
T. P. 336	48 14 25.43	166 22	T. P. 335	117.6
	92 23 01.95	334 55	T. P. 337	126.3
		353 37	Ref. Mon. 420	106.2
T. P. 337	48 14 21.73	101 57	Ref. Mon. 420	42.6
	92 22 59.36	154 55	T. P. 336	126.3
		281 57	Ref. Mon. 419	39.2
		326 28	T. P. 338	217.5
T. P. 338	48 14 15.86	146 28	T. P. 337	217.5
	92 22 53.54	330 37	T. P. 339	156.3
		349 17	Ref. Mon. 422	146.2
T. P. 339	48 14 11.45	150 37	T. P. 338	156.3
	92 22 49.82	297 24	T. P. 340	141.5
		303 24	Ref. Mon. 423	215.2
T. P. 340	48 14 09.34	117 24	T. P. 339	141.5
	92 22 43.73	314 39	Ref. Mon. 423	75.9
		334 43	T. P. 341	75.0
T. P. 341	48 14 07.15	24 35	T. P. 342	116.5
	92 22 42.18	154 43	T. P. 340	75.0
		236 39	Ref. Mon. 423	26.3
T. P. 342	48 14 03.72	204 35	T. P. 341	116.5
	92 22 44.53	210 19	Ref. Mon. 423	139.5
		331 17	T. P. 343	163.7
T. P. 343	48 13 59.07	11 57	T. P. 344	106.9
	92 22 40.72	22 29	Ref. Mon. 426	121.3
		151 17	T. P. 342	163.7
T. P. 344	48 13 55.68	5 16	T. P. 345	94.6
	92 22 41.79	72 49	Ref. Mon. 426	25.4
		191 57	T. P. 343	106.9
		252 49	Ref. Mon. 425	88.6
T. P. 345	48 13 52.63	169 49	Ref. Mon. 426	88.1
	92 22 42.21	185 16	T. P. 344	94.6
		352 39	T. P. 346	96.2
T. P. 346	48 13 49.54	172 39	T. P. 345	96.2
	92 22 41.61	329 57	T. P. 347	139.2
		343 08	Ref. Mon. 428	143.1
T. P. 347	48 13 45.64	59 38	Ref. Mon. 428	32.7
	92 22 38.24	149 57	T. P. 346	139.2
		311 56	T. P. 348	160.0
T. P. 348	48 13 42.18	121 33	Ref. Mon. 428	172.8
	92 22 32.47	131 56	T. P. 347	160.0
		343 16	T. P. 349	102.2
T. P. 349	48 13 39.01	8 22	T. P. 350	89.5
	92 22 31.04	163 16	T. P. 348	102.2
		357 12	Ref. Mon. 430	181.9

BOUNDARY TURNING POINTS—RANIER, MINN., TO CURTAIN FALLS—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
LOON RIVER—Continued	° ′ ″	° ′		
T. P. 350	48 13 36.14	188 22	T. P. 349	89.5
	92 22 31.67	335 21	T. P. 351	80.7
		346 45	Ref. Mon. 430	95.6
T. P. 351	48 13 33.77	30 42	Ref. Mon. 430	23.0
	92 22 30.04	155 21	T. P. 350	80.7
		304 08	T. P. 352	73.7
T. P. 352	48 13 32.43	106 32	Ref. Mon. 430	75.9
	92 22 27.09	124 08	T. P. 351	73.7
		318 16	T. P. 353	95.1
T. P. 353	48 13 30.14	138 16	T. P. 352	95.1
	92 22 24.02	338 03	T. P. 354	169.5
		344 05	Ref. Mon. 434	220.3
T. P. 354	48 13 25.05	3 05	Ref. Mon. 434	54.7
	92 22 20.95	158 03	T. P. 353	169.5
		237 04	T. P. 355	104.2
T. P. 355	48 13 26.88	39 05	Ref. Mon. 434	143.4
	92 22 16.71	57 04	T. P. 354	104.2
		297 26	T. P. 356	54.7
T. P. 356	48 13 26.07	58 13	Ref. Mon. 434	163.5
	92 22 14.36	117 26	T. P. 355	54.7
		359 09	T. P. 357	113.5
T. P. 357	48 13 22.39	101 00	Ref. Mon. 434	143.3
	92 22 14.28	179 09	T. P. 356	113.5
		332 18	T. P. 358	126.6
T. P. 358	48 13 18.76	152 18	T. P. 357	126.6
	92 22 11.43	355 23	Ref. Mon. 436	212.1
		358 00	T. P. 359	167.3
T. P. 359	48 13 13.35	178 00	T. P. 358	167.3
	92 22 11.15	280 43	T. P. 360	59.5
		345 48	Ref. Mon. 436	45.7
T. P. 360	48 13 12.99	54 54	Ref. Mon. 436	57.8
	92 22 08.31	100 43	T. P. 359	59.5
		216 05	T. P. 361	131.7
T. P. 361	48 13 16.44	36 05	T. P. 360	131.7
	92 22 04.56	220 28	Ref. Mon. 438	180.4
		224 49	T. P. 362	83.7
T. P. 362	48 13 18.36	44 49	T. P. 361	83.7
	92 22 01.70	204 49	T. P. 363	74.1
		216 43	Ref. Mon. 438	97.1
T. P. 363	48 13 20.54	24 49	T. P. 362	74.1
	92 22 00.19	148 20	T. P. 364	115.9
		248 28	Ref. Mon. 438	29.0
T. P. 364	48 13 23.73	126 42	T. P. 365	94.8
	92 22 03.14	315 03	Ref. Mon. 438	124.4
		328 20	T. P. 363	115.9
T. P. 365	48 13 25.56	227 33	T. P. 366	66.4
	92 22 06.82	231 56	Ref. Mon. 439	110.7
		306 42	T. P. 364	94.8
T. P. 366	48 13 27.02	47 33	T. P. 365	66.4
	92 22 04.45	238 26	Ref. Mon. 439	44.8
		278 03	T. P. 367	138.3
T. P. 367	48 13 26.39	98 03	T. P. 366	138.3
	92 21 57.81	113 26	Ref. Mon. 439	107.7
		295 21	T. P. 368	96.7
T. P. 368	48 13 25.05	114 20	Ref. Mon. 439	204.4
	92 21 53.58	115 21	T. P. 367	96.7
		294 20	Ref. Mon. 440	251.5
		307 18	T. P. 369	127.5
T. P. 369	48 13 22.54	127 18	T. P. 368	127.5
	92 21 48.66	279 23	T. P. 370	110.8
		281 41	Ref. Mon. 440	130.4
T. P. 370	48 13 21.96	99 23	T. P. 369	110.8
	92 21 43.37	114 21	Ref. Mon. 439	435.7
		214 34	T. P. 371	70.6
		294 21	Ref. Mon. 440	20.2
T. P. 371	48 13 23.84	18 01	Ref. Mon. 440	69.9
	92 21 41.43	34 34	T. P. 370	70.6
		194 31	T. P. 372	82.7
T. P. 372	48 13 26.44	14 31	T. P. 371	82.7
	92 21 40.42	192 34	Ref. Mon. 442	151.6
		197 27	T. P. 373	91.6
T. P. 373	48 13 29.27	17 27	T. P. 372	91.6
	92 21 39.09	185 11	Ref. Mon. 442	60.8
		210 15	T. P. 374	103.4
T. P. 374	48 13 32.16	30 15	T. P. 373	103.4
	92 21 36.57	58 21	Ref. Mon. 442	54.7
		229 54	T. P. 375	163.9
T. P. 375	48 13 35.58	49 54	T. P. 374	163.9
	92 21 30.50	52 01	Ref. Mon. 442	218.2
		234 06	T. P. 376	182.5
T. P. 376	48 13 39.04	54 06	T. P. 375	182.5
	92 21 23.33	229 29	T. P. 377	109.0
		229 48	Ref. Mon. 444	302.9
T. P. 377	48 13 41.33	49 29	T. P. 376	109.0
	92 21 19.32	229 59	Ref. Mon. 444	194.0
		234 42	T. P. 378	92.9
T. P. 378	48 13 43.07	54 42	T. P. 377	92.9
	92 21 15.64	208 16	T. P. 379	123.7
		225 41	Ref. Mon. 444	101.7
T. P. 379	48 13 46.60	28 16	T. P. 378	123.7
	92 21 12.81	159 31	Ref. Mon. 443	42.6
		190 22	T. P. 380	63.7
		339 31	Ref. Mon. 444	40.5
T. P. 380	48 13 48.62	10 22	T. P. 379	63.7
	92 21 12.25	49 19	Ref. Mon. 443	34.8
		249 54	T. P. 381	145.9
T. P. 381	48 13 50.25	65 59	Ref. Mon. 443	178.9
	92 21 05.61	69 54	T. P. 380	145.9
		245 03	T. P. 382	183.0
T. P. 382	48 13 52.75	65 03	T. P. 381	183.0
	92 20 57.57	233 28	Ref. Mon. 445	61.7
		256 49	T. P. 383	80.5
T. P. 383	48 13 53.34	76 49	T. P. 382	80.5
	92 20 53.77	122 33	Ref. Mon. 445	34.2
		264 06	T. P. 384	105.0
		302 33	Ref. Mon. 446	29.6
T. P. 384	48 13 53.69	84 06	T. P. 383	105.0
	92 20 48.71	93 16	Ref. Mon. 445	133.4
		253 32	T. P. 385	234.7
T. P. 385	48 13 55.84	73 32	T. P. 384	234.7
	92 20 37.80	280 12	Ref. Mon. 448	209.1
		285 28	T. P. 386	160.2
T. P. 386	48 13 54.46	105 28	T. P. 385	160.2
	92 20 30.32	240 25	T. P. 387	41.0
		263 42	Ref. Mon. 448	51.7
T. P. 387	48 13 55.12	60 25	T. P. 386	41.0
	92 20 28.59	191 25	T. P. 388	198.8
		312 47	Ref. Mon. 448	21.5
T. P. 388	48 14 01.43	11 25	T. P. 387	198.8
	92 20 26.69	173 15	Ref. Mon. 449	42.9
		217 22	T. P. 389	52.5
T. P. 389	48 14 02.78	37 22	T. P. 388	52.5
	92 20 25.14	91 27	Ref. Mon. 449	36.9
		231 26	T. P. 390	119.9
		271 27	Ref. Mon. 450	96.1
T. P. 390	48 14 05.20	51 26	T. P. 389	119.9
	92 20 20.60	129 30	Ref. Mon. 451	13.0
		222 05	T. P. 391	21.2
		309 30	Ref. Mon. 452	6.5
T. P. 391	48 14 05.71	42 05	T. P. 390	21.2
	92 20 19.91	229 41	T. P. 392	31.3
		241 28	Ref. Mon. 453	79.9
T. P. 392	48 14 06.36	49 41	T. P. 391	31.3
	92 20 18.75	248 53	Ref. Mon. 453	49.6
		261 22	T. P. 393	51.5
T. P. 393	48 14 06.62	81 22	T. P. 392	51.5
	92 20 16.29	155 28	Ref. Mon. 453	11.2
		310 19	T. P. 394	27.7
		335 28	Ref. Mon. 454	25.0
T. P. 394	48 14 06.03	130 19	T. P. 393	27.7
	92 20 15.26	137 28	Ref. Mon. 453	38.1
		253 54	T. P. 395	46.7

BOUNDARY TURNING POINTS—RANIER, MINN., TO CURTAIN FALLS—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
LOON RIVER—Continued	° ′ ″	° ′		
T. P. 395	48 14 06.45	73 54	T. P. 394	46.7
	92 20 13.09	201 29	Ref. Mon. 457	60.2
		210 18	T. P. 396	80.9
T. P. 396	48 14 08.71	30 18	T. P. 395	80.9
	92 20 11.11	53 38	Ref. Mon. 457	23.3
		267 18	T. P. 397	23.2
T. P. 397	48 14 08.75	70 25	Ref. Mon. 457	44.5
	92 20 09.99	87 18	T. P. 396	23.2
		309 41	T. P. 398	153.2
T. P. 398	48 14 05.58	129 41	T. P. 397	153.2
	92 20 04.28	323 09	T. P. 399	30.6
		333 11	Ref. Mon. 456	134.7
T. P. 399	48 14 04.79	10 17	T. P. 400	23.6
	92 20 03.39	143 09	T. P. 398	30.6
		336 06	Ref. Mon. 456	104.7
T. P. 400	48 14 04.04	190 17	T. P. 399	23.6
	92 20 03.59	327 16	Ref. Mon. 456	86.2
		346 44	T. P. 401	26.0
T. P. 401	48 14 03.22	166 44	T. P. 400	26.0
	92 20 03.30	304 42	T. P. 402	48.9
		319 16	Ref. Mon. 456	62.3
T. P. 402	48 14 02.32	124 42	T. P. 401	48.9
	92 20 01.35	178 46	Ref. Mon. 458	115.4
		284 48	T. P. 403	41.0
		358 46	Ref. Mon. 456	19.4
T. P. 403	48 14 01.98	77 16	Ref. Mon. 456	40.2
	92 19 59.43	104 48	T. P. 402	41.0
		261 39	T. P. 404	92.0
T. P. 404	48 14 02.41	81 39	T. P. 403	92.0
	92 19 55.02	225 16	T. P. 405	131.1
		236 57	Ref. Mon. 460	177.3
T. P. 405	48 14 05.40	45 16	T. P. 404	131.1
	92 19 50.50	250 49	T. P. 406	49.3
		265 28	Ref. Mon. 460	55.7
T. P. 406	48 14 05.92	70 49	T. P. 405	49.3
	92 19 48 25	142 47	Ref. Mon. 459	50.8
		255 50	T. P. 407	74.3
		322 47	Ref. Mon. 460	14.8
T. P. 407	48 14 06.51	64 35	Ref. Mon. 460	69.9
	92 19 44.76	75 50	T. P. 406	74.3
		220 26	T. P. 408	122.1
T. P. 408	48 14 09.52	40 26	T. P. 407	122 1
	92 19 40.92	217 17	T. P. 409	88.3
		223 52	Ref. Mon. 464	74.2
T. P. 409	48 14 11.79	7 04	Ref. Mon. 464	16.9
	92 19 38.33	37 17	T. P. 408	88.3
		224 44	T. P. 410	47.1
T. P. 410	48 14 12.88	44 44	T. P. 409	47.1
	92 19 36.72	278 08	T. P. 411	15.1
		298 15	Ref. Mon. 466	74 6
T. P. 411	48 14 12.81	98 08	T. P. 410	15.1
	92 19 36.00	302 17	T. P. 412	45.4
		303 09	Ref. Mon. 466	60.7
T. P. 412	48 14 12.02	122 17	T. P. 411	45.4
	92 19 34.14	274 03	T. P. 413	11.0
		305 44	Ref. Mon. 466	15.3
T. P. 413	48 14 12.00	94 03	T. P. 412	11.0
	92 19 33.60	228 56	T. P. 414	48.3
		350 12	Ref. Mon. 466	8.3
T. P. 414	48 14 13.02	48 56	T. P. 413	48.3
	92 19 31.84	203 50	Ref. Mon. 467	33.4
		233 34	T. P. 415	27.8
LOON LAKE				
T. P. 415	48 14 13.56	53 34	T. P. 414	27.8
	92 19 30.75	147 38	Ref. Mon. 467	16.6
		264 08	T. P. 416	240.2
T. P. 416	48 14 14.35	73 03	Ref. Mon. 468	245.5
	92 19 19.17	84 08	T. P. 415	240.2
		235 55	T. P. 417	650.8
		253 03	Ref. Mon. 470	204.5
LOON LAKE—Continued	° ′ ″	° ′		
T. P. 417	48 14 26.16	55 56	T. P. 416	650.8
	92 18 53.05	166 26	Ref. Mon. 471	215.0
		260 28	T. P. 418	2,597.5
		275 59	Ref. Mon. 472	278.0
T. P. 418	48 14 40.06	80 30	T. P. 417	2,597.5
	92 16 48.88	215 16	Ref. Mon. 477	721.0
		242 07	T. P. 419	908.6
		280 55	Ref. Mon. 478	980 0
T. P. 419	48 14 53.82	62 07	T. P. 418	908.6
	92 16 09.96	112 57	Ref. Mon. 477	420.0
		161 59	T. P. 420	974.3
		345 24	Ref. Mon. 478	631.0
T. P. 420	48 15 23.81	55 04	Ref. Mon. 481	293.0
	92 16 24.57	127 43	T. P. 421	1,552.2
		182 54	Ref. Mon. 480	512.0
		341 59	T. P. 419	974.3
T. P. 421	48 15 54.55	53 31	Ref. Mon. 485	167.8
	92 17 24.11	154 35	T. P. 422	758.2
		223 32	Ref. Mon. 484	221.8
		307 42	T. P. 420	1,552.2
T. P. 422	48 16 16.72	50 28	Ref. Mon. 487	201.0
	92 17 39.89	191 02	T. P. 423	539.4
		230 28	Ref. Mon. 486	235.0
		334 35	T. P. 421	758 2
T. P. 423	48 16 33.87	11 02	T. P. 422	539.4
	92 17 34.88	121 31	Ref. Mon. 489	88.9
		150 21	T. P. 424	83.4
		301 31	Ref. Mon. 488	82.5
T. P. 424	48 16 36.21	53 01	Ref. Mon. 489	43.3
	92 17 36.88	76 38	T. P. 425	42.4
		330 21	T. P. 423	83.4
T. P. 425	48 16 35.90	45 11	T. P. 426	31.1
	92 17 38.88	54 23	Ref. Mon. 491	77.2
		256 38	T. P. 424	42.4
T. P. 426	48 16 35.19	60 28	Ref. Mon. 491	46.8
	92 17 39.95	70 12	T. P. 427	47.1
		225 11	T. P. 425	31.1
T. P. 427	48 16 34.67	126 24	T. P. 428	6.9
	92 17 42.10	250 12	T. P. 426	47.1
		333 15	Ref. Mon. 491	8.0
T. P. 428	48 16 34.80	159 28	T. P. 429	23.1
	92 17 42.37	306 24	T. P. 427	6.9
		320 50	Ref. Mon. 491	14.5
T. P. 429	48 16 35.50	189 37	T. P. 430	19.8
	92 17 42.77	332 19	Ref. Mon. 491	37.2
		339 28	T. P. 428	23.1
T. P. 430	48 16 36.14	9 37	T. P. 429	19.8
	92 17 42.61	165 32	T. P. 431	30.8
		345 05	Ref. Mon. 491	54.2
T. P. 431	48 16 37.10	195 49	T. P. 432	16.8
	92 17 42.98	345 15	Ref. Mon. 491	85.0
		345 32	T. P. 430	30.8
T. P. 432	48 16 37.62	15 49	T. P. 431	16.8
	92 17 42.76	172 41	Ref. Mon. 492	42.4
		218 27	T. P. 433	16.7
T. P. 433	48 16 38.05	38 27	T. P. 432	16.7
	92 17 42.25	151 23	Ref. Mon. 492	33.0
		152 47	T. P. 434	16.2
T. P. 434	48 16 38.51	76 28	T. P. 435	23.1
	92 17 42.61	150 03	Ref. Mon. 492	16.9
		332 47	T. P. 433	16.2
T. P. 435	48 16 38.34	190 07	T. P. 436	31.9
	92 17 43.70	215 07	Ref. Mon. 492	24.5
		256 28	T. P. 434	23.1
T. P. 436	48 16 39.35	10 07	T. P. 435	31.9
	92 17 43.43	182 00	T. P. 437	16.2
		323 23	Ref. Mon. 492	14.2
T. P. 437	48 16 39.88	2 00	T. P. 436	16.2
	92 17 43.40	168 00	T. P. 438	33.7
		344 01	Ref. Mon. 492	28.7

BOUNDARY TURNING POINTS—RANIER, MINN., TO CURTAIN FALLS—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
LAC LACROIX	° ′ ″	° ′		
T. P. 438	48 16 40.95	58 25	Ref. Mon. 495	11.8
	92 17 43.74	159 30	T. P. 439	1,229.1
		238 25	Ref. Mon. 494	22.1
		348 00	T. P. 437	33.7
T. P. 439	48 17 18.22	136 02	Ref. Mon. 499	440.8
	92 18 04.62	194 21	T. P. 440	2,058.0
		316 02	Ref. Mon. 500	418.8
		339 30	T. P. 438	1,229.1
T. P. 440	48 18 22.76	14 22	T. P. 439	2,058.0
	92 17 39.85	111 37	Ref. Mon. 501	389.8
		142 16	T. P. 441	1,408.8
		291 37	Ref. Mon. 502	359.8
T. P. 441	48 18 58.83	68 09	Ref. Mon. 505	138.8
	92 18 21.70	189 45	T. P. 442	742.7
		248 09	Ref. Mon. 506	279.8
		322 16	T. P. 440	1,408.8
T. P. 442	48 19 22.53	9 45	T. P. 441	742.7
	92 18 15.59	64 20	Ref. Mon. 507	495.6
		260 22	T. P. 443	679.4
		300 57	Ref. Mon. 508	431.0
T. P. 443	48 19 26.21	80 23	T. P. 442	679.4
	92 17 43.07	129 29	Ref. Mon. 509	300.0
		193 05	T. P. 444	2,164.5
		237 52	Ref. Mon. 510	308.0
T. P. 444	48 20 34.47	13 05	T. P. 443	2,164.5
	92 17 19.28	101 24	Ref. Mon. 513	243.2
		235 21	T. P. 445	2,368.0
		281 24	Ref. Mon. 514	234.2
T. P. 445	48 21 18.04	55 22	T. P. 444	2,368.0
	92 15 44.65	255 20	Ref. Mon. 517	770.0
		282 30	T. P. 446	3,107.8
		314 08	Ref. Mon. 518	718.0
T. P. 446	48 20 56.23	24 01	Ref. Mon. 522	116.7
	92 13 17.29	102 32	T. P. 445	3,107.8
		204 01	Ref. Mon. 521	69.7
		301 37	T. P. 447	165.5
T. P. 447	48 20 53.43	83 59	Ref. Mon. 522	189.5
	92 13 10.45	121 37	T. P. 446	165.5
		143 12	Ref. Mon. 521	187.9
		329 47	T. P. 448	77.7
T. P. 448	48 20 51.25	101 44	Ref. Mon. 522	232.4
	92 13 08.55	145 07	Ref. Mon. 521	265.2
		149 47	T. P. 447	77.7
		344 29	T. P. 449	67.7
T. P. 449	48 20 49.14	164 29	T. P. 448	67.7
	92 13 07.67	311 04	Ref. Mon. 523	107.9
		320 44	T. P. 450	95.2
		335 16	Ref. Mon. 524	84.7
T. P. 450	48 20 46.76	82 30	Ref. Mon. 524	25.0
	92 13 04.74	140 44	T. P. 449	95.2
		262 30	Ref. Mon. 523	21.3
		328 25	T. P. 451	165.3
T. P. 451	48 20 42.20	26 33	Ref. Mon. 526	70.0
	92 13 00.54	141 01	Ref. Mon. 524	177.0
		148 25	T. P. 450	165.3
		264 13	T. P. 452	763.1
T. P. 452	48 20 44.68	4 19	Ref. Mon. 529	32.1
	92 12 23.67	84 14	T. P. 451	763.1
		184 19	Ref. Mon. 530	257.7
		184 19	T. P. 453	176.3
T. P. 453	48 20 50.37	4 19	Ref. Mon. 529	208.4
	92 12 23.02	4 19	T. P. 452	176.3
		129 54	T. P. 454	113.7
		184 19	Ref. Mon. 530	81.4
T. P. 454	48 20 52.73	84 58	Ref. Mon. 527	145.7
	92 12 27.26	212 46	T. P. 455	522.9
		264 58	Ref. Mon. 530	93.7
		309 54	T. P. 453	113.7
T. P. 455	48 21 06.97	32 46	T. P. 454	522.9
	92 12 13.51	44 13	Ref. Mon. 531	465.5
		224 13	Ref. Mon. 533	412.5
		283 15	T. P. 456	671.2
T. P. 456	48 21 01.98	103 16	T. P. 455	671.2
	92 11 41.78	148 47	Ref. Mon. 535	141.6
		328 47	Ref. Mon. 534	281.6
		348 10	T. P. 457	193.6
LAC LACROIX—Continued				
T. P. 457	48 20 55.85	168 10	T. P. 456	193.6
	92 11 39.85	248 20	Ref. Mon. 537	173.0
		271 38	T. P. 458	128.9
		295 48	Ref. Mon. 534	118.0
T. P. 458	48 20 55.73	25 20	Ref. Mon. 534	52.7
	92 11 33.60	91 38	T. P. 457	128.9
		205 20	Ref. Mon. 537	74.7
		252 02	T. P. 459	1,112.5
T. P. 459	48 21 06.84	72 02	T. P. 458	1,112.5
	92 10 42.20	94 32	Ref. Mon. 539	100.0
		172 51	T. P. 460	345.9
		348 15	Ref. Mon. 540	69.0
T. P. 460	48 21 17.95	137 06	Ref. Mon. 543	108.0
	92 10 44.29	206 46	T. P. 461	280.0
		235 25	Ref. Mon. 544	306.0
		352 51	T. P. 459	345.9
T. P. 461	48 21 26.05	26 46	T. P. 460	280.0
	92 10 38.16	49 26	Ref. Mon. 543	262.7
		229 26	Ref. Mon. 545	590.8
		239 00	T. P. 462	1,331.9
T. P. 462	48 21 48.25	59 01	T. P. 461	1,331.9
	92 09 42.70	227 29	Ref. Mon. 548	1,060.0
		258 11	T. P. 463	1,295.3
		326 34	Ref. Mon. 546	308.0
T. P. 463	48 21 56.83	64 35	Ref. Mon. 546	1,216.0
	92 08 41.10	78 12	T. P. 462	1,295.3
		135 27	Ref. Mon. 548	662.0
		355 20	T. P. 464	1,078.6
T. P. 464	48 21 22.03	37 23	Ref. Mon. 550	459.0
	92 08 36.83	175 20	T. P. 463	1,078.6
		217 23	Ref. Mon. 549	693.0
		272 27	T. P. 465	3,917.7
T. P. 465	48 21 16.55	39 41	Ref. Mon. 554	322.2
	92 05 26.71	92 30	T. P. 464	3,917.7
		219 41	Ref. Mon. 553	297.2
		279 09	T. P. 466	550.7
T. P. 466	48 21 13.71	99 09	T. P. 465	550.7
	92 05 00.30	159 47	Ref. Mon. 555	191.0
		219 48	T. P. 467	624.1
		339 47	Ref. Mon. 556	140.0
T. P. 467	48 21 29.23	39 48	T. P. 466	624.1
	92 04 40.90	148 53	Ref. Mon. 557	406.8
		259 07	T. P. 468	842.2
		328 53	Ref. Mon. 558	420.8
T. P. 468	48 21 34.38	79 07	T. P. 467	842.2
	92 04 00.72	138 25	Ref. Mon. 559	92.7
		270 37	T. P. 469	873.2
		318 25	Ref. Mon. 560	106.7
T. P. 469	48 21 34.07	90 38	T. P. 468	873.2
	92 03 18.30	94 50	Ref. Mon. 559	938.0
		204 54	Ref. Mon. 561	557.0
		338 31	T. P. 470	1,289.7
T. P. 470	48 20 55.22	158 31	T. P. 469	1,289.7
	92 02 55.37	278 50	Ref. Mon. 563	376.0
		290 19	T. P. 471	235.0
		322 21	Ref. Mon. 564	131.0
T. P. 471	48 20 52.58	81 03	Ref. Mon. 564	142.1
	92 02 44.67	110 19	T. P. 470	235.0
		261 03	Ref. Mon. 563	153.1
		346 19	T. P. 472	241.4
T. P. 472	48 20 44.98	40 29	T. P. 473	312.4
	92 02 41.90	137 03	Ref. Mon. 564	260.0
		166 19	T. P. 471	241.4
		200 01	Ref. Mon. 563	275.0
T. P. 473	48 20 37.29	11 17	Ref. Mon. 566	283.0
	92 02 51.74	220 29	T. P. 472	312.4
		305 58	Ref. Mon. 565	377.0
		356 07	T. P. 474	982.8
T. P. 474	48 20 05.54	176 07	T. P. 473	982.8
	92 02 48.51	257 54	Ref. Mon. 567	400.0
		285 29	T. P. 475	713.2
		327 27	Ref. Mon. 568	295.0
T. P. 475	48 19 59.38	33 52	Ref. Mon. 570	108.7
	92 02 15.14	105 29	T. P. 474	713.2
		213 52	Ref. Mon. 569	176.7
		328 03	T. P. 476	965.1

BOUNDARY TURNING POINTS—RANIER, MINN., TO CURTAIN FALLS—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
LAC LACROIX—Continued	° ′ ″	° ′		
T. P. 476	48 19 32.86	69 14	Ref. Mon. 576	215.0
	92 01 50.36	148 04	T. P. 475	965.1
		177 38	Ref. Mon. 575	353.0
		282 20	T. P. 477	1,428.9
T. P. 477	48 19 22.98	16 34	Ref. Mon. 580	64.4
	92 00 42.59	102 21	T. P. 476	1,428.9
		196 34	Ref. Mon. 579	132.4
		283 12	T. P. 478	902.6
T. P. 478	48 19 16.31	19 57	T. P. 479	2,797.8
	91 59 59.93	94 29	Ref. Mon. 582	422.0
		103 12	T. P. 477	902.6
		180 31	Ref. Mon. 581	393.0
T. P. 479	48 17 51.16	96 41	Ref. Mon. 589	341.0
	92 00 46.26	199 57	T. P. 478	2,797.8
		276 41	Ref. Mon. 587	308.0
		356 29	T. P. 480	1,164.0
T. P. 480	48 17 13.55	153 15	Ref. Mon. 590	326.0
	92 00 42.80	176 29	T. P. 479	1,164.0
		203 13	Ref. Mon. 591	240.0
		333 45	T. P. 481	798.6
T. P. 481	48 16 50.36	80 28	Ref. Mon. 592	261.8
	92 00 25.66	153 45	T. P. 480	798.6
		200 28	Ref. Mon. 593	244.8
		358 08	T. P. 482	1,684.7
T. P. 482	48 15 55.84	97 15	Ref. Mon. 594	452.3
	92 00 23.01	178 08	T. P. 481	1,684.7
		277 15	Ref. Mon. 597	480.3
		293 51	T. P. 483	1,410.5
T. P. 483	48 15 37.38	45 13	Ref. Mon. 598	169.2
	91 59 20.46	113 51	T. P. 482	1,410.5
		225 13	Ref. Mon. 599	121.2
		335 10	T. P. 484	1,514.3
T. P. 484	48 14 52.89	87 41	Ref. Mon. 600	76.4
	91 58 49.64	155 11	T. P. 483	1,514.3
		267 41	Ref. Mon. 601	52.1
		295 52	T. P. 485	129.1
T. P. 485	48 14 51.06	115 52	T. P. 484	129.1
	91 58 44.01	276 52	Ref. Mon. 603	143.7
		280 03	T. P. 486	52.8
T. P. 486	48 14 50.76	100 03	T. P. 485	52.8
	91 58 41.49	262 48	T. P. 487	36.2
		275 01	Ref. Mon. 603	91.0
T. P. 487	48 14 50.91	82 48	T. P. 486	36.2
	91 58 39.75	282 50	Ref. Mon. 603	56.2
		306 08	T. P. 488	40.9
		331 28	Ref. Mon. 602	107.8
T. P. 488	48 14 50.13	126 08	T. P. 487	40.9
	91 58 38.15	241 59	Ref. Mon. 603	24.7
		323 15	T. P. 489	56.4
		345 19	Ref. Mon. 602	73.0
T. P. 489	48 14 48.67	12 20	T. P. 490	39.1
	91 58 36.52	30 59	Ref. Mon. 602	29.6
		143 15	T. P. 488	56.4
T. P. 490	48 14 47.43	33 10	T. P. 491	20.3
	91 58 36.92	151 35	Ref. Mon. 602	14.5
		192 20	T. P. 489	39.1
T. P. 491	48 14 46.88	7 31	Ref. Mon. 609	62.2
	91 58 37.46	58 01	T. P. 492	14.1
		213 10	T. P. 490	20.3
T. P. 492	48 14 46.64	28 38	T. P. 493	32.9
	91 58 38.04	238 01	T. P. 491	14.1
		355 59	Ref. Mon. 609	54.4
T. P. 493	48 14 45.70	208 38	T. P. 492	32.9
	91 58 38.80	322 19	Ref. Mon. 609	32.0
		347 51	T. P. 494	30.5
T. P. 494	48 14 44.74	167 51	T. P. 493	30.5
	91 58 38.49	251 19	Ref. Mon. 609	13.9
		352 19	T. P. 495	16.6
T. P. 495	48 14 44.21	172 19	T. P. 494	16.6
	91 58 38.38	207 39	Ref. Mon. 609	23.6
		301 13	T. P. 496	18.0
T. P. 496	48 14 43.91	121 13	T. P. 495	18.0
	91 58 37.64	171 39	Ref. Mon. 609	30.5
		315 03	T. P. 497	74.3
		351 39	Ref. Mon. 608	38.3
T. P. 497	48 14 42.20	135 03	T. P. 496	74.3
	91 58 35.09	145 29	Ref. Mon. 609	100.5
		316 09	T. P. 498	97.2
T. P. 498	48 14 39.93	126 35	Ref. Mon. 608	142.3
	91 58 31.83	136 10	T. P. 497	97.2
		220 11	T. P. 499	139.3
		272 43	Ref. Mon. 610	64.5
T. P. 499	48 14 43.38	40 11	T. P. 498	139.3
	91 58 27.47	212 03	Ref. Mon. 612	125.9
		235 45	T. P. 500	9.7
T. P. 500	48 14 43.55	55 45	T. P. 499	9.7
	91 58 27.09	210 09	Ref. Mon. 612	117.1
		213 36	T. P. 501	14.6
T. P. 501	48 14 43.95	33 36	T. P. 500	14.6
	91 58 26.70	207 19	T. P. 502	52.7
		209 39	Ref. Mon. 612	102.6
T. P. 502	48 14 45.46	27 19	T. P. 501	52.7
	91 58 25.52	202 42	T. P. 503	54.5
		212 06	Ref. Mon. 612	49.9
T. P. 503	48 14 47.09	22 42	T. P. 502	54.5
	91 58 24.50	192 57	T. P. 504	34.6
		325 18	Ref. Mon. 612	9.7
T. P. 504	48 14 48.18	12 57	T. P. 503	34.6
	91 58 24.13	60 06	Ref. Mon. 613	61.0
		240 06	Ref. Mon. 614	341.0
		240 06	T. P. 505	265.0
T. P. 505	48 14 52.46	60 06	Ref. Mon. 613	326.0
	91 58 12.99	60 06	T. P. 504	265.0
		195 22	T. P. 506	103.7
		240 06	Ref. Mon. 614	76.0
T. P. 506	48 14 55.70	15 22	T. P. 505	103.7
	91 58 11.66	49 45	Ref. Mon. 613	406.3
		126 35	T. P. 507	52.8
		328 15	Ref. Mon. 614	73.0
T. P. 507	48 14 56.72	134 55	Ref. Mon. 615	114.5
	91 58 13.72	156 35	T. P. 508	43.9
		306 35	T. P. 506	52.8
T. P. 508	48 14 58.02	122 31	Ref. Mon. 615	75.5
	91 58 14.56	143 15	T. P. 509	74.2
		336 35	T. P. 507	43.9
T. P. 509	48 14 59.94	45 35	Ref. Mon. 615	27.0
	91 58 16.71	107 52	T. P. 510	39.3
		323 15	T. P. 508	74.2
T. P. 510	48 15 00.33	125 28	T. P. 511	46.1
	91 58 18.52	192 20	Ref. Mon. 616	60.6
		287 52	T. P. 509	39.3
T. P. 511	48 15 01.20	138 24	Ref. Mon. 617	69.2
	91 58 20.34	178 17	T. P. 512	40.5
		237 13	Ref. Mon. 616	60.0
		305 28	T. P. 510	46.1
T. P. 512	48 15 02.51	197 19	T. P. 513	38.5
	91 58 20.40	278 45	Ref. Mon. 616	52.3
		358 17	T. P. 511	40.5
T. P. 513	48 15 03.70	17 19	T. P. 512	38.5
	91 58 19.84	186 53	T. P. 514	31.1
		318 04	Ref. Mon. 616	60.1
T. P. 514	48 15 04.70	6 53	T. P. 513	31.1
	91 58 19.66	184 07	T. P. 515	61.5
		334 16	Ref. Mon. 616	84.0
T. P. 515	48 15 06.69	4 07	T. P. 514	61.5
	91 58 19.45	227 14	T. P. 516	31.1
		346 50	Ref. Mon. 616	140.7
T. P. 516	48 15 07.37	47 14	T. P. 515	31.1
	91 58 18.34	157 29	Ref. Mon. 619	101.0
		182 55	T. P. 517	98.5
		190 36	Ref. Mon. 621	130.3

BOUNDARY TURNING POINTS—RANIER, MINN., TO CURTAIN FALLS—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
LAC LACROIX—Continued	° ′ ″	° ′		
T. P. 517	48 15 10.56	2 55	T. P. 516	98.5
	91 58 18.10	83 20	Ref. Mon. 619	44.0
		212 34	Ref. Mon. 621	35.2
		232 12	T. P. 518	35.8
T. P. 518	48 15 11.27	52 12	T. P. 517	35.8
	91 58 16.73	278 26	T. P. 519	36.5
		281 16	Ref. Mon. 618	55.2
T. P. 519	48 15 11.09	98 26	T. P. 518	36.5
	91 58 14.98	250 23	T. P. 520	31.7
		286 46	Ref. Mon. 618	18.9
IRON LAKE				
T. P. 520	48 15 11.44	36 16	Ref. Mon. 618	20.0
	91 58 13.53	70 23	T. P. 519	31.7
		198 14	T. P. 521	34.9
T. P. 521	48 15 12.51	18 14	T. P. 520	34.9
	91 58 13.00	24 46	Ref. Mon. 618	54.3
		216 03	T. P. 522	54.7
T. P. 522	48 15 13.94	30 26	Ref. Mon. 618	108.4
	91 58 11.44	36 03	T. P. 521	54.7
		270 54	T. P. 523	813.6
T. P. 523	48 15 13.53	90 54	T. P. 522	813.6
	91 57 32.00	169 46	Ref. Mon. 623	123.6
		315 29	T. P. 524	210.2
		349 46	Ref. Mon. 624	91.0
T. P. 524	48 15 08.68	135 29	T. P. 523	210.2
	91 57 24.86	247 18	Ref. Mon. 625	51.4
		271 22	T. P. 525	218.1
		320 08	Ref. Mon. 626	67.7
T. P. 525	48 15 08.51	21 45	Ref. Mon. 628	69.3
	91 57 14.29	91 23	T. P. 524	218.1
		359 49	T. P. 526	59.5
T. P. 526	48 15 06.58	9 14	T. P. 527	7.8
	91 57 14.28	79 29	Ref. Mon. 628	26.3
		179 49	T. P. 525	59.5
T. P. 527	48 15 06.33	10 38	T. P. 528	22.6
	91 57 14.34	96 45	Ref. Mon. 628	24.8
		189 14	T. P. 526	7.8
		276 45	Ref. Mon. 627	28.3
T. P. 528	48 15 05.61	140 50	Ref. Mon. 628	32.4
	91 57 14.54	190 38	T. P. 527	22.6
		357 33	T. P. 529	221.9
T. P. 529	48 14 58.43	177 33	T. P. 528	221.9
	91 57 14.09	281 02	Ref. Mon. 629	121.2
		311 19	T. P. 530	594.9
		347 45	Ref. Mon. 630	141.3
T. P. 530	48 14 45.72	36 27	T. P. 531	196.6
	91 56 52.43	92 03	Ref. Mon. 632	174.0
		131 20	T. P. 529	594.9
		208 34	Ref. Mon. 631	104.0
T. P. 531	48 14 40.60	83 24	T. P. 532	649.5
	91 56 58.09	160 51	Ref. Mon. 632	174.0
		216 27	T. P. 530	196.6
		260 01	Ref. Mon. 633	200.0
T. P. 532	48 14 38.18	142 35	Ref. Mon. 634	456.7
	91 57 29.36	263 23	T. P. 531	649.5
		322 35	Ref. Mon. 635	193.7
		350 34	T. P. 533	561.7
T. P. 533	48 14 20.24	1 34	Ref. Mon. 637	273.0
	91 57 24.90	41 44	T. P. 534	303.5
		98 04	Ref. Mon. 636	154.0
		170 34	T. P. 532	561.7
T. P. 534	48 14 12.90	191 17	Ref. Mon. 636	253.0
	91 57 34.69	221 44	T. P. 533	303.5
		283 25	Ref. Mon. 637	200.0
		345 36	T. P. 535	422.8
IRON LAKE—Continued	° ′ ″	° ′		
T. P. 535	48 13 59.65	95 38	Ref. Mon. 638	386.6
	91 57 29.59	165 36	T. P. 534	422.8
		271 11	T. P. 536	436.5
		275 38	Ref. Mon. 640	453.6
T. P. 536	48 13 59.36	91 11	T. P. 535	436.5
	91 57 08.44	157 07	Ref. Mon. 639	32.6
		247 09	T. P. 537	98.7
		337 07	Ref. Mon. 640	38.6
T. P. 537	48 14 00.60	45 46	Ref. Mon. 640	106.0
	91 57 04.04	67 09	T. P. 536	98.7
		85 25	Ref. Mon. 639	104.0
		306 14	T. P. 538	565.8
T. P. 538	48 13 49.77	116 05	Ref. Mon. 640	592.6
	91 56 41.92	126 14	T. P. 537	565.8
		270 49	T. P. 539	225.2
		296 05	Ref. Mon. 641	113.6
T. P. 539	48 13 49.67	69 13	Ref. Mon. 641	131.7
	91 56 31.01	90 49	T. P. 538	225.2
		217 59	T. P. 540	542.7
T. P. 540	48 14 03.51	37 59	T. P. 539	542.7
	91 56 14.83	171 43	Ref. Mon. 643	115.4
		253 55	T. P. 541	677.5
		351 43	Ref. Mon. 642	115.6
T. P. 541	48 14 09.59	34 50	Ref. Mon. 644	220.0
	91 55 43.28	73 55	T. P. 540	677.5
		214 50	Ref. Mon. 645	186.7
		260 03	T. P. 542	579.8
T. P. 542	48 14 12.84	80 03	T. P. 541	579.8
	91 55 15.61	139 18	Ref. Mon. 647	110.3
		238 17	T. P. 543	379.2
		319 18	Ref. Mon. 646	110.4
T. P. 543	48 14 19.29	8 24	Ref. Mon. 648	53.0
	91 54 59.98	58 17	T. P. 542	379.2
		188 24	Ref. Mon. 649	53.3
		255 40	T. P. 544	147.1
T. P. 544	48 14 20.47	75 40	T. P. 543	147.1
	91 54 53.08	96 54	Ref. Mon. 649	135.7
		275 37	T. P. 545	107.4
T. P. 545	48 14 20.13	95 37	T. P. 544	107.4
	91 54 47.90	287 59	Ref. Mon. 651	72.0
		338 09	T. P. 546	50.5
T. P. 546	48 14 18.62	158 09	T. P. 545	50.5
	91 54 46.99	243 39	Ref. Mon. 651	55.5
		280 08	T. P. 547	188.0
T. P. 547	48 14 17.55	100 08	T. P. 546	188.0
	91 54 38.01	250 19	T. P. 548	77.2
		300 40	Ref. Mon. 652	72.9
T. P. 548	48 14 18.39	8 58	Ref. Mon. 652	64.0
	91 54 34.49	70 19	T. P. 547	77.2
		188 58	Ref. Mon. 653	59.6
		270 09	T. P. 549	154.7
T. P. 549	48 14 18.38	90 09	T. P. 548	154.7
	91 54 26.99	276 01	Ref. Mon. 655	105.9
		303 18	T. P. 550	20.2
T. P. 550	48 14 18.02	123 18	T. P. 549	20.2
	91 54 26.17	270 00	Ref. Mon. 655	88.4
		286 23	T. P. 551	28.4
T. P. 551	48 14 17.76	106 23	T. P. 550	28.4
	91 54 24.86	262 33	Ref. Mon. 655	61.7
		319 06	T. P. 552	137.7
T. P. 552	48 14 14.39	97 59	Ref. Mon. 656	55.6
	91 54 20.49	139 06	T. P. 551	137.7
		215 01	Ref. Mon. 657	92.4
		272 53	T. P. 553	258.3

GEOGRAPHIC POSITIONS OF BOUNDARY TURNING POINTS DEFINING THE INTERNATIONAL BOUNDARY FROM CURTAIN FALLS TO PIGEON RIVER

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
CROOKED LAKE	° ′ ″	° ′		
T. P. 553	48 14 13.97	92 53	T. P. 552	258.3
	91 54 07.99	155 56	Ref. Mon. 659	107.3
		261 59	T. P. 554	693.5
		335 56	Ref. Mon. 658	167.7
T. P. 554	48 14 17.10	68 16	Ref. Mon. 660	119.3
	91 53 34.71	81 59	T. P. 553	693.5
		248 16	Ref. Mon. 661	469.5
		330 56	T. P. 555	1,342.8
T. P. 555	48 13 39.10	38 38	Ref. Mon. 662	463.3
	91 53 03.10	150 56	T. P. 554	1,342.8
		218 38	Ref. Mon. 663	126.7
		306 21	T. P. 556	1,546.1
T. P. 556	48 13 09.43	28 03	Ref. Mon. 664	200.9
	91 52 02.77	126 22	T. P. 555	1,546.1
		208 03	Ref. Mon. 666	169.6
		350 04	T. P. 557	1,381.3
T. P. 557	48 12 25.38	170 04	T. P. 556	1,381.3
	91 51 51.23	174 01	Ref. Mon. 666	1,518.5
		261 46	T. P. 558	1,426.0
		354 01	Ref. Mon. 667	155.0
T. P. 558	48 12 31.98	81 47	T. P. 557	1,426.0
	91 50 42.87	147 04	Ref. Mon. 668	272.7
		256 33	T. P. 559	723.5
		327 04	Ref. Mon. 669	406.5
T. P. 559	48 12 37.43	18 21	Ref. Mon. 670	228.8
	91 50 08.79	76 33	T. P. 558	723.5
		292 14	T. P. 560	270.1
		316 06	Ref. Mon. 671	214.4
T. P. 560	48 12 34.12	62 44	Ref. Mon. 671	114.0
	91 49 56.68	112 14	T. P. 559	270.1
		242 44	Ref. Mon. 672	494.0
		257 56	T. P. 561	1,298.6
T. P. 561	48 12 42.90	77 57	T. P. 560	1,298.6
	91 48 55.17	99 59	Ref. Mon. 673	498.6
		279 59	Ref. Mon. 674	115.0
		345 26	T. P. 562	394.1
T. P. 562	48 12 30.55	102 47	Ref. Mon. 675	275.0
	91 48 50.37	165 26	T. P. 561	394.1
		282 47	Ref. Mon. 676	148.0
		304 04	T. P. 563	418.5
T. P. 563	48 12 22.96	2 38	Ref. Mon. 678	115.1
	91 48 33.58	124 04	T. P. 562	418.5
		182 38	Ref. Mon. 677	106.5
		293 48	T. P. 564	989.4
T. P. 564	48 12 10.03	38 50	Ref. Mon. 679	104.0
	91 47 49.74	113 49	T. P. 563	989.4
		218 50	Ref. Mon. 680	104.2
		272 25	T. P. 565	461.5
T. P. 565	48 12 09.40	83 20	Ref. Mon. 679	530.0
	91 47 27.41	92 25	T. P. 564	461.5
		104 16	Ref. Mon. 680	408.4
		345 16	T. P. 566	708.7
T. P. 566	48 11 47.21	39 24	Ref. Mon. 683	875.5
	91 47 18.68	165 16	T. P. 565	708.7
		219 24	Ref. Mon. 682	130.1
		275 42	T. P. 567	186.6
T. P. 567	48 11 46.61	95 42	T. P. 566	186.6
	91 47 09.69	139 06	Ref. Mon. 682	157.4
		218 47	T. P. 568	650.5
		319 06	Ref. Mon. 684	388.8
T. P. 568	48 12 03.03	10 48	Ref. Mon. 684	815.4
	91 46 49.96	38 47	T. P. 567	650.5
		52 45	Ref. Mon. 682	641.4
		270 36	T. P. 569	1,223.3
T. P. 569	48 12 02.61	90 37	T. P. 568	1,223.3
	91 45 50.72	163 26	Ref. Mon. 686	140.8
		221 56	T. P. 570	163.2
		343 26	Ref. Mon. 685	120.3
CROOKED LAKE—Contd.	° ′ ″	° ′		
T. P. 570	48 12 06.54	41 56	T. P. 569	163.2
	91 45 45.44	95 16	Ref. Mon. 686	149.7
		203 25	T. P. 571	375.0
		275 16	Ref. Mon. 687	147.4
T. P. 571	48 12 17.68	23 25	T. P. 570	375.0
	91 45 38.22	151 30	Ref. Mon. 688	139.7
		249 43	T. P. 572	382.3
		331 30	Ref. Mon. 689	164.4
T. P. 572	48 12 21.97	8 44	Ref. Mon. 691	421.9
	91 45 20.85	69 43	T. P. 571	382.3
		188 44	Ref. Mon. 690	264.6
		342 42	T. P. 573	598.5
T. P. 573	48 12 03.47	63 09	Ref. Mon. 692	232.8
	91 45 12.23	162 42	T. P. 572	598.5
		243 09	Ref. Mon. 693	156.1
		302 28	T. P. 574	451.1
T. P. 574	48 11 55.63	67 38	Ref. Mon. 694	738.0
	91 44 53.80	122 28	T. P. 573	451.1
		247 38	Ref. Mon. 696	353.5
		269 00	T. P. 575	338.3
T. P. 575	48 11 55.82	89 00	T. P. 574	338.3
	91 44 37.42	174 58	Ref. Mon. 696	129.1
		248 48	T. P. 576	184.5
		354 58	Ref. Mon. 695	121.5
T. P. 576	48 11 57.98	68 48	T. P. 575	184.5
	91 44 29.09	134 42	Ref. Mon. 697	121.1
		176 05	T. P. 577	588.5
		314 42	Ref. Mon. 698	63.0
T. P. 577	48 12 16.99	37 58	Ref. Mon. 699	126.2
	91 44 31.04	217 58	Ref. Mon. 700	42.0
		279 58	T. P. 578	246.3
		356 05	T. P. 576	588.5
T. P. 578	48 12 15.61	99 58	T. P. 577	246.3
	91 44 19.29	109 17	Ref. Mon. 700	229.4
		268 30	T. P. 579	70.4
		289 17	Ref. Mon. 702	76.0
T. P. 579	48 12 15.67	88 30	T. P. 578	70.4
	91 44 15.88	177 37	Ref. Mon. 701	25.0
		278 06	T. P. 580	52.6
		357 37	Ref. Mon. 702	27.0
T. P. 580	48 12 15.43	98 06	T. P. 579	52.6
	91 44 13.36	121 24	Ref. Mon. 701	62.0
		289 47	T. P. 581	934.4
		301 24	Ref. Mon. 703	117.2
T. P. 581	48 12 05.19	4 29	Ref. Mon. 705	245.7
	91 43 30.78	109 48	T. P. 580	934.4
		184 29	Ref. Mon. 704	113.7
		285 22	T. P. 582	769.1
T. P. 582	48 11 58.59	14 29	Ref. Mon. 707	281.5
	91 42 54.87	105 22	T. P. 581	769.1
		194 29	Ref. Mon. 706	116.7
		314 57	T. P. 583	234.3
T. P. 583	48 11 53.23	65 38	Ref. Mon. 707	259.3
	91 42 46.84	134 57	T. P. 582	234.3
		245 38	Ref. Mon. 708	150.0
		335 41	T. P. 584	503.6
T. P. 584	48 11 38.37	0 52	T. P. 585	149.5
	91 42 36.80	128 25	Ref. Mon. 707	566.1
		155 41	T. P. 583	503.6
		308 25	Ref. Mon. 709	194.0
T. P. 585	48 11 33.53	14 05	T. P. 586	575.7
	91 42 36.91	79 20	Ref. Mon. 710	242.6
		180 52	T. P. 584	149.5
		259 20	Ref. Mon. 709	157.0
T. P. 586	48 11 15.45	39 56	T. P. 587	1,052.1
	91 42 43.69	81 00	Ref. Mon. 712	369.6
		194 05	T. P. 585	575.7
		261 00	Ref. Mon. 711	135.0

BOUNDARY TURNING POINTS—CURTAIN FALLS TO PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
CROOKED LAKE—Contd.	° ′ ″	° ′		
T. P. 587	48 10 49.33	20 27	T. P. 588	208.7
	91 43 16.38	175 52	Ref. Mon. 713	245.9
		219 56	T. P. 586	1,052.1
		355 52	Ref. Mon. 714	152.4
T. P. 588	48 10 43.00	5 00	T. P. 589	557.5
	91 43 19.91	62 34	Ref. Mon. 715	351.2
		200 27	T. P. 587	208.7
		242 34	Ref. Mon. 714	94.5
T. P. 589	48 10 25.02	17 16	T. P. 590	346.7
	91 43 22.26	117 45	Ref. Mon. 716	72.3
		185 00	T. P. 588	557.5
		297 45	Ref. Mon. 717	42.0
T. P. 590	48 10 14.30	102 52	Ref. Mon. 718	193.6
	91 43 27.24	197 16	T. P. 589	346.7
		282 52	Ref. Mon. 719	109.3
		330 28	T. P. 591	199.5
T. P. 591	48 10 08.68	127 02	Ref. Mon. 718	359.9
	91 43 22.48	150 28	T. P. 590	199.5
		234 14	T. P. 592	550.0
		307 02	Ref. Mon. 721	282.6
T. P. 592	48 10 19.09	54 14	T. P. 591	550.0
	91 43 00.88	105 57	Ref. Mon. 720	219.1
		258 31	T. P. 593	580.0
		285 57	Ref. Mon. 722	246.0
T. P. 593	48 10 22.83	1 57	Ref. Mon. 723	118.8
	91 42 33.37	78 31	T. P. 592	580.0
		181 57	Ref. Mon. 724	101.8
		305 39	T. P. 594	418.1
T. P. 594	48 10 14.94	1 46	T. P. 595	746.3
	91 42 16.93	125 39	T. P. 593	418.1
		135 48	Ref. Mon. 724	482.2
		315 48	Ref. Mon. 725	360.7
T. P. 595	48 09 50.79	58 24	Ref. Mon. 727	103.5
	91 42 18.04	181 46	T. P. 594	746.3
		238 24	Ref. Mon. 726	96.0
		357 34	T. P. 596	330.2
T. P. 596	48 09 40.11	89 31	Ref. Mon. 729	66.8
	91 42 17.36	177 34	T. P. 595	330.2
		269 31	Ref. Mon. 728	35.4
		349 25	T. P. 597	112.5
T. P. 597	48 09 36.53	7 30	T. P. 598	231.2
	91 42 16.36	141 27	Ref. Mon. 729	140.6
		169 25	T. P. 596	112.5
		187 31	Ref. Mon. 728	112.0
T. P. 598	48 09 29.11	16 18	T. P. 599	489.1
	91 42 17.82	53 02	Ref. Mon. 731	325.6
		187 30	T. P. 597	231.2
		233 02	Ref. Mon. 730	47.0
T. P. 599	48 09 13.91	46 34	T. P. 600	122.7
	91 42 24.46	110 57	Ref. Mon. 733	50.2
		196 18	T. P. 598	489.1
		290 57	Ref. Mon. 732	54.3
T. P. 600	48 09 11.18	202 25	Ref. Mon. 733	110.6
	91 42 28.77	226 34	T. P. 599	122.7
		245 07	Ref. Mon. 732	154.0
		339 35	T. P. 601	237.0
T. P. 601	48 09 03.99	91 32	Ref. Mon. 734	127.3
	91 42 24.77	159 35	T. P. 600	237.0
		271 32	Ref. Mon. 735	47.4
		353 19	T. P. 602	72.8
T. P. 602	48 09 01.65	119 08	Ref. Mon. 734	155.5
	91 42 24.36	173 19	T. P. 601	72.8
		208 42	Ref. Mon. 735	80.9
		335 23	T. P. 603	396.5
T. P. 603	48 08 49.98	67 11	Ref. Mon. 737	88.0
	91 42 16.37	155 23	T. P. 602	396.5
		247 11	Ref. Mon. 736	80.4
		333 10	T. P. 604	238.1
T. P. 604	48 08 43.10	43 35	Ref. Mon. 738	39.2
	91 42 11.17	153 10	T. P. 603	238.1
		223 35	Ref. Mon. 739	51.5
		302 38	T. P. 605	82.5
T. P. 605	48 08 41.66	122 38	T. P. 604	82.5
	91 42 07.81	157 21	Ref. Mon. 739	88.5
		271 23	T. P. 606	128.0
		337 21	Ref. Mon. 740	81.5
CROOKED LAKE—Contd.	° ′ ″	° ′		
T. P. 606	48 08 41.56	91 23	T. P. 605	128.0
	91 42 01.62	117 39	Ref. Mon. 739	182.9
		254 01	T. P. 607	108.8
		297 39	Ref. Mon. 741	153.0
T. P. 607	48 08 42.53	74 01	T. P. 606	108.8
	91 41 56.56	300 54	Ref. Mon. 742	240.0
		323 58	T. P. 608	132.1
		342 56	Ref. Mon. 741	105.7
T. P. 608	48 08 39.07	97 12	Ref. Mon. 741	47.2
	91 41 52.80	143 58	T. P. 607	132.1
		277 12	Ref. Mon. 742	129.2
		354 39	T. P. 609	277.3
T. P. 609	48 08 30.13	15 23	T. P. 610	475.4
	91 41 51.55	126 26	Ref. Mon. 743	86.5
		174 39	T. P. 608	277.3
		306 26	Ref. Mon. 744	88.1
T. P. 610	48 08 15.29	0 20	T. P. 611	613.1
	91 41 57.65	69 47	Ref. Mon. 746	37.0
		195 23	T. P. 609	475.4
		249 47	Ref. Mon. 745	54.6
T. P. 611	48 07 55.44	28 00	T. P. 612	163.0
	91 41 57.82	116 51	Ref. Mon. 747	107.2
		180 20	T. P. 610	613.1
		296 51	Ref. Mon. 748	107.2
T. P. 612	48 07 50.78	20 29	T. P. 613	691.4
	91 42 01.52	90 57	Ref. Mon. 750	70.8
		208 00	T. P. 611	163.0
		270 57	Ref. Mon. 749	38.4
T. P. 613	48 07 29.81	62 00	T. P. 614	341.5
	91 42 13.22	157 41	Ref. Mon. 753	113.1
		200 29	T. P. 612	691.4
		337 41	Ref. Mon. 754	103.7
T. P. 614	48 07 24.62	14 17	T. P. 615	459.6
	91 42 27.80	151 16	Ref. Mon. 755	213.6
		242 00	T. P. 613	341.5
		331 16	Ref. Mon. 756	213.6
T. P. 615	48 07 10.20	40 10	T. P. 616	276.4
	91 42 33.28	116 27	Ref. Mon. 758	66.2
		194 17	T. P. 614	459.6
		296 27	Ref. Mon. 757	76.8
T. P. 616	48 07 03.36	15 20	T. P. 617	228.4
	91 42 41.90	174 48	Ref. Mon. 759	65.9
		220 10	T. P. 615	276.4
		354 48	Ref. Mon. 760	97.5
T. P. 617	48 06 56.23	29 24	Ref. Mon. 761	67.7
	91 42 44.82	195 20	T. P. 616	228.4
		209 24	Ref. Mon. 760	141.2
		327 24	T. P. 618	114.0
T. P. 618	48 06 53.12	111 23	Ref. Mon. 761	101.7
	91 42 41.85	147 24	T. P. 617	114.0
		267 32	T. P. 619	107.7
		291 23	Ref. Mon. 763	121.9
T. P. 619	48 06 53.27	87 32	T. P. 618	107.7
	91 42 36.65	99 06	Ref. Mon. 761	204.9
		320 21	T. P. 620	40.5
		352 55	Ref. Mon. 763	49.6
BASSWOOD RIVER				
T. P. 620	48 06 52.26	47 55	Ref. Mon. 763	26.8
	91 42 35.40	105 35	Ref. Mon. 761	236.9
		140 21	T. P. 619	40.5
		278 53	T. P. 621	498.0
T. P. 621	48 06 49.77	98 53	T. P. 620	498.0
	91 42 11.61	148 58	Ref. Mon. 764	148.0
		243 55	T. P. 622	550.0
		328 58	Ref. Mon. 765	105.7
T. P. 622	48 06 57.60	63 55	T. P. 621	550.0
	91 41 47.73	175 51	Ref. Mon. 767	58.9
		254 25	T. P. 623	286.2
		355 51	Ref. Mon. 766	37.5
T. P. 623	48 07 00.09	74 25	T. P. 622	286.2
	91 41 34.40	86 15	Ref. Mon. 767	280.7
		241 44	T. P. 624	70.4
		266 15	Ref. Mon. 769	46.0
T. P. 624	48 07 01.17	28 12	Ref. Mon. 769	34.2
	91 41 31.40	61 44	T. P. 623	70.4
		208 12	Ref. Mon. 770	205.0
		208 12	T. P. 625	156.2

BOUNDARY TURNING POINTS—CURTAIN FALLS TO PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
BASSWOOD RIVER—Continued	° ′ ″	°		
T. P. 625	48 07 05.62	28 12	Ref. Mon. 769	190.4
	91 41 27.83	28 12	T. P. 624	156.2
		158 57	T. P. 626	192.9
		208 12	Ref. Mon. 770	48.8
T. P. 626	48 07 11.45	173 49	Ref. Mon. 772	69.8
	91 41 31.18	240 30	T. P. 627	123.6
		338 57	T. P. 625	192.9
		353 49	Ref. Mon. 768	136.0
T. P. 627	48 07 13.42	60 30	T. P. 626	123.6
	91 41 25.98	94 25	Ref. Mon. 772	115.2
		248 53	T. P. 628	683.5
		274 25	Ref. Mon. 771	80.3
T. P. 628	48 07 21.39	11 30	T. P. 629	544.4
	91 40 55.15	54 27	Ref. Mon. 773	193.9
		68 54	T. P. 627	683.5
		234 27	Ref. Mon. 774	158.2
T. P. 629	48 07 04.12	24 48	T. P. 630	711.1
	91 41 00.40	79 24	Ref. Mon. 775	54.8
		191 30	T. P. 628	544.4
		259 24	Ref. Mon. 776	118.2
T. P. 630	48 06 43.22	142 40	Ref. Mon. 777	96.5
	91 41 14.82	204 48	T. P. 629	711.1
		298 29	T. P. 631	488.3
		322 40	Ref. Mon. 778	218.3
T. P. 631	48 06 35.68	101 18	Ref. Mon. 778	302.8
	91 40 54.07	118 29	T. P. 630	488.3
		281 18	Ref. Mon. 779	240.4
		337 48	T. P. 632	180.1
T. P. 632	48 06 30.28	121 49	Ref. Mon. 778	429.3
	91 40 50.78	157 48	T. P. 631	180.1
		286 22	T. P. 633	319.1
		301 49	Ref. Mon. 781	387.2
T. P. 633	48 06 27.37	106 22	T. P. 632	319.1
	91 40 35.98	168 47	Ref. Mon. 780	161.3
		253 04	T. P. 634	445.2
		348 47	Ref. Mon. 781	116.7
T. P. 634	48 06 31.57	73 04	T. P. 633	445.2
	91 40 15.39	164 08	Ref. Mon. 782	192.7
		269 21	T. P. 635	275.6
		344 08	Ref. Mon. 783	158.5
T. P. 635	48 06 31.67	56 11	Ref. Mon. 783	279.6
	91 40 02.07	89 21	T. P. 634	275.6
		236 11	Ref. Mon. 784	263.9
		315 17	T. P. 636	241.7
T. P. 636	48 06 26.11	8 48	Ref. Mon. 785	74.4
	91 39 53.85	135 17	T. P. 635	241.7
		188 48	Ref. Mon. 784	322.2
		239 05	T. P. 637	39.1
T. P. 637	48 06 26.76	25 34	Ref. Mon. 785	103.9
	91 39 52.23	59 05	T. P. 636	39.1
		216 14	T. P. 638	251.6
		248 46	Ref. Mon. 786	300.3
T. P. 638	48 06 33.33	36 14	T. P. 637	251.6
	91 39 45.04	125 41	Ref. Mon. 784	163.7
		186 06	T. P. 639	278.6
		305 41	Ref. Mon. 786	161.4
T. P. 639	48 06 42.30	6 06	T. P. 638	278.6
	91 39 43.61	146 39	Ref. Mon. 789	85.3
		222 03	T. P. 640	42.0
		326 39	Ref. Mon. 787	239.8
T. P. 640	48 06 43.31	42 03	T. P. 639	42.0
	91 39 42.25	118 11	Ref. Mon. 789	85.3
		248 22	T. P. 641	539.6
		298 11	Ref. Mon. 788	240.5
T. P. 641	48 06 49.75	31 33	Ref. Mon. 790	241.9
	91 39 18.00	68 22	T. P. 640	539.6
		211 33	Ref. Mon. 792	117.4
		241 45	T. P. 642	159.2
T. P. 642	48 06 52.19	61 45	T. P. 641	159.2
	91 39 11.22	179 31	Ref. Mon. 793	184.1
		294 26	T. P. 643	117.2
		359 31	Ref. Mon. 794	123.1
T. P. 643	48 06 50.62	114 26	T. P. 642	117.2
	91 39 06.06	155 00	Ref. Mon. 793	256.7
		335 00	Ref. Mon. 795	191.4
		335 00	T. P. 644	115.8
BASSWOOD RIVER—Continued	° ′ ″	° ′		
T. P. 644	48 06 47.22	15 03	T. P. 645	94.0
	91 39 03.69	155 00	Ref. Mon. 793	372.5
		155 00	T. P. 643	115.8
		335 00	Ref. Mon. 795	75.6
T. P. 645	48 06 44.28	24 24	T. P. 646	292.4
	91 39 04.87	34 23	Ref. Mon. 797	310.6
		195 03	T. P. 644	94.0
		248 26	Ref. Mon. 795	60.4
T. P. 646	48 06 35.66	100 12	Ref. Mon. 797	55.5
	91 39 10.71	204 24	T. P. 645	292.4
		280 12	Ref. Mon. 796	526.5
		316 36	T. P. 647	378.8
T. P. 647	48 06 26.75	132 10	Ref. Mon. 797	424.7
	91 38 58.13	136 36	T. P. 646	378.8
		312 10	Ref. Mon. 798	133.5
		323 58	T. P. 648	117.0
T. P. 648	48 06 23.69	41 51	Ref. Mon. 799	129.0
	91 38 54.81	143 58	T. P. 647	117.0
		260 34	Ref. Mon. 798	30.5
		295 01	T. P. 649	17.5
T. P. 649	48 06 23.45	48 58	Ref. Mon. 799	135.2
	91 38 54.04	115 01	T. P. 648	17.5
		228 58	Ref. Mon. 798	18.9
		270 18	T. P. 650	26.3
T. P. 650	48 06 23.44	90 18	T. P. 649	26.3
	91 38 52.77	136 08	Ref. Mon. 798	17.4
		316 08	Ref. Mon. 801	180.6
		316 08	T. P. 651	12.8
T. P. 651	48 06 23.15	1 56	T. P. 652	54.9
	91 38 52.34	136 08	Ref. Mon. 798	30.2
		136 08	T. P. 650	12.8
		316 08	Ref. Mon. 801	167.8
T. P. 652	48 06 21.37	39 56	Ref. Mon. 800	88.2
	91 38 52.43	181 56	T. P. 651	54.9
		299 14	Ref. Mon. 801	135.3
		340 35	T. P. 653	235.1
BASSWOOD LAKE				
T. P. 653	48 06 14.19	138 49	Ref. Mon. 800	204.8
	91 38 48.65	160 35	T. P. 652	235.1
		194 23	Ref. Mon. 801	160.7
		324 55	T. P. 654	913.7
T. P. 654	48 05 49.98	42 13	Ref. Mon. 802	188.0
	91 38 23.27	144 55	T. P. 653	913.7
		222 13	Ref. Mon. 803	204.0
		252 55	T. P. 655	1,952.8
T. P. 655	48 06 08.55	72 56	T. P. 654	1,952.8
	91 36 53.05	142 58	Ref. Mon. 804	437.0
		269 19	T. P. 656	1,939.3
		322 58	Ref. Mon. 805	1,027.6
T. P. 656	48 06 09.29	89 20	T. P. 655	1,939.3
	91 35 19.32	161 14	Ref. Mon. 807	209.8
		243 23	T. P. 657	1,102.8
		341 14	Ref. Mon. 806	518.9
T. P. 657	48 06 25.28	1 49	Ref. Mon. 809	512.6
	91 34 31.66	63 24	T. P. 656	1,102.8
		181 49	Ref. Mon. 808	286.0
		261 21	T. P. 658	1,240.4
T. P. 658	48 06 31.32	81 21	T. P. 657	1,240.4
	91 33 32.38	123 22	Ref. Mon. 811	477.0
		303 22	Ref. Mon. 812	982.7
		321 52	T. P. 659	757.1
T. P. 659	48 06 12.04	49 23	T. P. 660	1,630.3
	91 33 09.78	81 09	Ref. Mon. 810	897.5
		141 52	T. P. 658	757.1
		261 09	Ref. Mon. 812	357.3
T. P. 660	48 05 37.67	8 23	T. P. 661	3,032.4
	91 34 09.58	79 30	Ref. Mon. 814	694.4
		229 22	T. P. 659	1,630.3
		259 30	Ref. Mon. 813	1,002.4
T. P. 661	48 04 00.54	71 54	Ref. Mon. 815	339.1
	91 34 30.95	188 23	T. P. 660	3,032.4
		251 54	Ref. Mon. 816	169.5
		349 09	T. P. 662	1,055.4
T. P. 662	48 03 26.98	12 16	T. P. 663	961.2
	91 34 21.36	169 09	T. P. 661	1,055.4
		178 02	Ref. Mon. 816	1,090.0
		358 02	Ref. Mon. 817	929.7

BOUNDARY TURNING POINTS—CURTAIN FALLS TO PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
BASSWOOD LAKE—Con.	° ′ ″	° ′		
T. P. 663	48 02 56.57	4 42	Ref. Mon. 818	348.0
	91 34 31.22	184 42	Ref. Mon. 816	2,035.2
		192 16	T. P. 662	961.2
		314 01	T. P. 664	824.2
T. P. 664	48 02 38.03	109 59	Ref. Mon. 818	661.1
	91 34 02.60	134 01	T. P. 663	824.2
		239 50	T. P. 665	2,228.6
		289 59	Ref. Mon. 819	174.8
T. P. 665	48 03 14.27	59 52	T. P. 664	2,228.6
	91 32 29.55	151 49	Ref. Mon. 821	282.2
		247 56	T. P. 666	4,300.4
		331 49	Ref. Mon. 820	450.9
T. P. 666	48 04 06.55	67 58	T. P. 665	4,300.4
	91 29 17.05	165 51	Ref. Mon. 822	408.4
		275 33	T. P. 667	1,756.0
		345 51	Ref. Mon. 823	448.2
T. P. 667	48 04 01.05	95 34	T. P. 666	1,756.0
	91 27 52.63	154 08	Ref. Mon. 825	247.2
		257 20	T. P. 668	1,125.5
		334 08	Ref Mon. 824	452.4
T. P. 668	48 04 09.04	0 37	Ref. Mon. 827	265.1
	91 26 59.59	77 20	T. P. 667	1,125.5
		180 37	Ref. Mon. 826	140.5
		297 32	T. P. 669	318.0
T. P. 669	48 04 04.28	3 26	T. P. 670	524.5
	91 26 45.97	67 30	Ref. Mon. 827	308.4
		117 32	T. P. 668	318.0
		247 30	Ref. Mon. 828	215.4
T. P. 670	48 03 47.33	72 13	Ref. Mon. 830	214.5
	91 26 47.49	183 26	T. P. 669	524.5
		252 13	Ref. Mon. 829	129.9
		330 40	T. P. 671	1,348.7
T. P. 671	48 03 09.26	9 39	T. P. 672	145.7
	91 26 15.59	116 07	Ref. Mon. 831	118.3
		150 40	T. P. 670	1,348.7
		296 07	Ref. Mon. 832	306.2
T. P. 672	48 03 04.61	50 09	Ref. Mon. 833	110.9
	91 26 16.77	157 19	Ref. Mon. 831	212.1
		189 39	T. P. 671	145.7
		347 43	T. P. 673	37.0
T. P. 673	48 03 03.44	30 51	T. P. 674	29.2
	91 26 16.39	69 27	Ref. Mon. 833	99.4
		167 43	T. P. 672	37.0
		340 04	Ref. Mon. 835	70.7
T. P. 674	48 03 02.63	65 27	T. P. 675	31.0
	91 26 17.12	82 49	Ref. Mon. 833	78.7
		210 51	T. P. 673	29.2
		316 40	Ref. Mon. 835	56.9
T. P. 675	48 03 02.21	2 53	T. P. 676	19.2
	91 26 18.48	93 28	Ref. Mon. 833	50.0
		245 27	T. P. 674	31.0
		293 00	Ref. Mon. 835	73.0
T. P. 676	48 03 01.59	114 24	Ref. Mon. 833	53.8
	91 26 18.52	182 53	T. P. 675	19.2
		277 48	Ref. Mon. 835	68.8
		306 58	T. P. 677	86.5
SUCKER LAKE				
T. P. 677	48 02 59.91	44 27	Ref. Mon. 834	38.7
	91 26 15.19	126 58	T. P. 676	86.5
		178 49	Ref. Mon. 835	42.7
		324 46	T. P. 678	54.4
T. P. 678	48 02 58.47	106 02	Ref. Mon. 834	60.8
	91 26 13.67	144 46	T. P. 677	54.4
		159 41	Ref. Mon. 835	92.9
		278 59	T. P. 679	579.3
T. P. 679	48 02 55.54	67 19	Ref. Mon. 836	98.6
	91 25 46.04	98 59	T. P. 678	579.3
		230 02	T. P. 680	235.1
		247 19	Ref. Mon. 837	198.8
T. P. 680	48 03 00.43	50 02	T. P. 679	235.1
	91 25 37.34	113 51	Ref. Mon. 838	106.6
		293 51	Ref. Mon. 839	139.8
		293 51	T. P. 681	39.6
SUCKER LAKE—Continued	° ′ ″	° ′		
T. P. 681	48 02 59.91	113 51	Ref. Mon. 838	146.2
	91 25 35.59	113 51	T. P. 680	39.6
		240 18	T. P. 682	194.5
		293 51	Ref. Mon. 839	100.2
T. P. 682	48 03 03.03	60 18	T. P. 681	194.5
	91 25 27.43	246 28	Ref. Mon. 841	166.3
		260 35	T. P. 683	168.1
		284 47	Ref. Mon. 840	199.8
T. P. 683	48 03 03.92	80 35	T. P. 682	168.1
	91 25 19.42	160 53	Ref. Mon. 841	41.1
		244 53	T. P. 684	707.4
		340 53	Ref. Mon. 840	83.1
BIRCH LAKE				
T. P. 684	48 03 13.64	14 37	Ref. Mon. 843	122.1
	91 24 48.49	64 53	T. P. 683	707.4
		194 37	Ref. Mon. 842	261.7
		257 06	T. P. 685	1,735.8
T. P. 685	48 03 26.18	19 41	Ref. Mon. 844	141.5
	91 23 26.78	77 07	T. P. 684	1,735.8
		199 41	Ref. Mon. 845	867.2
		223 46	T. P. 686	1,345.9
T. P. 686	48 03 57.64	43 47	T. P. 685	1,345.9
	91 22 41.81	76 20	Ref. Mon. 845	657.4
		232 57	T. P. 687	706.5
		256 20	Ref. Mon. 846	237.6
T. P. 687	48 04 11.42	52 57	T. P. 686	706.5
	91 22 14.57	170 23	Ref. Mon. 848	201.6
		303 41	T. P. 688	523.5
		350 23	Ref. Mon. 847	103.3
T. P. 688	48 04 02.02	114 15	Ref. Mon. 847	458.8
	91 21 53.53	123 41	T. P. 687	523.5
		244 07	T. P. 689	942.5
		294 15	Ref. Mon. 849	144.8
T. P. 689	48 04 15.34	64 08	T. P. 688	942.5
	91 21 12.57	224 22	Ref. Mon. 851	95.3
		241 58	T. P. 690	87.9
		251 48	Ref. Mon. 850	87.7
T. P. 690	48 04 16.68	61 58	T. P. 689	87.9
	91 21 08.83	157 49	Ref. Mon. 851	29.0
		240 00	T. P. 691	48.7
		337 49	Ref. Mon. 850	15.0
T. P. 691	48 04 17.47	43 38	Ref. Mon. 850	52.9
	91 21 06.79	60 00	T. P. 690	48.7
		92 39	Ref. Mon. 851	53.2
		244 47	T. P. 692	90.6
T. P. 692	48 04 18.72	64 47	T. P. 691	90.6
	91 21 02.83	240 40	T. P. 693	47.4
		257 57	Ref. Mon. 854	42.6
		355 12	Ref. Mon. 853	31.6
T. P. 693	48 04 19.47	60 40	T. P. 692	47.4
	91 21 00.83	178 46	Ref. Mon. 855	21.4
		276 15	T. P. 694	9.8
		358 46	Ref. Mon. 854	14.4
T. P. 694	48 04 19.43	35 28	Ref. Mon. 854	16.3
	91 21 00.36	96 15	T. P. 693	9.8
		155 31	Ref. Mon. 855	24.7
		312 32	T. P. 695	51.2
CARP LAKE				
T. P. 695	48 04 18.31	114 18	Ref. Mon. 854	51.7
	91 20 58.54	132 32	T. P. 694	51.2
		139 58	Ref. Mon. 855	74.5
		235 03	T. P. 696	104.1
T. P. 696	48 04 20.24	55 03	T. P. 695	104.1
	91 20 54.42	154 07	Ref. Mon. 856	36.8
		256 33	T. P. 697	657.7
		334 07	Ref. Mon. 857	36.6
T. P. 697	48 04 25.19	14 33	Ref. Mon. 858	324.1
	91 20 23.52	76 34	T. P. 696	657.7
		194 33	Ref. Mon. 859	164.4
		315 55	T. P. 698	385.0
T. P. 698	48 04 16.24	83 56	Ref. Mon. 858	351.2
	91 20 10.58	135 55	T. P. 697	385.0
		263 56	Ref. Mon. 860	82.9
		359 09	T. P. 699	153.5

BOUNDARY TURNING POINTS—CURTAIN FALLS TO PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
CARP LAKE—Continued	° ′ ″	° ′		
T. P. 699	48 04 11.27	26 16	Ref. Mon. 861	386.2
	91 20 10.47	179 09	T. P. 698	153.5
		206 16	Ref. Mon. 860	181.0
		279 48	T. P. 700	128.8
T. P. 700	48 04 10.56	99 48	T. P. 699	128.8
	91 20 04.34	228 01	Ref. Mon. 863	102.7
		242 23	T. P. 701	103.0
		282 19	Ref. Mon. 862	166.9
T. P. 701	48 04 12.11	62 23	T. P. 700	103.0
	91 19 59.93	144 36	Ref. Mon. 863	25.7
		258 49	T. P. 702	108.3
		319 09	Ref. Mon. 862	109.8
T. P. 702	48 04 12.79	78 49	T. P. 701	108.3
	91 19 54.80	89 59	Ref. Mon. 863	121.2
		279 43	Ref. Mon. 865	256.8
		315 23	T. P. 703	77.2
T. P. 703	48 04 11.01	60 58	Ref. Mon. 862	101.3
	91 19 52.18	135 23	T. P. 702	77.2
		240 58	Ref. Mon. 867	235.7
		254 13	T. P. 704	147.6
T. P. 704	48 04 12.31	74 13	T. P. 703	147.6
	91 19 45.32	116 25	Ref. Mon. 864	265.2
		213 32	T. P. 705	79.7
		296 25	Ref. Mon. 865	63.6
T. P. 705	48 04 14.46	33 32	T. P. 704	79.7
	91 19 43.20	196 09	T. P. 706	38.4
		248 43	Ref. Mon. 867	21.5
		352 14	Ref. Mon. 865	95.6
T. P. 706	48 04 15.65	16 09	T. P. 705	38.4
	91 19 42.68	208 42	T. P. 707	23.4
		342 14	Ref. Mon. 867	30.5
		359 01	Ref. Mon. 865	131.6
T. P. 707	48 04 16.32	2 13	Ref. Mon. 867	49.6
	91 19 42.14	28 42	T. P. 706	23.4
		182 13	Ref. Mon. 866	71.1
		233 22	T. P. 708	220.5
T. P. 708	48 04 20.58	53 22	T. P. 707	220.5
	91 19 33.59	129 16	Ref. Mon. 868	76.0
		238 48	T. P. 709	143.0
		309 16	Ref. Mon. 869	56.4
T. P. 709	48 04 22.97	35 37	Ref. Mon. 869	135.0
	91 19 27.68	58 48	T. P. 708	143.0
		215 37	Ref. Mon. 870	108.6
		265 14	T. P. 710	394.0
T. P. 710	48 04 24.03	85 14	T. P. 709	394.0
	91 19 08.71	144 47	Ref. Mon. 871	48.4
		281 01	T. P. 711	93.5
		324 47	Ref. Mon. 872	63.3
T. P. 711	48 04 23.45	58 31	Ref. Mon. 872	64.8
	91 19 04.27	101 01	T. P. 710	93.5
		238 31	Ref. Mon. 874	142.5
		247 45	T. P. 712	49.4
T. P. 712	48 04 24.06	67 45	T. P. 711	49.4
	91 19 02.06	233 41	Ref. Mon. 874	94.1
		257 34	T. P. 713	101.6
		277 30	Ref. Mon. 873	126.8
T. P. 713	48 04 24.76	77 34	T. P. 712	101.6
	91 18 57.27	145 21	Ref. Mon. 874	41.1
		253 29	T. P. 714	49.1
		325 21	Ref. Mon. 873	46.7
T. P. 714	48 04 25.22	21 22	Ref. Mon. 873	56.3
	91 18 55.00	73 29	T. P. 713	49.1
		201 22	Ref. Mon. 875	54.7
		269 42	T. P. 715	47.6
T. P. 715	48 04 25.23	52 18	Ref. Mon. 873	86.1
	91 18 52.69	89 42	T. P. 714	47.6
		151 22	Ref. Mon. 875	57.8
		279 43	T. P. 716	226.8
T. P. 716	48 04 23.99	99 43	T. P. 715	226.8
	91 18 41.89	128 19	Ref. Mon. 876	81.5
		283 06	T. P. 717	36.8
		308 19	Ref. Mon. 877	39.6
T. P. 717	48 04 23.71	16 28	Ref. Mon. 877	16.9
	91 18 40.16	103 06	T. P. 716	36.8
		120 32	Ref. Mon. 876	115.9
		319 18	T. P. 718	46.2
CARP LAKE—Continued	° ′ ″	° ′		
T. P. 718	48 04 22.58	118 19	Ref. Mon. 877	39.7
	91 18 38.70	139 18	T. P. 717	46.2
		271 44	T. P. 719	53.1
		301 57	Ref. Mon. 878	56.4
T. P. 719	48 04 22.52	10 26	Ref. Mon. 878	28.7
	91 18 36.14	91 44	T. P. 718	53.1
		103 04	Ref. Mon. 877	90.3
		273 04	T. P. 720	100.3
T. P. 720	48 04 22.35	93 04	T. P. 719	100.3
	91 18 31.30	222 11	Ref. Mon. 883	85.6
		260 02	T. P. 721	74.7
		303 21	Ref. Mon. 882	117.6
T. P. 721	48 04 22.77	80 02	T. P. 720	74.7
	91 18 27.75	162 21	Ref. Mon. 883	53.0
		275 10	T. P. 722	71.0
		342 21	Ref. Mon. 882	81.4
KNIFE LAKE				
T. P. 722	48 04 22.56	95 10	T. P. 721	71.0
	91 18 24.33	200 11	Ref. Mon. 884	109.9
		263 07	T. P. 723	37.7
		326 46	Ref. Mon. 885	67.8
T. P. 723	48 04 22.71	0 16	Ref. Mon. 885	61.3
	91 18 22.51	83 07	T. P. 722	37.7
		180 16	Ref. Mon. 884	98.6
		263 18	T. P. 724	1,248.2
T. P. 724	48 04 27.42	83 19	T. P. 723	1,248.2
	91 17 22.62	136 47	Ref. Mon. 887	200.8
		243 32	T. P. 725	1,149.7
		316 47	Ref. Mon. 886	213.7
T. P. 725	48 04 44.01	63 33	T. P. 724	1,149.7
	91 16 32.90	155 18	Ref. Mon. 888	177.5
		269 33	T. P. 726	681.4
		335 18	Ref. Mon. 889	177.5
T. P. 726	48 04 44.18	89 33	T. P. 725	681.4
	91 15 59.98	149 31	Ref. Mon. 891	226.0
		245 18	T. P. 727	1,400.5
		329 31	Ref. Mon. 890	129.9
T. P. 727	48 05 03.12	65 19	T. P. 726	1,400.5
	91 14 58.50	135 04	Ref. Mon. 892	259.2
		219 27	T. P. 728	1,735.5
		315 04	Ref. Mon. 893	220.8
T. P. 728	48 05 46.50	39 28	T. P. 727	1,735.5
	91 14 05.20	71 20	Ref. Mon. 894	315.5
		236 06	T. P. 729	614.2
		251 20	Ref. Mon. 895	549.8
T. P. 729	48 05 57.59	56 07	T. P. 728	614.2
	91 13 40.56	176 12	Ref. Mon. 896	201.3
		247 36	T. P. 730	1,058.8
		356 12	Ref. Mon. 895	166.9
T. P. 730	48 06 10.68	67 37	T. P. 729	1,058.8
	91 12 53.25	155 13	Ref. Mon. 897	220.8
		216 47	T. P. 731	3,089.2
		335 13	Ref. Mon. 898	220.8
T. P. 731	48 07 30.77	36 48	T. P. 730	3,089.2
	91 11 23.79	166 52	Ref. Mon. 900	293.2
		305 38	T. P. 732	491.0
		346 52	Ref. Mon. 899	488.9
T. P. 732	48 07 21.51	38 29	Fall	30.5
	91 11 04.49	125 38	T. P. 731	491.0
		218 29	Ref. Mon. 904	247.0
		277 02	Ref. Mon. 901	116.3
		292 07	T. P. 733	108.9
T. P. 733	48 07 20.18	112 07	T. P. 732	108.9
	91 10 59.61	208 36	Ref. Mon. 901	30.5
		264 30	T. P. 734	34.2
		299 15	Ref. Mon. 902	78.6
T. P. 734	48 07 20.29	84 30	T. P. 733	34.2
	91 10 57.97	140 22	Ref. Mon. 901	30.5
		219 01	T. P. 735	190.6
		320 22	Ref. Mon. 902	54.1
T. P. 735	48 07 25.09	39 01	T. P. 734	190.6
	91 10 52.16	129 21	Ref. Mon. 904	130.8
		237 11	T. P. 736	412.9
		309 21	Ref. Mon. 903	111.2
T. P. 736	48 07 32.33	57 11	T. P. 735	412.9
	91 10 35.38	161 06	Ref. Mon. 905	201.3
		222 14	T. P. 737	2,248.6
		341 06	Ref. Mon. 906	152.0

BOUNDARY TURNING POINTS—CURTAIN FALLS TO PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
KNIFE LAKE—Continued	° ′ ″	° ′		
T. P. 737	48 08 26.23	42 15	T. P. 736	2,248.6
	91 09 22.28	117 36	Ref. Mon. 908	211.0
		235 27	T. P. 738	1,713.8
		297 36	Ref. Mon. 907	209.3
T. P. 738	48 08 57.70	55 28	T. P. 737	1,713.8
	91 08 13.99	169 41	T. P. 739	305.3
		176 18	Ref. Mon. 909	213.3
		217 11	Ref. Mon. 910	448.0
CYPRESS LAKE				
T. P. 739	48 09 07.42	65 05	Ref. Mon. 911	189.7
	91 08 16.64	79 37	T. P. 740	156.2
		109 40	Ref. Mon. 912	158.2
		349 41	T. P. 738	305.3
T. P. 740	48 09 06.51	19 34	Ref. Mon. 911	54.9
	91 08 24.07	160 01	T. P. 741	64.2
		183 17	Ref. Mon. 912	81.6
		259 37	T. P. 739	156.2
T. P. 741	48 09 08.46	177 42	T. P. 742	67.1
	91 08 25.13	231 32	Ref. Mon. 912	34.0
		340 01	T. P. 740	64.2
		358 12	Ref. Mon. 911	112.1
T. P. 742	48 09 10.63	127 31	Ref. Mon. 913	203.0
	91 08 25.26	140 57	T. P. 743	252.6
		327 28	Ref. Mon. 912	54.5
		357 42	T. P. 741	67.1
T. P. 743	48 09 16.98	1 30	Ref. Mon. 913	72.5
	91 08 32.96	181 30	Ref. Mon. 915	97.2
		245 11	T. P. 744	300.4
		320 57	T. P. 742	252.6
T. P. 744	48 09 21.06	65 11	T. P. 743	300.4
	91 08 19.77	147 29	Ref. Mon. 917	39.4
		247 31	T. P. 745	253.6
		327 29	Ref. Mon. 914	38.8
T. P. 745	48 09 24.20	67 31	T. P. 744	253.6
	91 08 08.44	116 09	Ref. Mon. 919	84.7
		252 52	T. P. 746	253.8
		296 09	Ref. Mon. 916	151.0
T. P. 746	48 09 26.63	37 09	Ref. Mon. 916	177.3
	91 07 56.70	72 52	T. P. 745	253.8
		210 58	Ref. Mon. 921	186.3
		248 10	T. P. 747	1,015.2
T. P. 747	48 09 38.85	68 10	T. P. 746	1,015.2
	91 07 11.10	176 02	Ref. Mon. 923	86.6
		220 57	T. P. 748	207.8
		356 02	Ref. Mon. 918	92.2
T. P. 748	48 09 43.93	27 32	Ref. Mon. 918	280.8
	91 07 04.51	40 57	T. P. 747	207.8
		63 36	Ref. Mon. 923	158.7
		206 37	T. P. 749	546.9
T. P. 749	48 09 59.76	26 37	T. P. 748	546.9
	91 06 52.65	105 14	Ref. Mon. 925	64.3
		240 44	T. P. 750	501.8
		285 14	Ref. Mon. 920	286.3
T. P. 750	48 10 07.70	60 44	T. P. 749	501.8
	91 06 31.46	149 52	Ref. Mon. 927	87.3
		249 40	T. P. 751	928.7
		329 52	Ref. Mon. 922	89.2
T. P. 751	48 10 18.15	69 40	T. P. 750	928.7
	91 05 49.31	135 39	Ref. Mon. 929	116.2
		239 18	T. P. 752	448.2
		315 39	Ref. Mon. 924	34.5
T. P. 752	48 10 25.56	59 18	T. P. 751	448.2
	91 05 30.66	126 47	Ref. Mon. 931	162.5
		209 38	T. P. 753	594.8
		306 47	Ref. Mon. 926	171.0
T. P. 753	48 10 42.30	14 14	Ref. Mon. 926	639.1
	91 05 16.42	29 38	T. P. 752	594.8
		45 18	Ref. Mon. 931	596.8
		232 27	T. P. 754	518.9
T. P. 754	48 10 52.54	52 27	T. P. 753	518.9
	91 04 56.50	135 36	Ref. Mon. 933	170.6
		291 35	T. P. 755	90.3
		315 36	Ref. Mon. 928	242.0
CYPRESS LAKE—Continued	° ′ ″	° ′		
T. P. 755	48 10 51.46	111 35	T. P. 754	90.3
	91 04 52.44	127 20	Ref. Mon. 933	255.8
		328 35	Ref. Mon. 928	163.6
		329 16	T. P. 756	103.9
T. P. 756	48 10 48.58	133 37	Ref. Mon. 933	354.2
	91 04 49.87	149 16	T. P. 755	103.9
		284 19	T. P. 757	72.4
		327 25	Ref. Mon. 928	60.0
T. P. 757	48 10 48.00	49 15	Ref. Mon. 928	50.0
	91 04 46.48	104 19	T. P. 756	72.4
		128 45	Ref. Mon. 933	418.7
		303 24	T. P. 758	74.0
T. P. 758	48 10 46.68	94 39	Ref. Mon. 928	100.0
	91 04 43.49	123 24	T. P. 757	74.0
		274 39	Ref. Mon. 930	470.3
		274 39	T. P. 759	220.7
T. P. 759	48 10 46.10	94 39	Ref. Mon. 928	320.7
	91 04 32.84	94 39	T. P. 758	220.7
		253 40	T. P. 760	807.0
		274 39	Ref. Mon. 930	249.6
T. P. 760	48 10 53.45	73 40	T. P. 759	807.0
	91 03 55.35	149 37	Ref. Mon. 935	364.4
		203 33	T. P. 761	500.6
		329 37	Ref. Mon. 932	108.4
T. P. 761	48 11 08.30	23 33	T. P. 760	500.6
	91 03 45.66	151 24	Ref. Mon. 937	250.2
		274 45	T. P. 762	267.1
		331 24	Ref. Mon. 934	279.7
T. P. 762	48 11 07.59	94 45	T. P. 761	267.1
	91 03 32.78	212 46	Ref. Mon. 939	402.8
		213 24	T. P. 763	230.2
		234 33	Ref. Mon. 936	353.6
T. P. 763	48 11 13.81	31 56	Ref. Mon. 934	489.7
	91 03 26.64	33 24	T. P. 762	230.2
		211 56	Ref. Mon. 939	172.5
		223 55	T. P. 764	156.9
T. P. 764	48 11 17.47	43 56	T. P. 763	156.9
	91 03 21.37	152 20	Ref. Mon. 939	37.8
		240 21	T. P. 765	53.2
		332 20	Ref. Mon. 936	113.1
T. P. 765	48 11 18.32	60 21	T. P. 764	53.2
	91 03 19.13	96 24	Ref. Mon. 939	64.1
		276 21	T. P. 766 (Mon. 1)	257.6
		276 24	Ref. Mon. 938	254.0
SWAMP PORTAGE				
T.P. 766 (Mon. 1)	48 11 17.40	96 21	T. P. 765	257.6
	91 03 06.74	242 31	T. P. 767 (Mon. 2)	174.7
T.P. 767 (Mon. 2)	48 11 20.01	62 31	T. P. 766 (Mon. 1)	174.7
	91 02 59.23	271 44	T. P. 768 (Mon. 3)	91.0
T.P. 768 (Mon. 3)	48 11 19.92	91 44	T. P. 767 (Mon. 2)	91.0
	91 02 54.83	251 55	T. P. 769	147.7
SWAMP LAKE				
T. P. 769	48 11 21.41	40 39	Ref. Mon. 940	66.0
	91 02 48.03	71 55	T. P. 768 (Mon. 3)	147.7
		220 39	Ref. Mon. 941	59.9
		250 16	T. P. 770	93.8
T. P. 770	48 11 22.43	58 06	Ref. Mon. 940	154.6
	91 02 43.76	70 16	T. P. 769	93.8
		105 39	Ref. Mon. 941	51.1
		263 49	T. P. 771	688.5
T. P. 771	48 11 24.83	83 49	T. P. 770	688.5
	91 02 10.62	279 21	Ref. Mon. 945	57.9
		302 49	T. P. 772	62.0
		342 42	Ref. Mon. 944	99.1
T. P. 772	48 11 23.74	20 24	Ref. Mon. 944	65.1
	91 02 08.09	122 49	T. P. 771	62.0
		164 38	Cartoon	4.2
		191 33	Ref. Mon. 945	24.7
		242 58	T. P. 773	8.6
T. P. 773	48 11 23.87	25 02	Ref. Mon. 944	71.6
	91 02 07.72	62 58	T. P. 772	8.6
		91 03	Cartoon	8.7
		172 29	Ref. Mon. 945	20.5
		300 25	T. P. 774	13.7

BOUNDARY TURNING POINTS—CURTAIN FALLS TO PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
SAGANAGA LAKE	° ′ ″	° ′		
T. P. 774	48 11 23.65	36 01	Ref. Mon. 944	71.6
	91 02 07.15	109 03	Cartoon	21.8
		120 25	T. P. 773	13.7
		151 59	Ref. Mon. 945	30.9
		318 35	T. P. 775	81.1
T. P. 775	48 11 21.68	91 43	Ref. Mon. 944	95.8
	91 02 04.56	138 35	T. P. 774	81.1
		271 43	Ref. Mon. 947	264.3
		279 57	T. P. 776	273.4
T. P. 776	48 11 20.15	99 57	T. P. 775	273.4
	91 01 51.52	172 36	Ref. Mon. 947	39.6
		251 56	T. P. 777	578.4
		352 36	Ref. Mon. 946	180.8
T. P. 777	48 11 25.95	9 02	Ref. Mon. 948	101.9
	91 01 24.90	71 56	T. P. 776	578.4
		156 55	Ref. Mon. 949	140.0
		196 51	T. P. 778	169.3
T. P. 778	48 11 31.20	16 51	T. P. 777	169.3
	91 01 22.52	72 16	Ref. Mon. 949	109.1
		207 04	T. P. 779	58.7
		252 16	Ref. Mon. 950	83.8
T. P. 779	48 11 32.89	27 04	T. P. 778	58.7
	91 01 21.23	116 46	Ref. Mon. 951	56.7
		219 17	T. P. 780	68.1
		296 46	Ref. Mon. 950	59.5
T. P. 780	48 11 34.60	39 17	T. P. 779	68.1
	91 01 19.14	73 51	Ref. Mon. 951	97.6
		240 23	T. P. 781	68.2
		253 51	Ref. Mon. 952	202.0
T. P. 781	48 11 35.69	23 30	Ref. Mon. 950	123.4
	91 01 16.27	60 23	T. P. 780	68.2
		203 30	Ref. Mon. 953	82.0
		277 54	T. P. 782	88.6
T. P. 782	48 11 35.30	53 36	Ref. Mon. 950	170.2
	91 01 12.02	97 54	T. P. 781	88.6
		192 23	T. P. 783	123.4
		233 36	Ref. Mon. 952	58.4
T. P. 783	48 11 39.20	12 23	T. P. 782	123.4
	91 01 10.74	67 53	Ref. Mon. 953	88.0
		235 48	T. P. 784	410.3
		247 53	Ref. Mon. 954	445.4
T. P. 784	48 11 46.66	55 48	T. P. 783	410.3
	91 00 54.31	130 39	Ref. Mon. 955	96.7
		220 25	T. P. 785	332.4
		310 39	Ref. Mon. 954	96.6
T. P. 785	48 11 54.85	40 25	T. P. 784	332.4
	91 00 43.87	171 17	Ref. Mon. 957	263.6
		250 16	T. P. 786	748.7
		351 17	Ref. Mon. 956	109.1
T. P. 786	48 12 03.04	29 27	Ref. Mon. 958	408.8
	91 00 09.74	70 16	T. P. 785	748.7
		159 26	T. P. 787	272.1
		209 27	Ref. Mon. 960	73.6
T. P. 787	48 12 11.29	48 03	Ref. Mon. 959	183.0
	91 00 14.37	227 38	T. P. 788	2,728.2
		325 21	Ref. Mon. 960	231.8
		339 26	T. P. 786	272.1
T. P. 788	48 13 10.80	47 39	T. P. 787	2,728.2
	90 58 36.73	178 09	Ref. Mon. 961	973.9
		253 08	T. P. 789	3,926.2
		358 09	Ref. Mon. 962	754.9
T. P. 789	48 13 47.66	73 10	T. P. 788	3,926.2
	90 55 34.68	160 12	Ref. Mon. 963	182.7
		260 06	T. P. 790	602.0
		340 12	Ref. Mon. 964	117.7
T. P. 790	48 13 51.01	80 07	T. P. 789	602.0
	90 55 05.94	231 45	Ref. Mon. 965	129.5
		246 41	T. P. 791	89.6
		281 11	Ref. Mon. 966	415.0
T. P. 791	48 13 52.16	66 41	T. P. 790	89.6
	90 55 01.95	203 29	Ref. Mon. 965	48.8
		281 00	T. P. 792	168.8
		289 39	Ref. Mon. 966	344.9
T. P. 792	48 13 51.11	101 00	T. P. 791	168.8
	90 54 53.93	117 45	Ref. Mon. 965	165.2
		219 14	T. P. 793	967.2
		297 45	Ref. Mon. 966	179.9
SAGANAGA LAKE—Contd.	° ′ ″	° ′		
T. P. 793	48 14 15.37	39 14	T. P. 792	967.2
	90 54 24.28	161 58	Ref. Mon. 969	1,648.9
		239 00	T. P. 794	1,828.1
		341 58	Ref. Mon. 968	203.2
T. P. 794	48 14 45.84	1 42	Ref. Mon. 970	269.9
	90 53 08.33	59 01	T. P. 793	1,828.1
		181 42	Ref. Mon. 971	882.4
		332 32	T. P. 795	681.8
T. P. 795	48 14 26.25	67 06	Ref. Mon. 972	87.6
	90 52 53.09	152 32	T. P. 794	681.8
		247 06	Ref. Mon. 973	151.6
		301 53	T. P. 796	562.7
T. P. 796	48 14 16.63	62 03	Ref. Mon. 974	246.8
	90 52 29.93	121 53	T. P. 795	562.7
		242 03	Ref. Mon. 975	239.9
		266 00	T. P. 797	606.8
T. P. 797	48 14 18.00	86 00	T. P. 796	606.8
	90 52 00.59	179 58	Ref. Mon. 977	114.9
		243 52	T. P. 798	1,593.5
		359 58	Ref. Mon. 976	156.1
T. P. 798	48 14 40.71	63 53	T. P. 797	1,593.5
	90 50 51.25	132 50	Ref. Mon. 979	196.5
		288 04	T. P. 799	299.8
		312 50	Ref. Mon. 978	309.1
T. P. 799	48 14 37.70	26 29	Ref. Mon. 978	130.9
	90 50 37.43	108 04	T. P. 798	299.8
		206 29	Ref. Mon. 981	30.0
		349 07	T. P. 800	282.0
T. P. 800	48 14 28.74	169 08	T. P. 799	282.0
	90 50 34.85	172 32	Ref. Mon. 981	306.4
		302 44	T. P. 801	337.9
		339 42	Ref. Mon. 980	217.0
T. P. 801	48 14 22.82	84 20	Ref. Mon. 980	209.9
	90 50 21.08	122 45	T. P. 800	337.9
		264 20	Ref. Mon. 983	141.0
		347 35	T. P. 802	549.4
T. P. 802	48 14 05.45	2 18	Ref. Mon. 985	370.6
	90 50 15.35	9 09	T. P. 803	352.3
		167 35	T. P. 801	549.4
		182 18	Ref. Mon. 983	550.9
T. P. 803	48 13 54.19	23 28	T. P. 804	132.7
	90 50 18.07	118 45	Ref. Mon. 982	193.7
		189 09	T. P. 802	352.3
		298 45	Ref. Mon. 985	46.9
T. P. 804	48 13 50.25	4 28	Ref. Mon. 987	216.7
	90 50 20.63	5 32	T. P. 805	151.4
		18 45	Ref. Mon. 984	238.7
		203 28	T. P. 803	132.7
T. P. 805	48 13 45.37	1 58	Ref. Mon. 987	65.4
	90 50 21.33	37 01	T. P. 806	47.8
		39 31	Ref. Mon. 984	97.7
		185 32	T. P. 804	151.4
T. P. 806	48 13 44.13	41 54	Ref. Mon. 984	50.0
	90 50 22.73	217 01	T. P. 805	47.8
		315 42	Ref. Mon. 987	38.0
		355 58	T. P. 807	18.0
T. P. 807	48 13 43.55	7 19	T. P. 808	43.2
	90 50 22.66	60 58	Ref. Mon. 984	39.6
		175 58	T. P. 806	18.0
		289 58	Ref. Mon. 987	26.9
T. P. 808	48 13 42.17	128 58	Ref. Mon. 984	37.5
	90 50 22.93	187 19	T. P. 807	43.2
		222 26	Ref. Mon. 987	45.6
		350 58	T. P. 809	69.1
T. P. 809	48 13 39.96	156 28	Ref. Mon. 984	100.2
	90 50 22.41	170 58	T. P. 808	69.1
		191 03	Ref. Mon. 987	103.8
		308 44	T. P. 810	198.0
T. P. 810	48 13 35.94	68 35	Ref. Mon. 988	43.7
	90 50 14.92	128 44	T. P. 809	198.0
		248 35	Ref. Mon. 991	32.0
		351 17	T. P. 811	165.6
T. P. 811	48 13 30.64	72 59	Ref. Mon. 990	51.5
	90 50 13.70	171 17	T. P. 810	165.6
		252 59	Ref. Mon. 993	23.9
		357 46	T. P. 812	543.6

BOUNDARY TURNING POINTS—CURTAIN FALLS TO PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
SAGANAGA LAKE—Contd.	° ′ ″	° ′		
T. P. 812	48 13 13.06	0 46	Ref. Mon. 994	120.8
	90 50 12.67	177 46	T. P. 811	543.6
		317 55	Ref. Mon. 997	140.2
		337 41	T. P. 813	121.5
T. P. 813	48 13 09.42	80 06	Ref. Mon. 994	48.5
	90 50 10.44	157 41	T. P. 812	121.5
		260 06	Ref. Mon. 997	48.5
		351 02	T. P. 814	42.7
T. P. 814	48 13 08.06	14 42	T. P. 815	72.3
	90 50 10.12	121 50	Ref. Mon. 994	64.1
		171 02	T. P. 813	42.7
		219 12	Ref. Mon. 997	65.1
T. P. 815	48 13 05.79	19 24	Ref. Mon. 998	77.7
	90 50 11.00	194 42	T. P. 814	72.3
		319 06	Ref. Mon. 1001	77.4
		359 31	T. P. 816	27.6
T. P. 816	48 13 04.90	29 42	Ref. Mon. 998	52.6
	90 50 10.99	179 31	T. P. 815	27.6
		301 29	Ref. Mon. 1001	59.2
		351 56	T. P. 817	40.0
MARABOEUF LAKE				
T. P. 817	48 13 03.62	79 06	Ref. Mon. 998	32.2
	90 50 10.72	171 56	T. P. 816	40.0
		259 06	Ref. Mon. 1001	45.7
		356 10	T. P. 818	1,756.2
T. P. 818	48 12 06.88	109 06	Ref. Mon. 1000	71.6
	90 50 05.03	176 10	T. P. 817	1,756.2
		289 06	Ref. Mon. 1003	95.4
		358 24	T. P. 819	1,697.7
T. P. 819	48 11 11.94	8 48	T. P. 820	1,070.2
	90 50 02.74	103 25	Ref. Mon. 1002	103.8
		178 24	T. P. 818	1,697.7
		283 25	Ref. Mon. 1005	92.3
T. P. 820	48 10 37.70	77 44	Ref. Mon. 1004	168.9
	90 50 10.66	188 48	T. P. 819	1,070.2
		257 44	Ref. Mon. 1007	178.4
		323 45	T. P. 821	485.4
T. P. 821	48 10 25.03	29 39	Ref. Mon. 1006	261.7
	90 49 56.77	143 45	T. P. 820	485.4
		209 39	Ref. Mon. 1009	196.2
		230 13	T. P. 822	619.8
T. P. 822	48 10 37.87	44 09	Ref. Mon. 1006	869.6
	90 49 33.72	50 14	T. P. 821	619.8
		264 20	Ref. Mon. 1008	267.5
		283 31	T. P. 823	110.0
T. P. 823	48 10 37.03	103 31	T. P. 822	110.0
	90 49 28.54	186 38	Ref. Mon. 1010	380.9
		214 23	T. P. 824	165.4
		251 52	Ref. Mon. 1008	167.6
T. P. 824	48 10 41.45	34 24	T. P. 823	165.4
	90 49 24.02	142 01	Ref. Mon. 1011	281.4
		167 28	T. P. 825	175.4
		322 01	Ref. Mon. 1008	107.0
T. P. 825	48 10 46.99	146 05	Ref. Mon. 1013	65.0
	90 49 25.86	151 06	T. P. 826	65.3
		170 49	Ref. Mon. 1010	71.6
		347 28	T. P. 824	175.4
T. P. 826	48 10 48.84	56 03	Ref. Mon. 1013	5.7
	90 49 27.38	154 35	T. P. 827	173.3
		236 03	Ref. Mon. 1010	24.2
		331 06	T. P. 825	65.3
T. P. 827	48 10 53.91	10 10	Ref. Mon. 1011	165.7
	90 49 30.98	172 43	T. P. 828	229.2
		190 10	Ref. Mon. 1012	180.2
		334 35	T. P. 826	173.3
T. P. 828	48 11 01.27	129 23	Ref. Mon. 1015	152.0
	90 49 32.39	265 40	T. P. 829	111.5
		309 23	Ref. Mon. 1012	78.8
		352 43	T. P. 827	229.2
T. P. 829	48 11 01.54	40 46	Ref. Mon. 1012	77.1
	90 49 27.00	85 40	T. P. 828	111.5
		220 46	Ref. Mon. 1017	66.6
		244 41	T. P. 830	267.9
MARABOEUF LAKE—Contd.	° ′ ″	° ′		
T. P. 830	48 11 05.25	64 41	T. P. 829	267.9
	90 49 15.28	121 26	Ref. Mon. 1019	68.7
		301 26	Ref. Mon. 1021	211.9
		329 40	T. P. 831	261.3
T. P. 831	48 10 57.95	22 59	Ref. Mon. 1014	125.0
	90 49 08.89	149 40	T. P. 830	261.3
		202 59	Ref. Mon. 1021	125.0
		348 26	T. P. 832	167.5
T. P. 832	48 10 52.64	120 45	Ref. Mon. 1014	95.9
	90 49 07.26	168 26	T. P. 831	167.5
		300 45	Ref. Mon. 1023	124.1
		334 34	T. P. 833	218.4
T. P. 833	48 10 46.25	5 29	Ref. Mon. 1016	95.3
	90 49 02.72	154 34	T. P. 832	218.4
		185 29	Ref. Mon. 1023	134.4
		268 45	T. P. 834	362.7
T. P. 834	48 10 46.51	4 12	Ref. Mon. 1018	30.8
	90 48 45.17	88 45	T. P. 833	362.7
		184 12	Ref. Mon. 1025	24.4
		258 55	T. P. 835	126.7
T. P. 835	48 10 47.30	78 55	T. P. 834	126.7
	90 48 39.15	162 58	Ref. Mon. 1027	9.1
		270 27	T. P. 836	84.2
		342 58	Ref. Mon. 1020	20.8
ROUND LAKE				
T. P. 836	48 10 47.28	57 13	Ref. Mon. 1022	45.0
	90 48 35.08	90 27	T. P. 835	84.2
		237 13	Ref. Mon. 1029	33.6
		295 51	T. P. 837	476.7
T. P. 837	48 10 40.55	7 14	Ref. Mon. 1024	331.6
	90 48 14.31	115 51	T. P. 836	476.7
		187 14	Ref. Mon. 1031	343.1
		352 03	T. P. 838	591.6
T. P. 838	48 10 21.58	154 20	Ref. Mon. 1024	285.2
	90 48 10.36	172 03	T. P. 837	591.6
		330 56	T. P. 839	94.4
		335 33	Ref. Mon. 1035	272.9
T. P. 839	48 10 18.90	150 56	T. P. 838	94.4
	90 48 08.13	153 30	Ref. Mon. 1024	379.6
		337 59	Ref. Mon. 1035	178.8
		345 34	T. P. 840	43.2
T. P. 840	48 10 17.55	154 43	Ref. Mon. 1024	421.9
	90 48 07.61	165 34	T. P. 839	43.2
		325 18	T. P. 841	35.3
		335 35	Ref. Mon. 1035	136.2
T. P. 841	48 10 16.61	145 18	T. P. 840	35.3
	90 48 06.64	154 00	Ref. Mon. 1024	456.8
		339 08	Ref. Mon. 1035	101.7
		341 44	T. P. 842	53.1
T. P. 842	48 10 14.98	154 48	Ref. Mon. 1024	509.3
	90 48 05.84	161 44	T. P. 841	53.1
		336 18	Ref. Mon. 1035	48.7
		357 37	T. P. 843	55.7
T. P. 843	48 10 13.17	3 02	T. P. 844	279.1
	90 48 05.72	57 19	Ref. Mon. 1026	106.0
		177 37	T. P. 842	55.7
		237 19	Ref. Mon. 1035	20.5
T. P. 844	48 10 04.15	66 28	Ref. Mon. 1028	65.9
	90 48 06.44	183 02	T. P. 843	279.1
		246 28	Ref. Mon. 1037	80.1
		352 05	T. P. 845	407.2
T. P. 845	48 09 51.09	93 23	Ref. Mon. 1030	30.8
	90 48 03.73	172 05	T. P. 844	407.2
		273 23	Ref. Mon. 1039	125.6
		343 26	T. P. 846	104.9
T. P. 846	48 09 47.84	149 21	Ref. Mon. 1030	119.0
	90 48 02.28	163 26	T. P. 845	104.9
		315 30	T. P. 847	149.4
		329 21	Ref. Mon. 1032	298.1
T. P. 847	48 09 44.39	135 30	T. P. 846	149.4
	90 47 57.21	141 38	Ref. Mon. 1030	266.5
		268 46	T. P. 848	44.2
		342 31	Ref. Mon. 1032	157.1

BOUNDARY TURNING POINTS—CURTAIN FALLS TO PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
ROUND LAKE—Continued	° ′ ″	° ′		
T. P. 848	48 09 44.42	88 46	T. P. 847	44.2
	90 47 55.07	282 54	Ref. Mon. 1041	172.5
		331 44	T. P. 849	22.4
		358 52	Ref. Mon. 1032	150.8
T. P. 849	48 09 43.78	3 20	Ref. Mon. 1032	131.3
	90 47 54.56	151 44	T. P. 848	22.4
		276 47	Ref. Mon. 1041	158.6
		306 24	T. P. 850	98.5
T. P. 850	48 09 41.88	10 04	T. P. 851	66.3
	90 47 50.72	50 07	Ref. Mon. 1032	113.2
		126 24	T. P. 849	98.5
		243 06	Ref. Mon. 1041	87.7
T. P. 851	48 09 39.77	84 25	Ref. Mon. 1032	75.7
	90 47 51.28	190 04	T. P. 850	66.3
		264 25	Ref. Mon. 1043	138.4
		350 17	T. P. 852	32.4
T. P. 852	48 09 38.74	106 55	Ref. Mon. 1032	84.5
	90 47 51.01	170 17	T. P. 851	32.4
		251 03	Ref. Mon. 1043	139.8
		331 15	T. P. 853	182.6
T. P. 853	48 09 33.55	12 11	Ref. Mon. 1034	32.4
	90 47 46.76	151 15	T. P. 852	182.6
		192 11	Ref. Mon. 1043	210.3
		268 02	T. P. 854	44.1
T. P. 854	48 09 33.60	56 55	Ref. Mon. 1034	60.8
	90 47 44.63	88 02	T. P. 853	44.1
		226 54	T. P. 855	136.6
		236 55	Ref. Mon. 1036	196.6
T. P. 855	48 09 36.62	46 54	T. P. 854	136.6
	90 47 39.80	49 59	Ref. Mon. 1034	196.7
		203 21	T. P. 856	63.4
		257 51	Ref. Mon. 1036	66.5
T. P. 856	48 09 38.51	23 21	T. P. 855	63.4
	90 47 38.59	191 22	Ref. Mon. 1045	62.1
		205 36	T. P. 857	42.2
		318 00	Ref. Mon. 1036	59.5
T. P. 857	48 09 39.74	25 36	T. P. 856	42.2
	90 47 37.70	165 18	Ref. Mon. 1045	23.6
		223 42	T. P. 858	28.9
		345 18	Ref. Mon. 1036	85.1
T. P. 858	48 09 40.42	43 42	T. P. 857	28.9
	90 47 36.74	94 22	Ref. Mon. 1045	26.0
		232 49	T. P. 859	52.1
		359 05	Ref. Mon. 1036	103.2
T. P. 859	48 09 41.44	16 30	Ref. Mon. 1036	140.4
	90 47 34.73	52 50	T. P. 858	52.1
		66 23	Ref. Mon. 1045	73.6
		308 19	T. P. 860	259.8
T. P. 860	48 09 36.22	115 52	Ref. Mon. 1045	301.5
	90 47 24.87	128 19	T. P. 859	259.8
		250 34	T. P. 861	347.8
		295 52	Ref. Mon. 1038	178.3
T. P. 861	48 09 39.97	27 54	Ref. Mon. 1040	101.7
	90 47 09.00	70 34	T. P. 860	347.8
		207 54	Ref. Mon. 1049	364.2
		210 23	T. P. 862	366.3
T. P. 862	48 09 50.20	30 23	T. P. 861	366.3
	90 47 00.03	111 53	Ref. Mon. 1049	15.9
		240 36	T. P. 863	90.2
		242 37	Ref. Mon. 1053	282.7
T. P. 863	48 09 51.63	60 36	T. P. 862	90.2
	90 46 56.23	67 41	Ref. Mon. 1049	100.9
		229 18	T. P. 864	47.0
		243 34	Ref. Mon. 1053	192.6
T. P. 864	48 09 52.62	49 18	T. P. 863	47.0
	90 46 54.51	210 29	Ref. Mon. 1051	69.0
		248 04	Ref. Mon. 1053	147.5
		263 24	T. P. 865	41.0
T. P. 865	48 09 52.77	83 24	T. P. 864	41.0
	90 46 52.54	173 59	Ref. Mon. 1051	55.0
		276 16	T. P. 866	149.3
		353 59	Ref. Mon. 1044	154.0
T. P. 866	48 09 52.25	96 16	T. P. 865	149.3
	90 46 45.35	141 52	Ref. Mon. 1053	84.8
		298 56	T. P. 867	37.8
		328 44	Ref. Mon. 1046	56.6
ROUND LAKE—Continued	° ′ ″	° ′		
T. P. 867	48 09 51.66	6 59	Ref. Mon. 1046	30.3
	90 46 43.75	118 56	T. P. 866	37.8
		134 51	Ref. Mon. 1053	120.5
		295 00	T. P. 868	47.5
T. P. 868	48 09 51.00	77 52	Ref. Mon. 1046	47.8
	90 46 41.67	115 00	T. P. 867	47.5
		129 17	Ref. Mon. 1053	165.9
		308 19	T. P. 869	39.4
T. P. 869	48 09 50.22	100 30	Ref. Mon. 1046	78.9
	90 46 40.17	128 19	T. P. 868	39.4
		280 30	Ref. Mon. 1055	153.6
		328 52	T. P. 870	253.3
T. P. 870	48 09 43.20	5 26	T. P. 871	148.8
	90 46 33.84	6 04	Cuttle	371.6
		137 57	Ref. Mon. 1046	311.3
		148 52	T. P. 869	253.3
		186 04	Ref. Mon. 1055	189.9
T. P. 871	48 09 38.40	18 44	T. P. 872	54.8
	90 46 34.52	27 26	Ref. Mon. 1048	26.0
		185 26	T. P. 870	148.8
		279 30	Ref. Mon. 1057	93.2
T. P. 872	48 09 36.72	10 33	T. P. 873	412.2
	90 46 35.37	191 01	Ref. Mon. 1048	29.3
		198 44	T. P. 871	54.8
		251 34	Ref. Mon. 1057	115.4
T. P. 873	48 09 23.60	8 49	T. P. 874	386.5
	90 46 39.02	97 55	Ref. Mon. 1050	78.7
		190 33	T. P. 872	412.2
		277 55	Ref. Mon. 1059	253.7
T. P. 874	48 09 11.24	9 13	T. P. 875	279.0
	90 46 41.89	123 36	Ref. Mon. 1052	46.9
		188 49	T. P. 873	386.5
		303 36	Ref. Mon. 1061	190.3
T. P. 875	48 09 02.32	114 20	Ref. Mon. 1054	111.5
	90 46 44.05	181 04	Ref. Mon. 1052	301.4
		189 13	T. P. 874	279.0
		340 48	T. P. 876	264.2
T. P. 876	48 08 54.24	7 14	Ref. Mon. 1065	474.1
	90 46 39.85	28 37	T. P. 877	152.8
		160 48	T. P. 875	264.2
		338 03	Ref. Mon. 1063	100.1
T. P. 877	48 08 49.89	46 52	T. P. 878	62.2
	90 46 43.39	208 37	T. P. 876	152.8
		249 33	Ref. Mon. 1063	118.0
		357 41	Ref. Mon. 1065	336.5
T. P. 878	48 08 48.52	48 30	T. P. 879	138.3
	90 46 45.58	226 52	T. P. 877	62.2
		241 46	Ref. Mon. 1063	177.1
		348 39	Ref. Mon. 1065	299.5
T. P. 879	48 08 45.55	101 59	T. P. 880	71.0
	90 46 50.60	228 30	T. P. 878	138.3
		235 57	Ref. Mon. 1063	313.4
		321 10	Ref. Mon. 1065	259.3
T. P. 880	48 08 46.03	108 07	T. P. 881	119.1
	90 46 53.95	243 58	Ref. Mon. 1063	366.2
		281 59	T. P. 879	71.0
		313 03	Ref. Mon. 1065	317.5
T. P. 881	48 08 47.23	22 23	Ref. Mon. 1067	49.4
	90 46 59.43	96 22	T. P. 882	51.2
		111 40	Ref. Mon. 1058	112.4
		288 07	T. P. 880	119.1
T. P. 882	48 08 47.41	78 47	T. P. 883	15.7
	90 47 01.89	123 47	Ref. Mon. 1058	64.4
		276 22	T. P. 881	51.2
		328 01	Ref. Mon. 1067	60.6
T. P. 883	48 08 47.31	22 24	T. P. 884	24.6
	90 47 02.64	135 31	Ref. Mon. 1058	54.5
		258 47	T. P. 882	15.7
		315 31	Ref. Mon. 1067	67.7
PINE LAKE				
T. P. 884	48 08 46.58	55 36	T. P. 885	453.8
	90 47 03.09	154 55	Ref. Mon. 1058	68.0
		202 24	T. P. 883	24.6
		294 16	Ref. Mon. 1067	62.3
T. P. 885	48 08 38.28	18 28	Ref. Mon. 1069	346.8
	90 47 21.20	37 01	T. P. 886	360.1
		198 28	Ref. Mon. 1060	140.3
		235 36	T. P. 884	453.8

BOUNDARY TURNING POINTS—CURTAIN FALLS TO PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
PINE LAKE—Continued	° ′ ″	° ′		
T. P. 886	48 08 28.97	33 31	Ref. Mon. 1071	133.6
	90 47 31.69	57 57	T. P. 887	396.1
		217 01	T. P. 885	360.1
		291 10	Ref. Mon. 1069	114.7
T. P. 887	48 08 22.16	21 36	T. P. 888	297.4
	90 47 47.93	45 01	Ref. Mon. 1062	354.8
		237 57	T. P. 886	396.1
		348 26	Ref. Mon. 1073	314.3
T. P. 888	48 08 13.20	100 18	Ref. Mon. 1062	143.8
	90 47 53.22	201 36	T. P. 887	297.4
		280 18	Ref. Mon. 1073	175.3
		304 52	T. P. 889	271.2
T. P. 889	48 08 08.18	22 30	Ref. Mon. 1064	52.0
	90 47 42.46	124 52	T. P. 888	271.2
		249 55	Ref. Mon. 1075	50.5
		280 53	T. P. 890	25.1
T. P. 890	48 08 08.03	45 50	Ref. Mon. 1064	62.2
	90 47 41.27	100 53	T. P. 889	25.1
		225 50	Ref. Mon. 1075	31.7
		292 49	T. P. 891	49.1
T. P. 891	48 08 07.42	74 52	Ref. Mon. 1064	93.1
	90 47 39.08	112 49	T. P. 890	49.1
		151 18	Ref. Mon. 1075	46.9
		210 00	T. P. 892	33.7
T. P. 892	48 08 08.36	30 00	T. P. 891	33.7
	90 47 38.26	63 22	Ref. Mon. 1064	119.4
		106 48	Ref. Mon. 1075	41.1
		257 04	T. P. 893	114.4
T. P. 893	48 08 09.19	77 04	T. P. 892	114.4
	90 47 32.87	344 00	T. P. 894	9.7
T. P. 894	48 08 08.89	164 00	T. P. 893	9.7
	90 47 32.74	265 35	T. P. 895	66.8
T. P. 895	48 08 09.05	85 35	T. P. 894	66.8
	90 47 29.51	254 50	T. P. 896	28.0
T. P. 896	48 08 09.29	74 50	T. P. 895	28.0
	90 47 28.20	266 48	T. P. 897	23.6
T. P. 897	48 08 09.33	86 48	T. P. 896	23.6
	90 47 27.06	248 36	T. P. 898	125.6
T. P. 898	48 08 10.81	68 36	T. P. 897	125.6
	90 47 21.40	240 55	Ref. Mon. 1077	74.9
		251 36	T. P. 899	47.1
		282 13	Ref. Mon. 1066	44.2
T. P. 899	48 08 11.30	3 26	Ref. Mon. 1066	24.3
	90 47 19.24	71 36	T. P. 898	47.1
		223 57	Ref. Mon. 1077	29.9
		306 45	T. P. 900	28.1
T. P. 900	48 08 10.75	72 50	Ref. Mon. 1066	25.1
	90 47 18.15	126 45	T. P. 899	28.1
		177 22	Ref. Mon. 1077	38.4
		294 14	T. P. 901	66.6
T. P. 901	48 08 09.87	103 14	Ref. Mon. 1066	87.0
	90 47 15.22	114 14	T. P. 900	66.6
		136 26	Ref. Mon. 1077	90.7
		304 45	T. P. 902	62.4
T. P. 902	48 08 08.72	124 45	T. P. 901	62.4
	90 47 12.74	245 56	Ref. Mon. 1079	125.9
		286 41	T. P. 903	46.5
		325 37	Ref. Mon. 1068	83.5
T. P. 903	48 08 08.28	106 41	T. P. 902	46.5
	90 47 10.58	227 26	Ref. Mon. 1079	95.6
		311 14	T. P. 904	30.2
		357 16	Ref. Mon. 1068	55.7
T. P. 904	48 08 07.64	29 24	Ref. Mon. 1068	41.0
	90 47 09.48	131 14	T. P. 903	30.2
		209 24	Ref. Mon. 1079	97.1
		307 28	T. P. 905	17.4
T. P. 905	48 08 07.30	53 31	Ref. Mon. 1068	42.2
	90 47 08.82	127 28	T. P. 904	17.4
		199 35	Ref. Mon. 1079	101.1
		259 42	T. P. 906	59.0
T. P. 906	48 08 07.64	79 42	T. P. 905	59.0
	90 47 06.01	164 05	Ref. Mon. 1079	88.0
		247 45	T. P. 907	191.6
		344 05	Ref. Mon. 1070	73.2
PINE LAKE—Continued	° ′ ″	° ′		
T. P. 907	48 08 09.99	47 45	Ref. Mon. 1070	212.5
	90 46 57.43	67 45	T. P. 906	191.6
		227 45	Ref. Mon. 1081	88.0
		291 29	T. P. 908	40.9
T. P. 908	48 08 09.50	20 05	Ref. Mon. 1072	263.2
	90 46 55.59	111 29	T. P. 907	40.9
		200 05	Ref. Mon. 1081	79.0
		333 42	T. P. 909	79.9
T. P. 909	48 08 07.18	24 08	T. P. 910	180.1
	90 46 53.88	153 43	T. P. 908	79.9
		176 46	Ref. Mon. 1081	146.0
		313 21	Ref. Mon. 1083	176.3
T. P. 910	48 08 01.86	24 24	T. P. 911	132.8
	90 46 57.44	77 53	Ref. Mon. 1072	53.3
		204 08	T. P. 909	180.1
		257 53	Ref. Mon. 1083	206.5
T. P. 911	48 07 57.94	1 27	Ref. Mon. 1085	80.9
	90 47 00.10	124 15	T. P. 912	64.3
		181 27	Ref. Mon. 1072	109.8
		204 24	T. P. 910	132.8
T. P. 912	48 07 59.11	37 14	Ref. Mon. 1087	66.0
	90 47 02.67	118 18	T. P. 913	59.9
		217 14	Ref. Mon. 1072	92.4
		304 15	T. P. 911	64.3
T. P. 913	48 08 00.03	81 46	T. P. 914	121.5
	90 47 05.22	171 01	Ref. Mon. 1074	90.6
		298 18	T. P. 912	59.9
		351 01	Ref. Mon. 1087	82.0
T. P. 914	48 07 59.47	11 48	Ref. Mon. 1089	135.4
	90 47 11.04	76 34	T. P. 915	35.4
		88 47	Ref. Mon. 1076	143.4
		261 46	T. P. 913	121.5
T. P. 915	48 07 59.20	66 20	T. P. 916	81.9
	90 47 12.70	92 43	Ref. Mon. 1076	109.1
		256 34	T. P. 914	35.4
		356 54	Ref. Mon. 1089	124.5
T. P. 916	48 07 58.14	25 18	T. P. 917	315.0
	90 47 16.33	138 13	Ref. Mon. 1076	51.0
		246 20	T. P. 915	81.9
		318 13	Ref. Mon. 1089	122.6
T. P. 917	48 07 48.92	180 51	Ref. Mon. 1078	105.6
	90 47 22.84	205 18	T. P. 916	315.0
		323 46	T. P. 918	182.4
		354 44	Ref. Mon. 1080	145.3
T. P. 918	48 07 44.16	91 30	Ref. Mon. 1080	94.5
	90 47 17.62	143 46	T. P. 917	182.4
		271 30	Ref. Mon. 1091	150.9
		312 48	T. P. 919	112.2
T. P. 919	48 07 41.69	43 26	Ref. Mon. 1082	60.4
	90 47 13.64	132 48	T. P. 918	112.2
		223 26	Ref. Mon. 1091	99.6
		343 25	T. P. 920	50.4
T. P. 920	48 07 40.12	94 34	Ref. Mon. 1082	56.1
	90 47 12.95	163 25	T. P. 919	50.4
		274 34	Ref. Mon. 1084	110.7
		280 10	T. P. 921	51.2
T. P. 921	48 07 39.83	97 14	Ref. Mon. 1082	107.2
	90 47 10.51	100 10	T. P. 920	51.2
		260 18	T. P. 922	52.1
		269 47	Ref. Mon. 1084	59.9
T. P. 922	48 07 40.12	80 18	T. P. 921	52.1
	90 47 08.02	91 43	Ref. Mon. 1082	157.8
		221 32	T. P. 923	30.1
		314 57	Ref. Mon. 1084	12.1
T. P. 923	48 07 40.84	20 09	Ref. Mon. 1084	33.1
	90 47 07.06	41 32	T. P. 922	30.1
		289 30	Ref. Mon. 1093	54.7
		295 59	T. P. 924	20.2
T. P. 924	48 07 40.56	6 13	T. P. 925	16.7
	90 47 06.18	115 59	T. P. 923	20.2
		285 45	Ref. Mon. 1093	34.8
		350 24	Ref. Mon. 1086	56.1
T. P. 925	48 07 40.02	0 19	T. P. 926	12.6
	90 47 06.27	78 29	Ref. Mon. 1084	28.3
		186 13	T. P. 924	16.7
		258 29	Ref. Mon. 1093	36.0

BOUNDARY TURNING POINTS—CURTAIN FALLS TO PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
PINE LAKE—Con.	° ′ ″	° ′		
T. P. 926	48 07 39.61	180 19	T. P. 925	12.6
	90 47 06.27	240 47	Ref. Mon. 1093	40.5
		281 23	T. P. 927	23.0
		336 43	Ref. Mon. 1086	28.4
T. P. 927	48 07 39.47	27 45	Ref. Mon. 1086	24.3
	90 47 05.18	101 23	T. P. 926	23.0
		207 45	Ref. Mon. 1093	27.5
		232 37	T. P. 928	32.3
T. P. 928	48 07 40.10	52 37	T. P. 927	32.3
	90 47 03.94	110 03	Ref. Mon. 1093	13.7
		212 23	T. P. 929	60.2
		290 03	Ref. Mon. 1088	56.3
T. P. 929	48 07 41.75	32 23	T. P. 928	60.2
	90 47 02.38	137 11	Ref. Mon. 1095	28.3
		282 31	T. P. 930	18.5
		317 11	Ref. Mon. 1090	80.5
T. P. 930	48 07 41.62	102 31	T. P. 929	18.5
	90 47 01.51	123 36	Ref. Mon. 1095	44.8
		321 10	T. P. 931	30.8
		326 21	Ref. Mon. 1090	66.1
T. P. 931	48 07 40.84	130 45	Ref. Mon. 1095	74.7
	90 47 00.58	141 10	T. P. 930	30.8
		289 16	T. P. 932	67.8
		330 48	Ref. Mon. 1090	35.7
T. P. 932	48 07 40.12	29 05	T. P. 933	112.0
	90 46 57.49	79 19	Ref. Mon. 1090	47.4
		109 16	T. P. 931	67.8
		120 32	Ref. Mon. 1095	140.1
T. P. 933	48 07 36.95	185 02	Ref. Mon. 1090	89.4
	90 47 00.12	209 05	T. P. 932	112.0
		312 14	Ref. Mon. 1094	301.0
		313 59	T. P. 934	169.6
T. P. 934	48 07 33.14	133 59	T. P. 933	169.6
	90 46 54.21	151 06	Ref. Mon. 1090	236.3
		291 26	T. P. 935	134.0
		310 00	Ref. Mon. 1094	131.6
T. P. 935	48 07 31.55	33 57	Ref. Mon. 1094	42.9
	90 46 48.18	111 26	T. P. 934	134.0
		213 57	Ref. Mon. 1097	176.0
		297 49	T. P. 936	316.2
T. P. 936	48 07 26.78	117 49	T. P. 935	316.2
	90 46 34.65	148 17	Ref. Mon. 1097	345.1
		328 17	Ref. Mon. 1099	154.3
		349 17	T. P. 937	180.3
T. P. 937	48 07 21.04	46 01	Ref. Mon. 1096	79.6
	90 46 33.03	169 17	T. P. 936	180.3
		226 01	Ref. Mon. 1099	66.2
		333 53	T. P. 938	287.2
T. P. 938	48 07 12.69	3 59	Ref. Mon. 1098	176.8
	90 46 26.92	153 53	T. P. 937	287.2
		340 18	Ref. Mon. 1101	141.2
		353 06	T. P. 939	122.1
T. P. 939	48 07 08.76	7 10	T. P. 940	39.4
	90 46 26.21	26 04	Ref. Mon. 1098	61.3
		173 06	T. P. 938	122.1
		289 34	Ref. Mon. 1101	34.9
T. P. 940	48 07 07.50	54 04	Ref. Mon. 1098	27.2
	90 46 26.45	187 10	T. P. 939	39.4
		234 04	Ref. Mon. 1101	46.7
		315 55	T. P. 941	159.5
T. P. 941	48 07 03.79	15 49	Ref. Mon. 1100	25.8
	90 46 21.08	135 55	T. P. 940	159.5
		195 49	Ref. Mon. 1103	32.2
		298 08	T. P. 942	186.9
T. P. 942	48 07 00.94	118 08	T. P. 941	186.9
	90 46 13.11	263 42	Ref. Mon. 1105	38.4
		298 04	T. P. 943	40.3
		330 19	Ref. Mon. 1102	63.4
T. P. 943	48 07 00.32	6 33	Ref. Mon. 1102	36.3
	90 46 11.40	118 04	T. P. 942	40.3
		186 33	Ref. Mon. 1105	23.3
		274 17	T. P. 944	88.8
MAGNETIC LAKE				
T. P. 944	48 07 00.11	72 22	Ref. Mon. 1102	97.3
	90 46 07.11	94 17	T. P. 943	88.8
		252 22	Ref. Mon. 1107	132.4
		327 37	T. P. 945	284.0
MAGNETIC LAKE—Contd.	° ′ ″	° ′		
T. P. 945	48 06 52.34	4 11	T. P. 946	428.1
	90 45 59.76	68 34	Ref. Mon. 1104	86.7
		147 37	T. P. 944	284.0
		248 34	Ref. Mon. 1109	36.9
T. P. 946	48 06 38.52	91 17	Ref. Mon. 1106	102.9
	90 46 01.27	184 11	T. P. 945	428.1
		271 17	Ref. Mon. 1111	102.9
		339 47	T. P. 947	1,257.6
T. P. 947	48 06 00.31	2 41	T. P. 948	177.5
	90 45 40.26	125 16	Ref. Mon. 1108	275.9
		159 47	T. P. 946	1,257.6
		305 16	Ref. Mon. 1113	111.8
T. P. 948	48 05 54.58	71 20	Ref. Mon. 1110	29.3
	90 45 40.67	182 41	T. P. 947	177.5
		251 20	Ref. Mon. 1115	13.5
		318 19	T. P. 949	1,100.9
GUNFLINT LAKE				
T. P. 949	48 05 27.95	10 23	Ref. Mon. 1112	741.1
	90 45 05.29	138 20	T. P. 948	1,100.9
		190 23	Ref. Mon. 1117	774.5
		242 10	T. P. 950	852.3
T. P. 950	48 05 40.83	62 11	T. P. 949	852.3
	90 44 28.86	120 40	Ref. Mon. 1117	713.9
		266 44	T. P. 951	2,875.6
		300 40	Ref. Mon. 1114	705.5
T. P. 951	48 05 46.10	86 46	T. P. 950	2,875.6
	90 42 10.11	168 22	Ref. Mon. 1119	471.3
		248 27	T. P. 952	1,332.2
		348 22	Ref. Mon. 1116	482.8
T. P. 952	48 06 01.94	8 18	Ref. Mon. 1118	834.0
	90 41 10.22	68 28	T. P. 951	1,332.2
		188 18	Ref. Mon. 1121	861.4
		264 06	T. P. 953	3,352.7
T. P. 953	48 06 13.06	0 14	Ref. Mon. 1120	638.5
	90 38 29.01	84 08	T. P. 952	3,352.7
		180 14	Ref. Mon. 1123	671.6
		229 31	T. P. 954	1,413.6
T. P. 954	48 06 42.77	49 32	T. P. 953	1,413.6
	90 37 37.03	150 07	Ref. Mon. 1125	482.6
		269 39	T. P. 955	501.2
		330 07	Ref. Mon. 1122	278.6
T. P. 955	48 06 42.87	9 08	Ref. Mon. 1124	38.4
	90 37 12.80	89 39	T. P. 954	501.2
		235 45	Ref. Mon. 1127	115.6
		324 07	T. P. 956	36.4
T. P. 956	48 06 41.92	72 58	Ref. Mon. 1124	28.7
	90 37 11.77	144 07	T. P. 955	36.4
		252 58	Ref. Mon. 1126	210.4
		252 58	T. P. 957	62.5
T. P. 957	48 06 42.51	72 58	Ref. Mon. 1124	91.2
	90 37 08.88	72 58	T. P. 956	62.5
		233 02	T. P. 958	99.0
		252 58	Ref. Mon. 1126	147.9
T. P. 958	48 06 44.44	53 02	T. P. 957	99.0
	90 37 05.06	104 33	Ref. Mon. 1127	66.7
		254 12	T. P. 959	41.6
		284 33	Ref. Mon. 1126	64.4
T. P. 959	48 06 44.81	74 12	T. P. 958	41.6
	90 37 03.12	140 58	Ref. Mon. 1129	97.3
		278 40	T. P. 960	117.6
		320 58	Ref. Mon. 1126	35.4
T. P. 960	48 06 44.23	98 40	T. P. 959	117.6
	90 36 57.50	196 51	Ref. Mon. 1131	114.1
		232 11	T. P. 961	94.2
		271 13	Ref. Mon. 1128	122.9
T. P. 961	48 06 46.10	52 11	T. P. 960	94.2
	90 36 53.91	141 14	Ref. Mon. 1131	66.0
		248 09	T. P. 962	130.0
		321 14	Ref. Mon. 1128	77.4
T. P. 962	48 06 47.67	68 09	T. P. 961	130.0
	90 36 48.08	91 05	Ref. Mon. 1131	162.0
		255 13	T. P. 963	58.7
		271 05	Ref. Mon. 1130	72.9
T. P. 963	48 06 48.16	75 13	T. P. 962	58.7
	90 36 45.33	135 18	Ref. Mon. 1133	33.3
		239 41	T. P. 964	566.6
		315 18	Ref. Mon. 1130	23.0

BOUNDARY TURNING POINTS—CURTAIN FALLS TO PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
GUNFLINT LAKE—Contd.	° ′ ″	° ′		
T. P. 964	48 06 57.42	10 32	Ref. Mon. 1132	80.3
	90 36 21.69	59 41	T. P. 963	566.6
		190 32	Ref. Mon. 1135	60.6
		260 47	T. P. 965	1,119.4
T. P. 965	48 07 03.22	13 26	Ref. Mon. 1134	154.1
	90 35 28.26	80 48	T. P. 964	1,119.4
		193 26	Ref. Mon. 1137	189.6
		194 40	T. P. 966	186.5
T. P. 966	48 07 09.06	14 40	T. P. 965	186.5
	90 35 25.98	141 57	Ref. Mon. 1137	5.1
		190 36	Ref. Mon. 1139	50.2
		218 07	T. P. 967	12.2
T. P. 967	48 07 09.37	38 07	T. P. 966	12.2
	90 35 25.61	62 27	Ref. Mon. 1137	12.1
		182 25	Ref. Mon. 1139	39.8
		207 13	T. P. 968	5.9
T. P. 968	48 07 09.54	27 13	T. P. 967	5.9
	90 35 25.48	51 01	Ref. Mon. 1137	17.3
		178 17	Ref. Mon. 1139	34.5
		185 37	T. P. 969	17.9
T. P. 969	48 07 10.12	5 37	T. P. 968	17.9
	90 35 25.40	27 54	Ref. Mon. 1137	32.4
		170 32	Ref. Mon. 1139	16.9
		214 46	T. P. 970	24.7
T. P. 970	48 07 10.77	34 46	T. P. 969	24.7
	90 35 24.72	78 01	Ref. Mon. 1139	17.2
		240 56	T. P. 971	300.7
		258 01	Ref. Mon. 1136	250.2
T. P. 971	48 07 15.50	10 53	Ref. Mon. 1136	95.8
	90 35 12.02	60 56	T. P. 970	300.7
		190 53	Ref. Mon. 1141	202.8
		208 30	T. P. 972	141.1
T. P. 972	48 07 19.52	28 30	T. P. 971	141.1
	90 35 08.76	158 52	Ref. Mon. 1141	80.6
		237 16	T. P. 973	337.8
		338 52	Ref. Mon. 1138	86.5
T. P. 973	48 07 25.43	57 16	T. P. 972	337.8
	90 34 55.02	166 21	Ref. Mon. 1143	62.2
		263 35	T. P. 974	177.8
		346 21	Ref. Mon. 1140	75.6
T. P. 974	48 07 26.07	83 35	T. P. 973	177.8
	90 34 46.48	139 09	Ref. Mon. 1145	167.1
		319 09	Ref. Mon. 1147	348.2
		325 32	T. P. 975	357.2
T. P. 975	48 07 16.54	39 22	Ref. Mon. 1142	45.9
	90 34 36.70	145 32	T. P. 974	357.2
		219 22	Ref. Mon. 1147	40.3
		303 01	T. P. 976	106.8
T. P. 976	48 07 14.65	57 46	Ref. Mon. 1144	40.4
	90 34 32.37	123 01	T. P. 975	106.8
		237 46	Ref. Mon. 1149	109.4
		260 47	T. P. 977	326.6
NORTH LAKE				
T. P. 977	48 07 16.35	80 47	T. P. 976	326.6
	90 34 16.78	170 16	Ref. Mon. 1151	54.9
		251 02	T. P. 978	472.5
		350 16	Ref. Mon. 1148	51.0
T. P. 978	48 07 21.32	71 02	T. P. 977	472.5
	90 33 55.18	170 58	Ref. Mon. 1155	71.8
		280 01	T. P. 979	478.5
		350 58	Ref. Mon. 1152	123.5
T. P. 979	48 07 18.63	67 43	Ref. Mon. 1154	388.5
	90 33 32.40	100 01	T. P. 978	478.5
		247 43	Ref. Mon. 1157	486.9
		333 26	T. P. 980	597.4
T. P. 980	48 07 01.33	14 19	Ref. Mon. 1159	1,012.9
	90 33 19.48	43 21	T. P. 981	1,543.1
		153 26	T. P. 979	597.4
		194 19	Ref. Mon. 1157	741.9
T. P. 981	48 06 24.99	80 08	Ref. Mon. 1156	222.1
	90 34 10.68	223 20	T. P. 980	1,543.1
		260 08	Ref. Mon. 1159	821.1
		343 36	T. P. 982 (Mon. 4)	607.0
HEIGHT-OF-LAND PORTAGE				
T. P. 982 (Mon. 4)	48 06 06.14	163 36	T. P. 981	607.0
	90 34 02.40	324 23	T. P. 983 (Mon. 5)	249.2
T. P. 983 (Mon. 5)	48 05 59.58	144 23	T. P. 982 (Mon. 4)	249.2
	90 33 55.39	324 23	T. P. 984 (Mon. 6)	131.3
T. P. 984 (Mon. 6)	48 05 56.13	144 23	T. P. 983 (Mon. 5)	131.3
	90 33 51.69	299 00	T. P. 985	660.9
SOUTH LAKE				
T. P. 985	48 05 45.75	119 00	T. P. 984 (Mon. 6)	660.9
	90 33 23.76	161 46	Ref. Mon. 1161	389.4
		262 45	T. P. 986	2,985.7
		341 46	Ref. Mon. 1158	373.2
T. P. 986	48 05 57.93	82 47	T. P. 985	2,985.7
	90 31 00.60	171 46	Ref. Mon. 1165	371.2
		294 32	T. P. 987	541.9
		351 46	Ref. Mon. 1162	371.2
T. P. 987	48 05 50.64	114 32	T. P. 986	541.9
	90 30 36.78	214 05	Ref. Mon. 1167	72.5
		236 38	T. P. 988	64.2
		260 52	Ref. Mon. 1164	67.4
T. P. 988	48 05 51.78	56 38	T. P. 987	64.2
	90 30 34.19	152 17	Ref. Mon. 1167	27.9
		220 12	T. P. 989	217.7
		332 17	Ref. Mon. 1164	27.8
T. P. 989	48 05 57.17	40 12	T. P. 988	217.7
	90 30 27.40	123 47	Ref. Mon. 1169	20.7
		246 57	T. P. 990	13.2
		328 16	Ref. Mon. 1166	53.0
T. P. 990	48 05 57.34	66 57	T. P. 989	13.2
	90 30 26.81	226 58	T. P. 991	9.8
T. P. 991	48 05 57.55	46 58	T. P. 990	9.8
	90 30 26.46	231 04	T. P. 992	21.6
T. P. 992	48 05 57.99	51 04	T. P. 991	21.6
	90 30 25.65	266 06	T. P. 993	14.9
T. P. 993	48 05 58.02	86 06	T. P. 992	14.9
	90 30 24.93	227 46	T. P. 994	10.7
T. P. 994	48 05 58.26	47 46	T. P. 993	10.7
	90 30 24.55	279 11	T. P. 995	22.4
T. P. 995	48 05 58.14	99 11	T. P. 994	22.4
	90 30 23.48	264 06	T. P. 996	43.7
T. P. 996	48 05 58.28	84 06	T. P. 995	43.7
	90 30 21.38	252 12	T. P. 997	22.0
T. P. 997	48 05 58.50	72 12	T. P. 996	22.0
	90 30 20.36	234 56	T. P. 998	17.3
T. P. 998	48 05 58.82	54 56	T. P. 997	17.3
	90 30 19.68	233 51	T. P. 999	21.9
T. P. 999	48 05 59.24	53 51	T. P. 998	21.9
	90 30 18.82	240 06	T. P. 1000	15.8
T. P. 1000	48 05 59.50	60 06	T. P. 999	15.8
	90 30 18.16	258 43	T. P. 1001	20.3
T. P. 1001	48 05 59.63	78 43	T. P. 1000	20.3
	90 30 17.20	301 04	T. P. 1002	22.5
T. P. 1002	48 05 59.25	121 04	T. P. 1001	22.5
	90 30 16.26	277 14	T. P. 1003	30.9
T. P. 1003	48 05 59.13	97 14	T. P. 1002	30.9
	90 30 14.78	301 59	T. P. 1004	16.3
T. P. 1004	48 05 58.84	121 59	T. P. 1003	16.3
	90 30 14.11	278 46	T. P. 1005	20.8
T. P. 1005	48 05 58.74	98 46	T. P. 1004	20.8
	90 30 13.12	260 25	T. P. 1006	20.6
T. P. 1006	48 05 58.85	80 25	T. P. 1005	20.6
	90 30 12.14	293 59	T. P. 1007	50.4
T. P. 1007	48 05 58.19	113 59	T. P. 1006	50.4
	90 30 09.91	235 38	Ref. Mon. 1171	42.6
		276 57	T. P. 1008	18.7
		351 29	Ref. Mon. 1168	15.5

BOUNDARY TURNING POINTS—CURTAIN FALLS TO PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
RAT LAKE	° ′ ″	° ′		
T. P. 1008	48 05 58.12	51 09	Ref. Mon. 1168	20.9
	90 30 09.02	96 57	T. P. 1007	18.7
		212 18	Ref. Mon. 1171	31.2
		323 49	T. P. 1009	31.7
T. P. 1009	48 05 57.29	109 41	Ref. Mon. 1168	37.2
	90 30 08.11	143 49	T. P. 1008	31.7
		177 42	Ref. Mon. 1171	52.0
		277 20	T. P. 1010	469.2
T. P. 1010	48 05 55.35	22 11	Ref. Mon. 1170	122.9
	90 29 45.62	97 20	T. P. 1009	469.2
		201 01	T. P. 1011	104.2
		202 11	Ref. Mon. 1172	114.9
T. P. 1011	48 05 58.50	21 01	T. P. 1010	104.2
	90 29 43.81	155 47	Ref. Mon. 1173	20.7
		178 11	T. P. 1012	13.5
		213 20	Ref. Mon. 1172	11.0
ROSE LAKE				
T. P. 1012	48 05 58.94	123 50	Ref. Mon. 1173	9.7
	90 29 43.83	217 20	T. P. 1013	246.8
		303 50	Ref. Mon. 1172	7.8
		358 11	T. P. 1011	13.5
T. P. 1013	48 06 05.29	37 20	T. P. 1012	246.8
	90 29 36.60	179 10	Ref. Mon. 1177	188.0
		313 15	T. P. 1014	383.7
		359 10	Ref. Mon. 1174	256.1
T. P. 1014	48 05 56.78	47 22	Ref. Mon. 1176	93.5
	90 29 23.09	133 15	T. P. 1013	383.7
		227 22	Ref. Mon. 1181	104.0
		268 25	T. P. 1015	235.0
T. P. 1015	48 05 56.99	88 25	T. P. 1014	235.0
	90 29 11.74	111 59	Ref. Mon. 1181	170.8
		243 28	T. P. 1016	258.8
		291 59	Ref. Mon. 1178	151.8
T. P. 1016	48 06 00.73	27 47	Ref. Mon. 1178	194.9
	90 29 00.55	63 28	T. P. 1015	258.8
		207 47	Ref. Mon. 1183	297.8
		229 53	T. P. 1017	328.3
T. P. 1017	48 06 07.58	49 53	T. P. 1016	328.3
	90 28 48.41	114 50	Ref. Mon. 1183	123.7
		208 14	T. P. 1018	410.2
		294 50	Ref. Mon. 1180	102.7
T. P. 1018	48 06 19.28	28 14	T. P. 1017	410.2
	90 28 39.03	145 15	Ref. Mon. 1185	116.6
		261 04	T. P. 1019	480.3
		325 15	Ref. Mon. 1182	159.1
T. P. 1019	48 06 21.69	81 04	T. P. 1018	480.3
	90 28 16.10	171 26	Ref. Mon. 1187	150.7
		222 19	T. P. 1020	425.5
		351 26	Ref. Mon. 1184	132.8
T. P. 1020	48 06 31.88	6 02	Ref. Mon. 1186	132.1
	90 28 02.25	42 19	T. P. 1019	425.5
		186 02	Ref. Mon. 1189	107.5
		277 09	T. P. 1021	156.6
T. P. 1021	48 06 31.25	56 32	Ref. Mon. 1186	202.9
	90 27 54.74	97 09	T. P. 1020	156.6
		236 32	Ref. Mon. 1191	115.9
		312 53	T. P. 1022	336.8
T. P. 1022	48 06 23.83	35 55	Ref. Mon. 1188	81.8
	90 27 42.81	132 53	T. P. 1021	336.8
		215 55	Ref. Mon. 1193	88.2
		282 28	T. P. 1023	741.2
T. P. 1023	48 06 18.65	11 19	Ref. Mon. 1190	148.8
	90 27 07.83	102 29	T. P. 1022	741.2
		191 19	Ref. Mon. 1195	137.0
		296 29	T. P. 1024	402.3
T. P. 1024	48 06 12.84	94 56	Ref. Mon. 1190	390.7
	90 26 50.42	116 29	T. P. 1023	402.3
		274 56	Ref. Mon. 1197	230.7
		316 00	T. P. 1025	437.6
T. P. 1025	48 06 02.65	31 24	Ref. Mon. 1192	260.4
	90 26 35.73	136 00	T. P. 1024	437.6
		211 24	Ref. Mon. 1199	252.9
		300 37	T. P. 1026	424.6
ROSE LAKE—Continued				
T. P. 1026	48 05 55.64	120 37	T. P. 1025	424.6
	90 26 18.07	151 36	Ref. Mon. 1199	491.2
		251 05	T. P. 1027	2,187.5
		331 36	Ref. Mon. 1194	515.7
T. P. 1027	48 06 18.59	20 28	Ref. Mon. 1196	479.3
	90 24 38.04	71 06	T. P. 1026	2,187.5
		200 28	Ref. Mon. 1203	253.3
		269 29	T. P. 1028	559.2
T. P. 1028	48 06 18.75	39 57	Ref. Mon. 1198	436.6
	90 24 11.01	89 29	T. P. 1027	559.2
		219 57	Ref. Mon. 1205	433.5
		309 09	T. P. 1029	485.4
LONG PORTAGE STREAM				
T. P. 1029	48 06 08.83	46 37	Ref. Mon. 1200	55.7
	90 23 52.82	129 09	T. P. 1028	485.4
		226 37	Ref. Mon. 1207	20.4
		293 31	T. P. 1030	9.1
T. P. 1030	48 06 08.71	113 31	T. P. 1029	9.1
	90 23 52.41	266 44	T. P. 1031	16.6
T. P. 1031	48 06 08.74	86 44	T. P. 1030	16.6
	90 23 51.61	294 34	T. P. 1032	25.3
T. P. 1032	48 06 08.40	114 34	T. P. 1031	25.3
	90 23 50.50	253 59	T. P. 1033	19.9
T. P. 1033	48 06 08.58	73 59	T. P. 1032	19.9
	90 23 49.57	315 30	T. P. 1034	18.7
T. P. 1034	48 06 08.15	135 30	T. P. 1033	18.7
	90 23 48.94	294 43	T. P. 1035	27.2
T. P. 1035	48 06 07.78	114 43	T. P. 1034	27.2
	90 23 47.75	313 48	T. P. 1036	35.9
T. P. 1036	48 06 06.98	133 48	T. P. 1035	35.9
	90 23 46.50	1 32	T. P. 1037	6.9
T. P. 1037	48 06 06.75	181 32	T. P. 1036	6.9
	90 23 46.50	316 02	T. P. 1038	23.3
T. P. 1038	48 06 06.21	136 02	T. P. 1037	23.3
	90 23 45.72	29 54	T. P. 1039	26.5
T. P. 1039	48 06 05.47	209 54	T. P. 1038	26.5
	90 23 46.36	316 26	T. P. 1040	13.4
T. P. 1040	48 06 05.15	136 26	T. P. 1039	13.4
	90 23 45.91	272 54	T. P. 1041	18.4
T. P. 1041	48 06 05.12	92 54	T. P. 1040	18.4
	90 23 45.02	311 38	T. P. 1042	25.3
T. P. 1042	48 06 04.58	131 38	T. P. 1041	25.3
	90 23 44.11	279 58	T. P. 1043	32.1
T. P. 1043	48 06 04.40	99 58	T. P. 1042	32.1
	90 23 42.58	254 56	T. P. 1044	18.7
T. P. 1044	48 06 04.56	74 56	T. P. 1043	18.7
	90 23 41.71	298 56	T. P. 1045	35.6
T. P. 1045	48 06 04.00	118 56	T. P. 1044	35.6
	90 23 40.20	296 49	T. P. 1046	17.8
T. P. 1046	48 06 03.74	116 49	T. P. 1045	17.8
	90 23 39.44	329 22	T. P. 1047	16.8
T. P. 1047	48 06 03.27	149 22	T. P. 1046	16.8
	90 23 39.02	312 50	T. P. 1048	37.7
T. P. 1048	48 06 02.44	132 50	T. P. 1047	37.7
	90 23 37.69	307 39	T. P. 1049	43.7
T. P. 1049	48 06 01.58	127 39	T. P. 1048	43.7
	90 23 36.02	309 30	T. P. 1050	18.5
T. P. 1050	48 06 01.20	129 30	T. P. 1049	18.5
	90 23 35.32	246 10	T. P. 1051	11.8
T. P. 1051	48 06 01.35	66 10	T. P. 1050	11.8
	90 23 34.80	281 44	T. P. 1052	23.7
T. P. 1052	48 06 01.20	101 44	T. P. 1051	23.7
	90 23 33.68	245 53	T. P. 1053	13.0

BOUNDARY TURNING POINTS—CURTAIN FALLS TO PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
LONG PORTAGE STREAM—Con.	° ′ ″	° ′		
T. P. 1053	48 06 01.37 90 23 33.11	65 53 255 45	T. P. 1052 T. P. 1054	13.0 21.0
T. P. 1054	48 06 01.54 90 23 32.12	75 45 266 01	T. P. 1053 T. P. 1055	21.0 25.2
T. P. 1055	48 06 01.59 90 23 30.91	86 01 273 03	T. P. 1054 T. P. 1056	25.2 27.3
T. P. 1056	48 06 01.55 90 23 29.59	93 03 311 23	T. P. 1055 T. P. 1057	27.3 19.4
T. P. 1057	48 06 01.13 90 23 28.89	131 23 285 50	T. P. 1056 T. P. 1058	19.4 31.5
T. P. 1058	48 06 00.86 90 23 27.42	105 50 279 14	T. P. 1057 T. P. 1059	31.5 26.6
T. P. 1059	48 06 00.72 90 23 26.16	99 14 297 03	T. P. 1058 T. P. 1060	26.6 16.3
T. P. 1060	48 06 00.48 90 23 25.46	117 03 264 47	T. P. 1059 T. P. 1061	16.3 28.6
T. P. 1061	48 06 00.56 90 23 24.08	84 47 340 46	T. P. 1060 T. P. 1062	28.6 3.4
T. P. 1062	48 06 00.46 90 23 24.03	160 46 306 36	T. P. 1061 T. P. 1063	3.4 21.0
T. P. 1063	48 06 00.05 90 23 23.21	126 36 329 56	T. P. 1062 T. P. 1064	21.0 45.1
T. P. 1064	48 05 58.79 90 23 22.12	149 56 297 06	T. P. 1063 T. P. 1065	45.1 20.3
T. P. 1065	48 05 58.49 90 23 21.24	117 06 322 12	T. P. 1064 T. P. 1066	20.3 34.7
T. P. 1066	48 05 57.60 90 23 20.22	142 12 315 32	T. P. 1065 T. P. 1067	34.7 26.5
T. P. 1067	48 05 56.99 90 23 19.32	135 32 334 38	T. P. 1066 T. P. 1068	26.5 31.2
T. P. 1068	48 05 56.08 90 23 18.67	154 38 305 57	T. P. 1067 T. P. 1069	31.2 45.2
T. P. 1069	48 05 55.22 90 23 16.90	125 57 287 25	T. P. 1068 T. P. 1070	45.2 33.4
T. P. 1070	48 05 54.89 90 23 15.36	107 25 262 55	T. P. 1069 T. P. 1071	33.4 19.5
T. P. 1071	48 05 54.97 90 23 14.43	82 55 306 33	T. P. 1070 T. P. 1072	19.5 12.0
T. P. 1072	48 05 54.74 90 23 13.96	126 33 297 15	T. P. 1071 T. P. 1073	12.0 71.7
T. P. 1073	48 05 53.68 90 23 10.88	117 15 265 36	T. P. 1072 T. P. 1074	71.7 18.2
T. P. 1074	48 05 53.73 90 23 10.00	85 36 351 59	T. P. 1073 T. P. 1075	18.2 58.4
T. P. 1075	48 05 51.85 90 23 09.61	171 59 344 47	T. P. 1074 T. P. 1076	58.4 33.0
T. P. 1076	48 05 50.82 90 23 09.19	164 47 14 07	T. P. 1075 T. P. 1077	33.0 13.8
T. P. 1077	48 05 50.39 90 23 09.35	194 07 340 07	T. P. 1076 T. P. 1078	13.8 43.3
T. P. 1078	48 05 49.07 90 23 08.64	160 07 359 33	T. P. 1077 T. P. 1079	43.3 43.0
T. P. 1079	48 05 47.68 90 23 08.63	179 33 348 38	T. P. 1078 T. P. 1080	43.0 25.2
T. P. 1080	48 05 46.88 90 23 08.39	168 38 346 58	T. P. 1079 T. P. 1081	25.2 34.3
T. P. 1081	48 05 45.80 90 23 08.01	166 58 335 29	T. P. 1080 T. P. 1082	34.3 65.4
T. P. 1082	48 05 43.87 90 23 06.70	155 29 329 54	T. P. 1081 T. P. 1083	65.4 26.2
T. P. 1083	48 05 43.14 90 23 06.06	149 54 338 03	T. P. 1082 T. P. 1084	26.2 42.9
T. P. 1084	48 05 41.85 90 23 05.29	158 03 326 33	T. P. 1083 T. P. 1085	42.9 23.5
T. P. 1085	48 05 41.22 90 23 04.66	146 33 293 53	T. P. 1084 T. P. 1086	23.5 62.9
T. P. 1086	48 05 40.39 90 23 01.88	113 53 327 14	T. P. 1085 T. P. 1087	62.9 35.7
T. P. 1087	48 05 39.42 90 23 00.95	147 14 314 48	T. P. 1086 T. P. 1088	35.7 80.9
T. P. 1088	48 05 37.58 90 22 58.17	134 48 332 59	T. P. 1087 T. P. 1089	80.9 21.8
T. P. 1089	48 05 36.95 90 22 57.70	152 59 303 38	T. P. 1088 T. P. 1090	21.8 52.7
T. P. 1090	48 05 36.00 90 22 55.58	123 38 327 28	T. P. 1089 T. P. 1091	52.7 30.1
T. P. 1091	48 05 35.18 90 22 54.79	147 28 261 17 285 32 341 01	T. P. 1090 Ref. Mon. 1209 T. P. 1092 Ref. Mon. 1202	30.1 19.6 67.4 29.1
T. P. 1092	48 05 34.60 90 22 51.66	80 18 105 32 114 47 298 25	Ref. Mon. 1202 T. P. 1091 Ref. Mon. 1209 T. P. 1093	56.2 67.4 50.1 41.7
T. P. 1093	48 05 33.96 90 22 49.89	118 25 309 27	T. P. 1092 T. P. 1094	41.7 24.8
T. P. 1094	48 05 33.45 90 22 48.96	129 27 297 19	T. P. 1093 T. P. 1095	24.8 45.3
T. P. 1095	48 05 32.78 90 22 47.02	117 19 271 46	T. P. 1094 T. P. 1096	45.3 24.7
T. P. 1096	48 05 32.75 90 22 45.82	91 46 282 08	T. P. 1095 T. P. 1097	24.7 45.6
T. P. 1097	48 05 32.44 90 22 43.67	102 08 255 11	T. P. 1096 T. P. 1098	45.6 31.7
T. P. 1098	48 05 32.70 90 22 42.19	75 11 263 04	T. P. 1097 T. P. 1099	31.7 13.3
T. P. 1099	48 05 32.76 90 22 41.55	83 04 248 04	T. P. 1098 T. P. 1100	13.3 20.8
T. P. 1100	48 05 33.01 90 22 40.61	68 04 292 33	T. P. 1099 T. P. 1101	20.8 35.9
T. P. 1101	48 05 32.56 90 22 39.01	112 33 307 50	T. P. 1100 T. P. 1102	35.9 60.6
T. P. 1102	48 05 31.36 90 22 36.70	127 50 303 38	T. P. 1101 T. P. 1103	60.6 47.2
T. P. 1103	48 05 30.51 90 22 34.80	123 38 312 34	T. P. 1102 T. P. 1104	47.2 19.0
T. P. 1104	48 05 30.10 90 22 34.12	132 34 322 46	T. P. 1103 T. P. 1105	19.0 16.4
T. P. 1105	48 05 29.68 90 22 33.64	142 46 298 31	T. P. 1104 T. P. 1106	16.4 52.8
T. P. 1106	48 05 28.86 90 22 31.40	118 31 300 30	T. P. 1105 T. P. 1107	52.8 61.9
T. P. 1107	48 05 27.84 90 22 28.82	120 30 276 54	T. P. 1106 T. P. 1108	61.9 36.0
T. P. 1108	48 05 27.70 90 22 27.09	96 54 222 37	T. P. 1107 T. P. 1109	36.0 11.7
T. P. 1109	48 05 27.98 90 22 26.71	42 37 261 28	T. P. 1108 T. P. 1110	11.7 31.2
T. P. 1110	48 05 28.13 90 22 25.22	81 28 301 04	T. P. 1109 T. P. 1111	31.2 15.7
T. P. 1111	48 05 27.87 90 22 24.57	121 04 237 59	T. P. 1110 T. P. 1112	15.7 27.1
T. P. 1112	48 05 28.33 90 22 23.46	57 59 246 15	T. P. 1111 T. P. 1113	27.1 45.7
T. P. 1113	48 05 28.93 90 22 21.44	66 15 186 15	T. P. 1112 T. P. 1114	45.7 34.3

BOUNDARY TURNING POINTS—CURTAIN FALLS TO PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
LONG PORTAGE STREAM—Con.	° ′ ″	° ′		
T. P. 1114	48 05 30.04	6 15	T. P. 1113	34.3
	90 22 21.26	139 53	T. P. 1115	53.6
T. P. 1115	48 05 31.36	319 53	T. P. 1114	53.6
	90 22 22.93	154 32	T. P. 1116	32.9
T. P. 1116	48 05 32.32	334 32	T. P. 1115	32.9
	90 22 23.62	168 50	T. P. 1117	75.2
T. P. 1117	48 05 34.71	348 50	T. P. 1116	75.2
	90 22 24.32	156 53	T. P. 1118	25.8
T. P. 1118	48 05 35.48	336 53	T. P. 1117	25.8
	90 22 24.81	170 47	T. P. 1119	24.1
T. P. 1119	48 05 36.25	350 47	T. P. 1118	24.1
	90 22 24.99	192 32	T. P. 1120	22.8
T. P. 1120	48 05 36.97	12 32	T. P. 1119	22.8
	90 22 24.76	182 10	T. P. 1121	31.1
T. P. 1121	48 05 37.98	2 10	T. P. 1120	31.1
	90 22 24.70	207 22	T. P. 1122	31.4
T. P. 1122	48 05 38.88	27 22	T. P. 1121	31.4
	90 22 24.00	279 48	T. P. 1123	30.8
T. P. 1123	48 05 38.71	99 48	T. P. 1122	30.8
	90 22 22.54	270 16	T. P. 1124	37.1
T. P. 1124	48 05 38.71	90 16	T. P. 1123	37.1
	90 22 20.75	308 06	T. P. 1125	20.3
T. P. 1125	48 05 38.30	128 06	T. P. 1124	20.3
	90 22 19.98	301 33	T. P. 1126	38.6
T. P. 1126	48 05 37.65	121 33	T. P. 1125	38.6
	90 22 18.38	330 06	T. P. 1127	11.8
T. P. 1127	48 05 37.32	150 06	T. P. 1126	11.8
	90 22 18.10	274 41	T. P. 1128	15.0
T. P. 1128	48 05 37.28	94 41	T. P. 1127	15.0
	90 22 17.38	213 56	T. P. 1129	8.8
T. P. 1129	48 05 37.51	33 56	T. P. 1128	8.8
	90 22 17.14	254 04	T. P. 1130	25.0
T. P. 1130	48 05 37.74	74 04	T. P. 1129	25.0
	90 22 15.98	254 33	T. P. 1131	20.5
T. P. 1131	48 05 37.91	74 33	T. P. 1130	20.5
	90 22 15.02	245 54	T. P. 1132	36.2
T. P. 1132	48 05 38.39	65 54	T. P. 1131	36.2
	90 22 13.43	229 31	T. P. 1133	13.3
T. P. 1133	48 05 38.67	49 31	T. P. 1132	13.3
	90 22 12.94	254 31	T. P. 1134	25.7
T. P. 1134	48 05 38.89	74 31	T. P. 1133	25.7
	90 22 11.74	294 53	T. P. 1135	12.3
T. P. 1135	48 05 38.72	114 53	T. P. 1134	12.3
	90 22 11.20	272 28	T. P. 1136	69.0
T. P. 1136	48 05 38.63	40 04	Ref. Mon. 1204	40.3
	90 22 07.87	92 28	T. P. 1135	69.0
		163 23	Ref. Mon. 1211	49.9
		224 24	T. P. 1137	31.3
T. P. 1137	48 05 39.35	42 03	Ref. Mon. 1204	71.4
	90 22 06.81	44 24	T. P. 1136	31.3
		125 15	Ref. Mon. 1211	44.3
		189 52	T. P. 1138	17.1
WATAP LAKE				
T. P. 1138	48 05 39.90	9 52	T. P. 1137	17.1
	90 22 06.67	35 59	Ref. Mon. 1204	86.4
		102 32	Ref. Mon. 1211	40.0
		243 22	T. P. 1139	97.9
T. P. 1139	48 05 41.32	63 22	T. P. 1138	97.9
	90 22 02.45	74 28	Ref. Mon. 1211	131.4
		248 49	Ref. Mon. 1213	170.5
		268 29	T. P. 1140	639.7
T. P. 1140	48 05 41.87	33 50	Ref. Mon. 1206	453.6
	90 21 31.54	88 29	T. P. 1139	639.7
		213 50	Ref. Mon. 1217	119.6
		293 33	T. P. 1141	118.7
WATAP LAKE—Continued	° ′ ″	° ′		
T. P. 1141	48 05 40.33	47 39	Ref. Mon. 1206	488.9
	90 21 26.28	113 33	T. P. 1140	118.7
		227 39	Ref. Mon. 1215	97.4
		256 56	T. P. 1142	273.5
T. P. 1142	48 05 42.33	76 56	T. P. 1141	273.5
	90 21 13.40	105 23	Ref. Mon. 1217	320.2
		279 17	T. P. 1143	140.9
		285 23	Ref. Mon. 1208	137.9
T. P. 1143	48 05 41.60	23 43	Ref. Mon. 1208	15.2
	90 21 06.68	99 17	T. P. 1142	140.9
		203 43	Ref. Mon. 1219	17.8
		281 25	T. P. 1144	433.5
T. P. 1144	48 05 38.69	51 38	Ref. Mon. 1210	93.8
	90 20 45.20	101 25	T. P. 1143	453.5
		231 38	Ref. Mon. 1221	216.7
		253 15	T. P. 1145	130.4
T. P. 1145	48 05 39.91	64 14	Ref. Mon. 1210	220.4
	90 20 39.16	73 15	T. P. 1144	130.4
		233 16	Ref. Mon. 1212	120.1
		237 05	T. P. 1146	37.9
T. P. 1146	48 05 40.58	57 05	T. P. 1145	37.9
	90 20 37.62	63 10	Ref. Mon. 1210	238.1
		231 32	Ref. Mon. 1212	83.2
		243 28	T. P. 1147	24.4
T. P. 1147	48 05 40.93	63 12	Ref. Mon. 1210	282.4
	90 20 36.57	63 28	T. P. 1146	24.4
		191 40	T. P. 1148	30.4
		226 36	Ref. Mon. 1212	58.7
T. P. 1148	48 05 41.89	11 40	T. P. 1147	30.4
	90 20 36.27	157 37	Ref. Mon. 1221	38.9
		219 08	T. P. 1149	16.0
		253 16	Ref. Mon. 1212	38.0
T. P. 1149	48 05 42.29	39 08	T. P. 1148	16.0
	90 20 35.78	133 28	Ref. Mon. 1221	34.3
		202 47	T. P. 1150	65.4
		273 10	Ref. Mon. 1212	26.3
T. P. 1150	48 05 44.24	22 48	T. P. 1149	65.4
	90 20 34.56	53 53	Ref. Mon. 1221	62.2
		233 53	Ref. Mon. 1223	224.4
		259 01	T. P. 1151	375.6
T. P. 1151	48 05 46.55	79 01	T. P. 1150	375.6
	90 20 16.73	107 57	Ref. Mon. 1223	197.0
		191 05	T. P. 1152	166.8
		287 57	Ref. Mon. 1214	83.7
T. P. 1152	48 05 51.85	11 05	T. P. 1151	166.8
	90 20 15.18	123 47	Ref. Mon. 1225	22.9
		193 34	T. P. 1153	223.1
		303 47	Ref. Mon. 1216	16.2
T. P. 1153	48 05 58.87	13 34	T. P. 1152	223.1
	90 20 12.66	129 07	Ref. Mon. 1227	93.6
		239 33	T. P. 1154	594.5
		309 07	Ref. Mon. 1218	93.7
T. P. 1154	48 06 08.62	59 33	T. P. 1153	594.5
	90 19 47.88	158 22	Ref. Mon. 1229	72.8
		258 14	T. P. 1155	323.7
		338 22	Ref. Mon. 1220	329.0
T. P. 1155	48 06 10.76	78 14	T. P. 1154	323.7
	90 19 32.57	90 17	Ref. Mon. 1229	343.7
		256 35	Ref. Mon. 1231	347.8
		268 44	T. P. 1156	249.7
T. P. 1156	48 06 10.94	49 43	Ref. Mon. 1220	583.6
	90 19 20.50	88 44	T. P. 1155	249.7
		229 43	Ref. Mon. 1231	116.3
		256 25	T. P. 1157	388.6
T. P. 1157	48 06 13.90	76 25	T. P. 1156	388.6
	90 19 02.24	168 46	Ref. Mon. 1233	47.8
		239 23	T. P. 1158	300.8
		348 46	Ref. Mon. 1222	47.8
T. P. 1158	48 06 18.86	51 17	Ref. Mon. 1222	319.8
	90 18 49.73	59 23	T. P. 1157	300.8
		142 24	Ref. Mon. 1235	125.2
		260 39	T. P. 1159	291.4
T. P. 1159	48 06 20.39	80 39	T. P. 1158	291.4
	90 18 35.83	98 06	Ref. Mon. 1235	467.7
		278 06	Ref. Mon. 1237	416.7
		278 06	T. P. 1160	320.2

BOUNDARY TURNING POINTS—CURTAIN FALLS TO PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
WATAP LAKE—Continued	° ′ ″	° ′		
T. P. 1160	48 06 18.93	98 07	Ref. Mon. 1235	687.8
	90 18 20.51	98 07	T. P. 1159	320.2
		278 07	Ref. Mon. 1237	96.6
		312 37	T. P. 1161 (Mon.7)	197.5
WATAP PORTAGE				
T.P. 1161(Mon.7)	48 06 14.60	132 37	T. P. 1160	197.5
	90 18 13.49	292 04	T. P. 1162 (Mon. 8)	299.6
T.P. 1162 (Mon.8)	48 06 10.96	112 04	T. P. 1161 (Mon. 7)	299.6
	90 18 00.06	286 26	T. P. 1163 (Mon. 9)	154.5
T.P. 1163 (Mon.9)	48 06 09.54	106 26	T. P. 1162 (Mon. 8)	154.5
	90 17 52.90	315 02	T. P. 1164	556.9
MOUNTAIN LAKE				
T. P. 1164	48 05 56.78	135 02	T. P. 1163 (Mon. 9)	556.9
	90 17 33.88	135 37	Ref. Mon. 1239	546.5
		268 23	T. P. 1165	267.8
		315 37	Ref. Mon. 1224	246.3
T. P. 1165	48 05 57.03	27 28	Ref. Mon. 1224	206.9
	90 17 20.95	88 23	T. P. 1164	267.8
		207 28	Ref. Mon. 1241	185.4
		247 22	T. P. 1166	1,187.6
T. P. 1166	48 06 11.82	67 23	T. P. 1165	1,187.6
	90 16 27.97	156 49	Ref. Mon. 1243	207.2
		268 12	T. P. 1167	750.6
		336 49	Ref. Mon. 1226	249.3
T. P. 1167	48 06 12.59	16 59	Ref. Mon. 1228	314.4
	90 15 51.71	88 12	T. P. 1166	750.6
		196 59	Ref. Mon. 1245	330.8
		285 03	T. P. 1168	286.7
T. P. 1168	48 06 10.18	105 03	T. P. 1167	286.7
	90 15 38.33	155 15	Ref. Mon. 1245	430.4
		275 57	T. P. 1169	518.1
		335 15	Ref. Mon. 1230	307.8
T. P. 1169	48 06 08.44	59 43	Ref. Mon. 1230	447.6
	90 15 13.42	95 57	T. P. 1168	518.1
		239 43	Ref. Mon. 1247	2,207.9
		249 27	T. P. 1170	1,579.6
T. P. 1170	48 06 26.39	37 25	Ref. Mon. 1232	752.6
	90 14 01.93	69 27	T. P. 1169	1,579.6
		217 25	Ref. Mon. 1247	703.6
		260 32	T. P. 1171	663.7
T. P. 1171	48 06 29.92	80 33	T. P. 1170	663.7
	90 13 30.28	153 13	Ref. Mon. 1247	503.7
		286 28	T. P. 1172	674.2
		333 13	Ref. Mon. 1234	473.1
T. P. 1172	48 06 23.73	61 55	Ref. Mon. 1234	491.2
	90 12 59.03	106 28	T. P. 1171	674.2
		241 55	Ref. Mon. 1249	445.2
		272 27	T. P. 1173	433.1
T. P. 1173	48 06 23.13	92 27	T. P. 1172	433.1
	90 12 38.12	170 05	Ref. Mon. 1249	231.6
		259 19	T. P. 1174	1,186.2
		350 05	Ref. Mon. 1236	238.6
T. P. 1174	48 06 30.25	79 20	T. P. 1173	1,186.2
	90 11 41.77	152 34	Ref. Mon. 1251	187.7
		274 08	T. P. 1175	478.3
		332 34	Ref. Mon. 1238	166.1
T. P. 1175	48 06 29.13	94 08	T. P. 1174	478.3
	90 11 18.71	127 11	Ref. Mon. 1253	113.2
		241 47	T. P. 1176	1,025.4
		307 11	Ref. Mon. 1240	72.4
T. P. 1176	48 06 44.83	61 48	T. P. 1175	1,025.4
	90 10 35.03	93 10	Ref. Mon. 1255	467.3
		273 10	Ref. Mon. 1257	880.6
		288 12	T. P. 1177	957.9
T. P. 1177	48 06 35.14	108 13	T. P. 1176	957.9
	90 09 51.04	173 01	Ref. Mon. 1257	252.4
		235 45	T. P. 1178	1,000.2
		353 01	Ref. Mon. 1242	255.4
T. P. 1178	48 06 37.53	40 38	Ref. Mon. 1244	291.9
	90 09 02.82	85 46	T. P. 1177	1,000.2
		220 38	Ref. Mon. 1259	133.9
		255 09	T. P. 1179	283.5
MOUNTAIN LAKE—Con.	° ′ ″	° ′		
T. P. 1179	48 06 39.88	75 09	T. P. 1178	283.5
	90 08 49.57	214 33	Ref. Mon. 1261	23.8
		249 27	T. P. 1180	20.1
		260 20	Ref. Mon. 1246	20.6
T. P. 1180	48 06 40.11	69 27	T. P. 1179	20.1
	90 08 48.66	157 09	Ref. Mon. 1261	13.6
		260 52	T. P. 1181	21.4
		337 09	Ref. Mon. 1246	3.9
T. P. 1181	48 06 40.22	70 47	Ref. Mon. 1246	20.8
	90 08 47.64	80 52	T. P. 1180	21.4
		109 21	Ref. Mon. 1261	28.0
		237 21	T. P. 1182	30.8
T. P. 1182	48 06 40.76	57 21	T. P. 1181	30.8
	90 08 46.39	237 54	T. P. 1183	34.5
T. P. 1183	48 06 41.35	57 54	T. P. 1182	34.5
	90 08 44.97	228 27	T. P. 1184	18.9
T. P. 1184	48 06 41.76	48 27	T. P. 1183	18.9
	90 08 44.29	287 34	T. P. 1185	11.5
T. P. 1185	48 06 41.65	107 34	T. P. 1184	11.5
	90 08 43.76	246 56	T. P. 1186	16.5
T. P. 1186	48 06 41.86	66 56	T. P. 1185	16.5
	90 08 43.02	256 25	T. P. 1187	31.5
T. P. 1187	48 06 42.10	76 25	T. P. 1186	31.5
	90 08 41.54	228 56	T. P. 1188	16.2
T. P. 1188	48 06 42.44	48 56	T. P. 1187	16.2
	90 08 40.96	213 42	T. P. 1189	34.6
T. P. 1189	48 06 43.37	33 42	T. P. 1188	34.6
	90 08 40.03	195 33	T. P. 1190	15.2
T. P. 1190	48 06 43.84	15 33	T. P. 1189	15.2
	90 08 39.83	189 04	T. P. 1191	8.6
T. P. 1191	48 06 44.12	9 04	T. P. 1190	8.6
	90 08 39.76	242 22	T. P. 1192	9.5
T. P. 1192	48 06 44.26	62 22	T. P. 1191	9.5
	90 08 39.36	194 53	T. P. 1193	41.3
T. P. 1193	48 06 45.56	14 53	T. P. 1192	41.3
	90 08 38.85	255 19	T. P. 1194	13.9
T. P. 1194	48 06 45.67	75 19	T. P. 1193	13.9
	90 08 38.20	291 48	T. P. 1195	40.6
T. P. 1195	48 06 45.18	111 48	T. P. 1194	40.6
	90 08 36.38	213 49	Ref. Mon. 1263	13.3
		253 41	T. P. 1196	18.3
		261 19	Ref. Mon. 1248	9.0
T. P. 1196	48 06 45.35	67 08	Ref. Mon. 1248	9.4
	90 08 35.53	73 41	T. P. 1195	18.3
		120 59	Ref. Mon. 1263	11.8
		273 22	T. P. 1197	41.0
T. P. 1197	48 06 45.27	88 34	Ref. Mon. 1248	49.6
	90 08 33.55	93 22	T. P. 1196	41.0
		268 34	Ref. Mon. 1265	312.7
		268 34	T. P. 1198	142.8
T. P. 1198	48 06 45.38	88 34	Ref. Mon. 1248	192.4
	90 08 26.65	88 34	T. P. 1197	142.8
		268 34	Ref. Mon. 1265	169.9
		281 34	T. P. 1199	154.6
T. P. 1199	48 06 44.38	27 32	Ref. Mon. 1250	34.2
	90 08 19.33	101 34	T. P. 1198	154.6
		207 32	Ref. Mon. 1265	39.8
		276 25	T. P. 1200	23.2
T. P. 1200	48 06 44.29	54 21	Ref. Mon. 1250	47.9
	90 08 18.21	96 25	T. P. 1199	23.2
		172 54	Ref. Mon. 1265	38.0
		279 47	T. P. 1201	40.5
T. P. 1201	48 06 44.07	99 47	T. P. 1200	40.5
	90 08 16.28	292 34	T. P. 1202	12.2
T. P. 1202	48 06 43.92	112 34	T. P. 1201	12.2
	90 08 15.74	249 30	T. P. 1203	18.2
T. P. 1203	48 06 44.12	69 30	T. P. 1202	18.2
	90 08 14.91	286 41	T. P. 1204	15.0

BOUNDARY TURNING POINTS—CURTAIN FALLS TO PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
MOUNTAIN LAKE—Contd.	° ′ ″	° ′		
T. P. 1204	48 06 43.98 90 08 14.22	106 41 253 49	T. P. 1203 T. P. 1205	15.0 24.0
T. P. 1205	48 06 44.20 90 08 13.10	73 49 266 25	T. P. 1204 T. P. 1206	24.0 23.9
T. P. 1206	48 06 44.25 90 08 11.95	86 25 303 37	T. P. 1205 T. P. 1207	23.9 30.1
T. P. 1207	48 06 43.71 90 08 10.73	123 37 268 45	T. P. 1206 T. P. 1208	30.1 22.5
T. P. 1208	48 06 43.73 90 08 09.65	88 45 241 53	T. P. 1207 T. P. 1209	22.5 26.6
T. P. 1209	48 06 44.13 90 08 08.51	61 53 299 18	T. P. 1208 T. P. 1210	26.6 13.5
T. P. 1210	48 06 43.92 90 08 07.95	15 37 119 18 176 22 283 11	Ref. Mon. 1252 T. P. 1209 Ref. Mon. 1267 T. P. 1211	14.4 13.5 24.5 234.5
T. P. 1211	48 06 42.19 90 07 56.91	103 11 146 02 317 33 326 02	T. P. 1210 Ref. Mon. 1269 T. P. 1212 Ref. Mon. 1254	234.5 104.4 163.4 175.2
T. P. 1212	48 06 38.28 90 07 51.58	26 31 137 33 206 31 301 09	Ref. Mon. 1254 T. P. 1211 Ref. Mon. 1271 T. P. 1213	27.7 163.4 33.2 58.5
T. P. 1213	48 06 37.30 90 07 49.15	121 09 349 12	T. P. 1212 T. P. 1214	58.5 27.2
T. P. 1214	48 06 36.44 90 07 48.91	169 12 266 14	T. P. 1213 T. P. 1215	27.2 26.9
T. P. 1215	48 06 36.50 90 07 47.61	86 14 319 53	T. P. 1214 T. P. 1216	26.9 27.4
T. P. 1216	48 06 35.82 90 07 46.76	139 53 279 51	T. P. 1215 T. P. 1217	27.4 24.1
T. P. 1217	48 06 35.68 90 07 45.61	99 51 333 15	T. P. 1216 T. P. 1218	24.1 15.7
T. P. 1218	48 06 35.23 90 07 45.27	153 15 40 24	T. P. 1217 T. P. 1219	15.7 28.1
T. P. 1219	48 06 34.54 90 07 46.15	220 24 355 28	T. P. 1218 T. P. 1220	28.1 13.0
T. P. 1220	48 06 34.12 90 07 46.10	175 28 331 57	T. P. 1219 T. P. 1221	13.0 11.1
T. P. 1221	48 06 33.80 90 07 45.85	151 57 336 35	T. P. 1220 T. P. 1222	11.1 15.4
T. P. 1222	48 06 33.34 90 07 45.55	156 35 265 40	T. P. 1221 T. P. 1223	15.4 5.3
T. P. 1223	48 06 33.36 90 07 45.30	85 40 295 12	T. P. 1222 T. P. 1224	5.3 21.5
T. P. 1224	48 06 33.06 90 07 44.35	115 12 319 21	T. P. 1223 T. P. 1225	21.5 21.9
T. P. 1225	48 06 32.52 90 07 43.66	139 21 348 59	T. P. 1224 T. P. 1226	21.9 19.4
T. P. 1226	48 06 31.90 90 07 43.48	168 59 306 42	T. P. 1225 T. P. 1227	19.4 18.6
T. P. 1227	48 06 31.54 90 07 42.76	126 42 303 10	T. P. 1226 T. P. 1228	18.6 16.0
T. P. 1228	48 06 31.26 90 07 42.11	123 10 338 06	T. P. 1227 T. P. 1229	16.0 15.5
T. P. 1229	48 06 30.79 90 07 41.83	158 06 306 14	T. P. 1228 T. P. 1230	15.5 25.1
T. P. 1230	48 06 30.31 90 07 40.85	126 14 277 47	T. P. 1229 T. P. 1231	25.1 15.6
T. P. 1231	48 06 30.24 90 07 40.11	97 47 318 20	T. P. 1230 T. P. 1232	15.6 20.4
T. P. 1232	48 06 29.75 90 07 39.45	138 20 297 46	T. P. 1231 T. P. 1233	20.4 24.5
T. P. 1233	48 06 29.38 90 07 38.40	117 46 302 56	T. P. 1232 T. P. 1234	24.5 17.7
T. P. 1234	48 06 29.07 90 07 37.68	122 56 242 33	T. P. 1233 T. P. 1235	17.7 26.4
T. P. 1235	48 06 29.46 90 07 36.55	62 33 271 58	T. P. 1234 T. P. 1236	26.4 28.7
T. P. 1236	48 06 29.43 90 07 35.17	91 58 310 22	T. P. 1235 T. P. 1237	28.7 17.0
T. P. 1237	48 06 29.08 90 07 34.54	130 22 238 32	T. P. 1236 T. P. 1238	17.0 8.2
T. P. 1238	48 06 29.21 90 07 34.20	58 32 283 24	T. P. 1237 T. P. 1239	8.2 19.9
T. P. 1239	48 06 29.06 90 07 33.27	103 24 265 20	T. P. 1238 T. P. 1240	19.9 19.5
T. P. 1240	48 06 29.12 90 07 32.33	85 20 309 52	T. P. 1239 T. P. 1241	19.5 16.4
T. P. 1241	48 06 28.77 90 07 31.72	129 52 332 08	T. P. 1240 T. P. 1242	16.4 17.0
T. P. 1242	48 06 28.29 90 07 31.34	152 08 341 47	T. P. 1241 T. P. 1243	17.0 9.0
T. P. 1243	48 06 28.01 90 07 31.20	161 47 310 20	T. P. 1242 T. P. 1244	9.0 13.8
T. P. 1244	48 06 27.72 90 07 30.69	130 20 350 24	T. P. 1243 T. P. 1245	13.8 11.6
T. P. 1245	48 06 27.35 90 07 30.60	170 24 306 56	T. P. 1244 T. P. 1246	11.6 8.2
T. P. 1246	48 06 27.20 90 07 30.28	126 56 281 10	T. P. 1245 T. P. 1247	8.2 15.6
T. P. 1247	48 06 27.10 90 07 29.54	101 10 277 16	T. P. 1246 T. P. 1248	15.6 17.2
T. P. 1248	48 06 27.03 90 07 28.71	97 16 323 20	T. P. 1247 T. P. 1249	17.2 9.1
T. P. 1249	48 06 26.79 90 07 28.45	143 20 289 09	T. P. 1248 T. P. 1250	9.1 11.4
T. P. 1250	48 06 26.67 90 07 27.93	109 09 276 35	T. P. 1249 T. P. 1251	11.4 27.0
T. P. 1251	48 06 26.57 90 07 26.63	96 35 274 48	T. P. 1250 T. P. 1252	27.0 11.7
T. P. 1252	48 06 26.54 90 07 26.07	94 48 286 49	T. P. 1251 T. P. 1253	11.7 16.4
T. P. 1253	48 06 26.38 90 07 25.31	106 49 282 18	T. P. 1252 T. P. 1254	16.4 12.4
T. P. 1254	48 06 26.30 90 07 24.73	102 18 0 31	T. P. 1253 T. P. 1255	12.4 8.6
T. P. 1255	48 06 26.02 90 07 24.73	180 31 332 32	T. P. 1254 T. P. 1256	8.6 6.5
T. P. 1256	48 06 25.83 90 07 24.59	152 32 301 07	T. P. 1255 T. P. 1257	6.5 15.4
T. P. 1257	48 06 25.57 90 07 23.95	59 56 121 07 276 21 350 28	Ref. Mon. 1256 T. P. 1256 Ref. Mon. 1273 T. P. 1258	8.8 15.4 12.0 11.3
MOOSE LAKE				
T. P. 1258	48 06 25.21 90 07 23.86	124 04 170 28 226 09 333 15	Ref. Mon. 1256 T. P. 1257 Ref. Mon. 1273 T. P. 1259	11.6 11.3 14.0 156.2
T. P. 1259	48 06 20.70 90 07 20.46	153 15 158 01 289 37 338 01	T. P. 1258 Ref. Mon. 1273 T. P. 1260 Ref. Mon. 1258	156.2 160.8 510.4 347.7
T. P. 1260	48 06 15.16 90 06 57.23	66 42 109 37 246 42 268 28	Ref. Mon. 1258 T. P. 1259 Ref. Mon. 1275 T. P. 1261	381.8 510.4 401.2 1,816.3

BOUNDARY TURNING POINTS—CURTAIN FALLS TO PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
MOOSE LAKE—Continued	° ′ ″	° ′		
T. P. 1261	48 06 16.73	50 23	Ref. Mon. 1260	347.9
	90 05 29.46	88 29	T. P. 1260	1,816.3
		230 23	Ref. Mon. 1277	307.9
		286 06	T. P. 1262	1,356.2
T. P. 1262	48 06 04.54	95 37	Ref. Mon. 1260	1,578.6
	90 04 26.48	106 07	T. P. 1261	1,356.2
		275 37	Ref. Mon. 1279	734.3
		298 15	T. P. 1263	649.2
T. P. 1263	48 05 54.59	34 03	Ref. Mon. 1262	284.0
	90 03 58.84	118 16	T. P. 1262	649.2
		214 03	Ref. Mon. 1279	284.0
		289 15	T. P. 1264	707.1
T. P. 1264	48 05 47.05	109 15	T. P. 1263	707.1
	90 03 26.58	132 39	Ref. Mon. 1279	691.5
		308 35	T. P. 1265	686.8
		312 39	Ref. Mon. 1264	701.5
T. P. 1265	48 05 33.18	23 59	Ref. Mon. 1264	51.3
	90 03 00.64	128 35	T. P. 1264	686.8
		203 59	Ref. Mon. 1281	134.5
		296 06	T. P. 1266	71.5
T. P. 1266	48 05 32.16	116 06	T. P. 1265	71.5
	90 02 57.53	312 34	T. P. 1267	62.9
T. P. 1267	48 05 30.78	132 34	T. P. 1266	62.9
	90 02 55.29	270 50	T. P. 1268	17.0
T. P. 1268	48 05 30.77	90 50	T. P. 1267	17.0
	90 02 54.47	259 09	T. P. 1269	16.4
T. P. 1269	48 05 30.87	79 09	T. P. 1268	16.4
	90 02 53.70	309 16	T. P. 1270	13.0
T. P. 1270	48 05 30.61	129 16	T. P. 1269	13.0
	90 02 53.21	313 22	T. P. 1271	12.6
T. P. 1271	48 05 30.33	133 22	T. P. 1270	12.6
	90 02 52.77	276 33	T. P. 1272	50.3
T. P. 1272	48 05 30.14	96 33	T. P. 1271	50.3
	90 02 50.35	277 55	T. P. 1273	58.5
T. P. 1273	48 05 29.88	97 55	T. P. 1272	58.5
	90 02 47.55	258 05	T. P. 1274	30.9
T. P. 1274	48 05 30.09	78 05	T. P. 1273	30.9
	90 02 46.10	294 30	T. P. 1275	39.7
T. P. 1275	48 05 29.55	114 30	T. P. 1274	39.7
	90 02 44.35	314 55	T. P. 1276	26.0
T. P. 1276	48 05 28.96	134 55	T. P. 1275	26.0
	90 02 43.46	352 58	T. P. 1277	34.5
T. P. 1277	48 05 27.85	172 58	T. P. 1276	34.5
	90 02 43.26	328 12	T. P. 1278	15.8
T. P. 1278	48 05 27.42	148 12	T. P. 1277	15.8
	90 02 42.85	296 05	T. P. 1279	9.7
T. P. 1279	48 05 27.28	116 05	T. P. 1278	9.7
	90 02 42.43	282 10	T. P. 1280	14.8
T. P. 1280	48 05 27.18	102 10	T. P. 1279	14.8
	90 02 41.74	290 35	T. P. 1281	27.9
T. P. 1281	48 05 26.86	110 35	T. P. 1280	27.9
	90 02 40.48	295 21	T. P. 1282	37.0
T. P. 1282	48 05 26.35	115 21	T. P. 1281	37.0
	90 02 38.86	289 17	T. P. 1283	74.8
T. P. 1283	48 05 25.55	109 17	T. P 1282	74.8
	90 02 35.45	234 20	Ref. Mon. 1283	45.1
		315 06	T. P. 1284	57.4
		326 01	Ref. Mon. 1266	202.7
NORTH FOWL LAKE				
T. P. 1284	48 05 24.23	135 06	T. P. 1283	57.4
	90 02 33.49	176 40	Ref. Mon. 1283	67.1
		282 17	T. P. 1285	25.2
		330 16	Ref. Mon. 1266	146.8
T. P. 1285	48 05 24.06	102 17	T. P. 1284	25.2
	90 02 32.30	158 28	Ref. Mon. 1283	77.8
		313 07	T. P. 1286	103.9
		338 28	Ref. Mon. 1266	131.2
NORTH FOWL LAKE—Contd.	° ′ ″	° ′		
T. P. 1286	48 05 21.76	28 30	Ref. Mon. 1266	58.1
	90 02 28.63	133 07	T. P. 1285	103.9
		208 30	Ref. Mon. 1285	414.4
		247 58	T. P. 1287	185.1
T. P. 1287	48 05 24.00	58 51	Ref. Mon. 1266	232.9
	90 02 20.34	67 58	T. P. 1286	185.1
		185 04	Ref. Mon. 1285	295.9
		311 31	T. P. 1288	108.0
T. P. 1288	48 05 21.69	131 31	T. P. 1287	108.0
	90 02 16.43	171 30	Ref. Mon. 1285	370.4
		287 23	T. P. 1289	672.8
		351 30	Ref. Mon. 1268	260.6
T. P. 1289	48 05 15.18	38 30	Ref. Mon. 1270	340.1
	90 01 45.40	107 23	T. P. 1288	672.8
		218 30	Ref. Mon. 1287	394.1
		304 21	T. P. 1290	544.5
T. P. 1290	48 05 05.23	93 34	Ref. Mon. 1270	662.5
	90 01 23.68	124 22	T. P. 1289	544.5
		273 34	Ref. Mon. 1289	1,766.1
		346 35	T. P. 1291	1,463.3
T. P. 1291	48 04 19.15	91 16	Ref. Mon. 1274	326.5
	90 01 07.29	166 35	T. P. 1290	1,463.3
		271 16	Ref. Mon. 1293	322.5
		331 16	T. P. 1292	610.3
T. P. 1292	48 04 01.82	49 14	Ref. Mon. 1276	206.6
	90 00 53.12	151 16	T. P. 1291	610.3
		229 14	Ref. Mon. 1295	671.3
		253 36	T. P. 1293	313.0
SOUTH FOWL LAKE				
T. P. 1293	48 04 04.68	63 57	Ref. Mon. 1276	508.4
	90 00 38.61	73 36	T. P. 1292	313.0
		211 20	T. P. 1294	138.2
		343 09	Ref. Mon. 1278	303.3
T. P. 1294	48 04 08.50	31 20	T. P. 1293	138.2
	90 00 35.14	133 10	Ref. Mon. 1293	470.3
		300 48	T. P. 1295	97.0
		313 10	Ref. Mon. 1299	812.5
T. P. 1295	48 04 06.90	10 38	Ref. Mon. 1278	364.8
	90 00 31.11	120 48	T. P. 1294	97.0
		190 38	Ref. Mon. 1295	286.6
		325 57	T. P. 1296	197.9
T. P. 1296	48 04 01.58	42 30	Ref. Mon. 1278	263.8
	90 00 25.76	145 57	T. P. 1295	197.9
		222 30	Ref. Mon. 1297	102.3
		341 00	T. P. 1297	185.8
T. P. 1297	48 03 55.90	85 29	Ref. Mon. 1278	239.5
	90 00 22.84	161 00	T. P. 1296	185.8
		181 58	Ref. Mon. 1297	251.3
		280 33	T. P. 1298	151.6
T. P. 1298	48 03 55.00	5 05	T. P. 1299	88.6
	90 00 15.64	91 19	Ref. Mon. 1278	387.9
		100 33	T. P. 1297	151.6
		306 17	Ref. Mon. 1299	234.3
T. P. 1299	48 03 52.14	104 22	Ref. Mon. 1278	392.2
	90 00 16.02	185 05	T. P. 1298	88.6
		284 22	Ref. Mon. 1299	203.1
		326 30	T. P. 1300	869.3
T. P. 1300	48 03 28.67	41 06	Ref. Mon. 1280	903.4
	89 59 52.84	146 30	T. P. 1299	869.3
		221 06	Ref. Mon. 1301	935.9
		341 41	T. P. 1301	1,010.2
T. P. 1301	48 02 57.62	12 18	T. P. 1302	794.8
	89 59 37.52	106 59	Ref. Mon. 1280	952.8
		161 41	T. P. 1300	1,010.2
		286 28	Ref. Mon. 1303	1,253.2
T. P. 1302	48 02 32.48	6 50	T. P. 1303	230.6
	89 59 45.69	49 38	Ref. Mon. 1282	171.9
		192 18	T. P. 1301	794.8
		229 38	Ref. Mon. 1305	254.1
T. P. 1303	48 02 25.06	186 50	T. P. 1302	230.6
	89 59 47.02	359 46	T. P. 1304	104.2
		138 39	Ref. Mon. 1282	156.7
		318 39	Ref. Mon. 1284	90.1
T. P. 1304	48 02 21.69	179 46	T. P. 1303	104.2
	89 59 47.00	355 23	T. P. 1305	20.1
		91 13	Ref. Mon. 1282-A	14.7
		271 13	Ref. Mon. 1284-A	31.2

GEOGRAPHIC POSITIONS OF BOUNDARY TURNING POINTS DEFINING THE INTERNATIONAL BOUNDARY THROUGH PIGEON RIVER

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
PIGEON RIVER	° ′ ″	° ′		
T. P. 1305	48 02 21.04	175 23	T. P. 1304	20.1
	89 59 46.92	4 54	T. P. 1306	268.2
		141 13	Ref. Mon. 1282–A	26.1
		236 47	Ref. Mon. 1284–A	35.4
T. P. 1306	48 02 12.39	184 54	T. P. 1305	268.2
	89 59 48.02	8 59	T. P. 1307	160.0
T. P. 1307	48 02 07.27	188 59	T. P. 1306	160.0
	89 59 49.23	334 57	T. P. 1308	101.6
		328 03	P. R. T. 309	55.7
T. P. 1308	48 02 04.29	154 57	T. P. 1307	101.6
	89 59 47.16	349 54	T. P. 1309	74.1
		163 12	P. R. T. 309	46.7
T. P. 1309	48 02 01.93	169 54	T. P. 1308	74.1
	89 59 46.53	277 51	T. P. 1310	29.3
		96 48	P. R. T. 270	24.5
T. P. 1310	48 02 01.80	97 51	T. P. 1309	29.3
	89 59 45.13	5 19	T. P. 1311	43.2
		97 23	P. R. T. 270	53.7
T. P. 1311	48 02 00.41	185 18	T. P. 1310	43.2
	89 59 45.32	342 18	T. P. 1312	98.7
T. P. 1312	48 01 57.37	162 18	T. P. 1311	98.7
	89 59 43.87	317 44	T. P. 1313	53.5
T. P. 1313	48 01 56.08	137 44	T. P. 1312	53.5
	89 59 42.13	359 38	T. P. 1314	46.6
T. P. 1314	48 01 54.58	179 38	T. P. 1313	46.6
	89 59 42.13	328 06	T. P. 1315	78.9
T. P. 1315	48 01 52.41	148 06	T. P. 1314	78.9
	89 59 40.10	0 00	T. P. 1316	24.7
T. P. 1316	48 01 51.61	180 00	T. P. 1315	24.7
	89 59 40.10	18 06	T. P. 1317	77.5
		61 34	Ref. Mon. 1286	45.4
T. P. 1317	48 01 49.22	198 06	T. P. 1316	77.5
	89 59 41.27	352 10	T. P. 1318	66.7
		163 11	Ref. Mon. 1286	54.5
		343 11	Ref. Mon. 1288	167.5
T. P. 1318	48 01 47.08	172 10	T. P. 1317	66.7
	89 59 40.83	14 06	T. P. 1319	45.2
T. P. 1319	48 01 45.66	194 06	T. P. 1318	45.2
	89 59 41.36	342 05	T. P. 1320	44.9
T. P. 1320	48 01 44.28	162 05	T. P. 1319	44.9
	89 59 40.69	325 34	T. P. 1321	34.0
		282 04	Ref. Mon. 1288	37.3
T. P. 1321	48 01 43.38	145 34	T. P. 1320	34.0
	89 59 39.77	303 37	T. P. 1322	40.8
		220 35	Ref. Mon. 1288	26.6
T. P. 1322	48 01 42.64	123 37	T. P. 1321	40.8
	89 59 38.12	342 03	T. P. 1323	45.4
T. P. 1323	48 01 41.25	162 03	T. P. 1322	45.4
	89 59 37.45	276 19	T. P. 1324	47.3
T. P. 1324	48 01 41.08	96 19	T. P. 1323	47.3
	89 59 35.18	228 43	T. P. 1325	54.6
T. P. 1325	48 01 42.25	48 43	T. P. 1324	54.6
	89 59 33.20	257 00	T. P. 1326	146.8
		132 07	P. R. T. 303	12.7
T. P. 1326	48 01 43.31	77 00	T. P. 1325	146.8
	89 59 26.30	307 53	T. P. 1327	22.8
T. P. 1327	48 01 42.86	127 53	T. P. 1326	22.8
	89 59 25.43	356 30	T. P. 1328	49.1
T. P. 1328	48 01 41.27	176 30	T. P. 1327	49.1
	89 59 25.28	298 56	T. P. 1329	43.4
PIGEON RIVER—Continued				
T. P. 1329	48 01 40.59	118 56	T. P. 1328	43.4
	89 59 23.45	254 45	T. P. 1330	57.0
T. P. 1330	48 01 41.08	74 45	T. P. 1329	57.0
	89 59 20.79	337 10	T. P. 1331	20.6
T. P. 1331	48 01 40.47	157 10	T. P. 1330	20.6
	89 59 20.41	11 19	T. P. 1332	15.3
T. P. 1332	48 01 39.98	191 19	T. P. 1331	15.3
	89 59 20.55	60 36	T. P. 1333	63.1
T. P. 1333	48 01 38.98	240 36	T. P. 1332	63.1
	89 59 23.21	28 53	T. P. 1334	33.1
T. P. 1334	48 01 38.04	208 53	T. P. 1333	33.1
	89 59 23.98	0 00	T. P. 1335	51.0
T. P. 1335	48 01 36.39	180 00	T. P. 1334	51.0
	89 59 23.98	324 50	T. P. 1336	53.8
T. P. 1336	48 01 34.96	144 50	T. P. 1335	53.8
	89 59 22.49	294 21	T. P. 1337	67.0
T. P. 1337	48 01 34.07	114 21	T. P. 1336	67.0
	89 59 19.54	6 01	T. P. 1338	47.7
T. P. 1338	48 01 32.53	186 01	T. P. 1337	47.7
	89 59 19.78	284 08	T. P. 1339	139.2
T. P. 1339	48 01 31.43	104 08	T. P. 1338	139.2
	89 59 13.27	241 16	T. P. 1340	35.4
T. P. 1340	48 01 31.98	61 16	T. P. 1339	35.4
	89 59 11.77	222 32	T. P. 1341	115.4
T. P. 1341	48 01 34.73	42 32	T. P. 1340	115.4
	89 59 08.01	266 19	T. P. 1342	31.1
T. P. 1342	48 01 34.80	86 19	T. P. 1341	31.1
	89 59 06.51	298 53	T. P. 1343	33.1
T. P. 1343	48 01 34.28	118 53	T. P. 1342	33.1
	89 59 05.11	319 29	T. P. 1344	72.3
T. P. 1344	48 01 32.50	139 29	T. P. 1343	72.3
	89 59 02.85	308 08	T. P. 1345	184.6
T. P. 1345	48 01 28.81	128 08	T. P. 1344	184.6
	89 58 55.84	297 54	T. P. 1346	96.2
T. P. 1346	48 01 27.35	117 54	T. P. 1345	96.2
	89 58 51.74	288 43	T. P. 1347	127.8
T. P. 1347	48 01 26.02	108 43	T. P. 1346	127.8
	89 58 45.90	279 11	T. P. 1348	131.7
T. P. 1348	48 01 25.34	99 11	T. P. 1347	131.7
	89 58 39.62	286 59	T. P. 1349	115.3
T. P. 1349	48 01 24.25	106 59	T. P. 1348	115.3
	89 58 34.30	278 10	T. P. 1350	79.5
		1 24	Ref. Mon. 1290	30.3
		181 24	Ref. Mon. 1292	61.6
T. P. 1350	48 01 23.89	98 10	T. P. 1349	79.5
	89 58 30.50	293 33	T. P. 1351	42.5
T. P. 1351	48 01 23.34	113 33	T. P. 1350	42.5
	89 58 28.62	332 56	T. P. 1352	153.8
T. P. 1352	48 01 18.90	152 56	T. P. 1351	153.8
	89 58 25.24	348 44	T. P. 1353	51.2
T. P. 1353	48 01 17.28	168 44	T. P. 1352	51.2
	89 58 24.76	6 04	T. P. 1354	66.2
T. P. 1354	48 01 15.15	186 04	T. P. 1353	66.2
	89 58 25.10	341 34	T. P. 1355	53.8
T. P. 1355	48 01 13.49	161 34	T. P. 1354	53.8
	89 58 24.28	313 46	T. P. 1356	49.2

BOUNDARY TURNING POINTS—PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
PIGEON RIVER—Continued	° ′ ″	° ′		
T. P. 1356	48 01 12.39	133 46	T. P. 1355	49.2
	89 58 22.56	289 16	T. P. 1357	75.7
T. P. 1357	48 01 11.58	109 16	T. P. 1356	75.7
	89 58 19.11	332 53	T. P. 1358	46.1
T. P. 1358	48 01 10.26	152 53	T. P. 1357	46.1
	89 58 18.10	2 48	T. P. 1359	102.1
T. P. 1359	48 01 06.96	182 48	T. P. 1358	102.1
	89 58 18.34	348 51	T. P. 1360	67.3
T. P. 1360	48 01 04.82	168 51	T. P. 1359	67.3
	89 58 17.71	316 35	T. P. 1361	234.3
T. P. 1361	48 00 59.31	136 36	T. P. 1360	234.3
	89 58 09.94	332 34	T. P. 1362	58.6
T. P. 1362	48 00 57.62	152 34	T. P. 1361	58.6
	89 58 08.64	345 08	T. P. 1363	101.4
T. P. 1363	48 00 54.45	165 08	T. P. 1362	101.4
	89 58 07.39	319 03	T. P. 1364	62.0
T. P. 1364	48 00 52.94	139 03	T. P. 1363	62.0
	89 58 05.43	257 55	T. P. 1365	247.3
		318 01	Ref. Mon. 1294	48.4
T. P. 1365	48 00 54.61	77 55	T. P. 1364	247.3
	89 57 53.76	277 24	T. P. 1366	77.6
T. P. 1366	48 00 54.29	97 24	T. P. 1365	77.6
	89 57 50.04	308 01	T. P. 1367	154.9
T. P. 1367	48 00 51.20	128 02	T. P. 1366	154.9
	89 57 44.15	303 10	T. P. 1368	98.0
		159 57	Ref. Mon. 1296	28.0
T. P. 1368	48 00 49.47	123 10	T. P. 1367	98.0
	89 57 40.20	273 01	T. P. 1369	95.1
T. P. 1369	48 00 49.31	93 01	T. P. 1368	95.1
	89 57 35.61	296 51	T. P. 1370	346.1
T. P. 1370	48 00 44.25	116 51	T. P. 1369	346.1
	89 57 20.71	301 49	T. P. 1371	92.4
T. P. 1371	48 00 42.67	121 49	T. P. 1370	92.4
	89 57 16.92	311 29	T. P. 1372	167.5
T. P. 1372	48 00 39.07	131 30	T. P. 1371	167.5
	89 57 10.87	280 13	T. P. 1373	62.0
T. P. 1373	48 00 38.72	100 13	T. P. 1372	62.0
	89 57 07.93	237 15	T. P. 1374	90.6
T. P. 1374	48 00 40.30	57 15	T. P. 1373	90.6
	89 57 04.25	205 14	T. P. 1375	212.3
T. P. 1375	48 00 46.52	25 14	T. P. 1374	212.3
	89 56 59.88	190 31	T. P. 1376	71.2
T. P. 1376	48 00 48.79	10 31	T. P. 1375	71.2
	89 56 59.26	169 31	T. P. 1377	54.9
		256 44	Ref. Mon. 1298	23.5
T. P. 1377	48 00 50.53	349 31	T. P. 1376	54.9
	89 56 59.74	141 17	T. P. 1378	87.1
T. P. 1378	48 00 52.74	321 17	T. P. 1377	87.1
	89 57 02.37	157 32	T. P. 1379	71.4
T. P. 1379	48 00 54.87	337 32	T. P. 1378	71.4
	89 57 03.68	186 59	T. P. 1380	84.6
		154 23	Ref. Mon. 1300	51.1
T. P. 1380	48 00 57.59	6 59	T. P. 1379	84.6
	89 57 03.19	221 59	T. P. 1381	40.4
		40 32	Ref. Mon. 1300	49.9
T. P. 1381	48 00 58.56	41 59	T. P. 1380	40.4
	89 57 01.89	265 48	T. P. 1382	54.5
T. P. 1382	48 00 58.69	85 48	T. P. 1381	54.5
	89 56 59.26	287 36	T. P. 1383	86.0
T. P. 1383	48 00 57.85	107 36	T. P. 1382	86.0
	89 56 55.31	296 58	T. P. 1384	390.4
		286 16	P. R. T. 271	85.0
T. P. 1384	48 00 52.12	116 58	T. P. 1383	390.4
	89 56 38.52	266 42	T. P. 1385	226.4
T. P. 1385	48 00 52.54	86 43	T. P. 1384	226.4
	89 56 27.61	235 33	T. P. 1386	33.6
T. P. 1386	48 00 53.16	55 33	T. P. 1385	33.6
	89 56 26.27	168 38	T. P. 1387	69.6
T. P. 1387	48 00 55.37	348 38	T. P. 1386	69.6
	89 56 26.93	213 13	T. P. 1388	44.3
T. P. 1388	48 00 56.56	33 13	T. P. 1387	44.3
	89 56 25.76	253 51	T. P. 1389	60.1
		105 47	Ref. Mon. 1302	43.7
		285 47	Ref. Mon. 1304	69.5
T. P. 1389	48 00 57.11	73 52	T. P. 1388	60.1
	89 56 22.97	294 09	T. P. 1390	63.6
		345 31	Ref. Mon. 1304	36.8
T. P. 1390	48 00 56.26	114 09	T. P. 1389	63.6
	89 56 20.17	262 55	T. P. 1391	200.5
		78 52	Ref. Mon. 1304	49.7
T. P. 1391	48 00 57.06	82 56	T. P. 1390	200.5
	89 56 10.57	290 11	T. P. 1392	30.2
T. P. 1392	48 00 56.73	110 11	T. P. 1391	30.2
	89 56 09.21	264 23	T. P. 1393	105.2
T. P. 1393	48 00 57.06	84 23	T. P. 1392	105.2
	89 56 04.16	322 30	T. P. 1394	95.3
		228 04	P. R. T. 267	14.5
T. P. 1394	48 00 54.61	142 30	T. P. 1393	95.3
	89 56 01.36	17 32	T. P. 1395	89.7
T. P. 1395	48 00 51.84	197 32	T. P. 1394	89.7
	89 56 02.66	343 49	T. P. 1396	100.5
T. P. 1396	48 00 48.72	163 49	T. P. 1395	100.5
	89 56 01.31	296 18	T. P. 1397	49.6
T. P. 1397	48 00 48.01	116 18	T. P. 1396	49.6
	89 56 59.16	325 37	T. P. 1398	46.0
		52 15	Ref. Mon. 1306	30.2
T. P. 1398	48 00 46.78	145 37	T. P. 1397	46.0
	89 55 57.91	350 16	T. P. 1399	71.0
T. P. 1399	48 00 44.52	170 16	T. P. 1398	71.0
	89 55 57.33	4 14	T. P. 1400	135.4
T. P. 1400	48 00 40.14	184 14	T. P. 1399	135.4
	89 55 57.81	346 07	T. P. 1401	95.8
		14 02	P. R. T. 220	47.8
T. P. 1401	48 00 37.13	166 07	T. P. 1400	95.8
	89 55 56.70	334 10	T. P. 1402	169.8
T. P. 1402	48 00 32.19	154 10	T. P. 1401	169.8
	89 55 53.13	326 05	T. P. 1403	114.7
T. P. 1403	48 00 29.10	146 05	T. P. 1402	114.7
	89 55 50.04	313 20	T. P. 1404	97.6
T. P. 1404	48 00 26.94	133 20	T. P. 1403	97.6
	89 55 46.62	281 19	T. P. 1405	66.3
T. P. 1405	48 00 26.51	101 19	T. P. 1404	66.3
	89 55 43.48	281 36	T. P. 1406	90.0
T. P. 1406	48 00 25.93	101 36	T. P. 1405	90.0
	89 55 39.22	287 12	T. P. 1407	60.5
		50 09	Ref. Mon. 1307	23.9
		230 09	Ref. Mon. 1308	46.9
T. P. 1407	48 00 25.35	107 12	T. P. 1406	60.5
	89 55 36.43	308 13	T. P. 1408	59.8
T. P. 1408	48 00 24.15	128 13	T. P. 1407	59.8
	89 55 34.16	321 44	T. P. 1409	50.2
T. P. 1409	48 00 22.82	144 44	T. P. 1408	50.2
	89 55 32.77	349 35	T. P. 1410	77.5
T. P. 1410	48 00 20.35	169 35	T. P. 1409	77.5
	89 55 32.09	8 57	T. P. 1411	51.4
		70 24	P. R. T. 216	12.5
T. P. 1411	48 00 18.71	188 57	T. P. 1410	51.4
	89 55 32.48	356 48	T. P. 1412	125.2
T. P. 1412	48 00 14.66	176 48	T. P. 1411	125.2
	89 55 32.14	14 50	T. P. 1413	35.2

BOUNDARY TURNING POINTS—PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
PIGEON RIVER—Continued	° ′ ″	° ′		
T. P. 1413	48 00 13.56	194 50	T. P. 1412	35.2
	89 55 32.57	41 03	T. P. 1414	82.2
		326 33	P. R. T. 257	6.7
T. P. 1414	48 00 11.56	221 03	T. P. 1413	82.2
	89 55 35.18	62 56	T. P. 1415	101.1
T. P. 1415	48 00 10.07	242 56	T. P. 1414	101.1
	89 55 39.52	32 21	T. P. 1416	35.5
T. P. 1416	48 00 09.09	212 21	T. P. 1415	35.5
	89 55 40.44	10 00	T. P. 1417	34.5
T. P. 1417	48 00 07.99	190 00	T. P. 1416	34.5
	89 55 40.72	308 05	T. P. 1418	47.0
T. P. 1418	48 00 07.05	128 05	T. P. 1417	47.0
	89 55 38.94	259 51	T. P. 1419	68.1
		59 05	Ref. Mon. 1309	22.4
T. P. 1419	48 00 07.44	79 51	T. P. 1418	68.1
	89 55 35.71	305 57	T. P. 1420	98.8
T. P. 1420	48 00 05.55	125 57	T. P. 1419	98.8
	89 55 31.86	295 43	T. P. 1421	224.2
T. P. 1421	48 00 02.42	115 43	T. P. 1420	224.2
	89 55 22.10	306 58	T. P. 1422	97.6
T. P. 1422	48 00 00.51	126 58	T. P. 1421	97.6
	89 55 18.34	329 53	T. P. 1423	41.9
T. P. 1423	47 59 59.34	149 53	T. P. 1422	41.9
	89 55 17.33	19 45	T. P. 1424	41.4
T. P. 1424	47 59 58.08	199 45	T. P. 1423	41.4
	89 55 18.00	55 18	T. P. 1425	94.9
T. P. 1425	47 59 56.33	235 18	T. P. 1424	94.9
	89 55 21.77	0 00	T. P. 1426	44.6
T. P. 1426	47 59 54.89	180 00	T. P. 1425	44.6
	89 55 21.77	341 57	T. P. 1427	161.3
T. P. 1427	47 59 49.92	161 57	T. P. 1426	161.3
	89 55 19.36	290 37	T. P. 1428	45.7
T. P. 1428	47 59 49.40	110 37	T. P. 1427	45.7
	89 55 17.29	274 12	T. P. 1429	26.0
		150 35	Ref. Mon. 1311	29.0
		330 35	Ref. Mon. 1310	25.5
T. P. 1429	47 59 49.34	94 12	T. P. 1428	26.0
	89 55 16.04	246 00	T. P. 1430	103.2
T. P. 1430	47 59 50.70	66 00	T. P. 1429	103.2
	89 55 11.49	282 06	T. P. 1431	143.2
T. P. 1431	47 59 49.73	102 06	T. P. 1430	143.2
	89 55 04.74	253 18	T. P. 1432	56.4
T. P. 1432	47 59 50.25	73 18	T. P. 1431	56.4
	89 55 02.14	299 26	T. P. 1433	49.3
T. P. 1433	47 59 49.47	119 26	T. P. 1432	49.3
	89 55 00.07	310 20	T. P. 1434	69.5
T. P. 1434	47 59 48.01	130 20	T. P. 1433	69.5
	89 54 57.51	351 02	T. P. 1435	96.2
T. P. 1435	47 59 44.94	171 02	T. P. 1434	96.2
	89 54 56.79	333 03	T. P. 1436	134.6
T. P. 1436	47 59 41.05	153 03	T. P. 1435	134.6
	89 54 53.84	303 48	T. P. 1437	134.8
T. P. 1437	47 59 38.62	123 49	T. P. 1436	134.8
	89 54 48.44	296 03	T. P. 1438	150.3
T. P. 1438	47 59 36.49	116 03	T. P. 1437	150.3
	89 54 41.93	284 24	T. P. 1439	570.9
T. P. 1439	47 59 31.89	104 24	T. P. 1438	570.9
	89 54 15.26	309 12	T. P. 1440	127.4
		246 10	Ref. Mon. 1312	36.6
T. P. 1440	47 59 29.28	129 12	T. P. 1439	127.4
	89 54 10.50	327 00	T. P. 1441	297.5
		145 37	Ref. Mon. 1312	115.4
		325 37	Ref. Mon. 1313	432.4
PIGEON RIVER—Continued	° ′ ″	° ′		
T. P. 1441	47 59 21.21	147 00	T. P. 1440	297.5
	89 54 02.68	310 06	T. P. 1442	197.2
		322 34	Ref. Mon. 1313	135.2
T. P. 1442	47 59 17.09	130 06	T. P. 1441	197.2
	89 53 55.41	293 19	T. P. 1443	131.3
		105 57	Ref. Mon. 1313	71.3
T. P. 1443	47 59 15.41	113 20	T. P. 1442	131.3
	89 53 49.59	282 36	T. P. 1444	130.1
T. P. 1444	47 59 14.49	102 36	T. P. 1443	130.1
	89 53 43.47	260 49	T. P. 1445	153.0
T. P. 1445	47 59 15.28	80 49	T. P. 1444	153.0
	89 53 36.19	237 22	T. P. 1446	105.7
T. P. 1446	47 59 17.13	57 22	T. P. 1445	105.7
	89 53 31.90	274 10	T. P. 1447	110.3
T. P. 1447	47 59 16.87	94 10	T. P. 1446	110.3
	89 53 26.59	288 48	T. P. 1448	99.3
T. P. 1448	47 59 15.83	108 48	T. P. 1447	99.3
	89 53 22.06	301 56	T. P. 1449	181.5
T. P. 1449	47 59 12.72	121 56	T. P. 1448	181.5
	89 53 14.63	286 03	T. P. 1450	159.2
T. P. 1450	47 59 11.30	106 03	T. P. 1449	159.2
	89 53 07.25	272 50	T. P. 1451	121.0
		294 39	Ref. Mon. 1314	71.0
T. P. 1451	47 59 11.11	92 51	T. P. 1450	121.0
	89 53 01.42	262 24	T. P. 1452	370.5
		67 17	Ref. Mon. 1314	61.2
		247 17	Ref. Mon. 1315	183.2
T. P. 1452	47 59 12.69	82 24	T. P. 1451	370.5
	89 52 43.71	275 33	T. P. 1453	72.3
T. P. 1453	47 59 12.46	95 33	T. P. 1452	72.3
	89 52 40.24	293 12	T. P. 1454	175.2
T. P. 1454	47 59 10.23	113 12	T. P. 1453	175.2
	89 52 32.48	288 22	T. P. 1455	244.4
T. P. 1455	47 59 07.74	108 22	T. P. 1454	244.4
	89 52 21.29	262 09	T. P. 1456	58.5
T. P. 1456	47 59 08.00	82 09	T. P. 1455	58.5
	89 52 18.49	227 14	T. P. 1457	54.5
T. P. 1457	47 59 09.19	47 14	T. P. 1456	54.5
	89 52 16.56	209 49	T. P. 1458	197.1
T. P. 1458	47 59 14.73	29 49	T. P. 1457	197.1
	89 52 11.84	198 30	T. P. 1459	274.2
		117 08	Ref. Mon. 1316	44.9
T. P. 1459	47 59 23.15	18 30	T. P. 1458	274.2
	89 52 07.64	224 26	T. P. 1460	71.4
T. P. 1460	47 59 24.80	44 26	T. P. 1459	71.4
	89 52 05.23	273 07	T. P. 1461	192.3
		315 00	Ref. Mon. 1317	18.1
T. P. 1461	47 59 24.46	93 07	T. P. 1460	192.3
	89 51 55.97	255 04	T. P. 1462	276.3
		58 35	P. R. T. 188	31.3
		238 35	P. R. T. 227	66.3
T. P. 1462	47 59 26.77	75 04	T. P. 1461	276.3
	89 51 43.09	265 24	T. P. 1463	214.7
T. P. 1463	47 59 27.32	85 24	T. P. 1462	214.7
	89 51 32.77	256 59	T. P. 1464	488.5
T. P. 1464	47 59 30.89	77 00	T. P. 1463	488.5
	89 51 09.81	253 23	T. P. 1465	139.8
T. P. 1465	47 59 32.18	73 23	T. P. 1464	139.8
	89 51 03.35	261 23	T. P. 1466	287.2
T. P. 1466	47 59 33.57	81 24	T. P. 1465	287.2
	89 50 49.65	230 40	T. P. 1467	107.3
T. P. 1467	47 59 35.77	50 40	T. P. 1466	107.3
	89 50 45.65	208 09	T. P. 1468	48.8

BOUNDARY TURNING POINTS—PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
PIGEON RIVER—Continued	° ′ ″	° ′		
T. P. 1468	47 59 37.17	28 09	T. P. 1467	48.8
	89 50 44.54	163 30	T. P. 1469	56.3
T. P. 1469	47 59 38.91	343 30	T. P. 1468	56.3
	89 50 45.31	211 26	T. P. 1470	21.1
T. P. 1470	47 59 39.50	31 26	T. P. 1469	21.1
	89 50 44.78	169 20	T. P. 1471	40.0
T. P. 1471	47 59 40.77	349 20	T. P. 1470	40.0
	89 50 45.14	205 18	T. P. 1472	38.4
		106 22	Ref. Mon. 1318	31.7
		286 22	Ref. Mon. 1319	17.7
T. P. 1472	47 59 41.89	25 18	T. P. 1471	38.4
	89 50 44.35	225 00	T. P. 1473	131.5
T. P. 1473	47 59 44.90	45 00	T. P. 1472	131.5
	89 50 89.86	202 01	T. P. 1474	50.7
T. P. 1474	47 59 46.42	22 01	T. P. 1473	50.7
	89 50 38.94	188 22	T. P. 1475	103.1
		316 09	P. R. T. 178	17.6
T. P. 1475	47 59 49.73	8 22	T. P. 1474	103.1
	89 50 38.22	239 52	T. P. 1476	35.8
T. P. 1476	47 59 50.31	59 52	T. P. 1475	35.8
	89 50 36.72	272 00	T. P. 1477	86.1
T. P. 1477	47 59 50.22	92 00	T. P. 1476	86.1
	89 50 32.58	176 19	T. P. 1478	140.3
		133 14	Ref. Mon. 1318–A	70.8
T. P. 1478	47 59 54.75	356 19	T. P. 1477	140.3
	89 50 33.01	198 26	T. P. 1479	53.8
T. P. 1479	47 59 56.40	18 26	T. P. 1478	53.8
	89 50 32.19	174 00	T. P. 1480	133.9
T. P. 1480	48 00 00.71	354 00	T. P. 1479	133.9
	89 50 32.87	191 30	T. P. 1481	170.4
T. P. 1481	48 00 06.12	11 30	T. P. 1480	170.4
	89 50 31.23	128 25	T. P. 1482	37.0
T. P. 1482	48 00 06.87	308 25	T. P. 1481	37.0
	89 50 32.63	108 26	T. P. 1483	120.2
T. P. 1483	48 00 08.10	288 26	T. P. 1482	120.2
	89 50 38.13	147 43	T. P. 1484	112.4
T. P. 1484	48 00 11.17	327 43	T. P. 1483	112.4
	89 50 41.02	226 55	T. P. 1485	46.7
T. P. 1485	48 00 12.20	46 55	T. P. 1484	46.7
	89 50 39.38	252 58	T. P. 1486	72.1
		154 18	Ref. Mon. 1320	52.3
		334 18	Ref. Mon. 1321	35.3
T. P. 1486	48 00 12.88	72 58	T. P. 1485	72.1
	89 50 36.05	295 58	T. P. 1487	130.1
T. P. 1487	48 00 11.04	115 59	T. P. 1486	130.1
	89 50 30.41	283 56	T. P. 1488	132.9
		141 38	P. R. T. 211	43.5
T. P. 1488	48 00 10.00	103 56	T. P. 1487	132.9
	89 50 24.18	293 06	T. P. 1489	163.1
T. P. 1489	48 00 07.93	113 06	T. P. 1488	163.1
	89 50 16.95	316 12	T. P. 1490	203.7
T. P. 1490	48 00 03.17	136 12	T. P. 1489	203.7
	89 50 10.15	309 41	T. P. 1491	235.2
T. P. 1491	47 59 58.31	129 41	T. P. 1490	235.2
	89 50 01.42	274 33	T. P. 1492	89.5
T. P. 1492	47 59 58.07	94 33	T. P. 1491	89.5
	89 49 57.11	258 49	T. P. 1493	98.5
		17 36	Ref. Mon. 1322–A	31.3
		197 36	Ref. Mon. 1322	69.3
T. P. 1493	47 59 58.69	78 49	T. P. 1492	98.5
	89 49 52.45	219 31	T. P. 1494	75.4
T. P. 1494	48 00 00.58	39 31	T. P. 1493	75.4
	89 49 50.14	206 34	T. P. 1495	174.4
T. P. 1495	48 00 05.63	26 34	T. P. 1494	174.4
	89 49 46.38	199 50	T. P. 1496	129.7
T. P. 1496	48 00 09.58	19 50	T. P. 1495	129.7
	89 49 44.25	192 56	T. P. 1497	138.5
T. P. 1497	48 00 13.95	12 56	T. P. 1496	138.5
	89 49 42.76	178 30	T. P. 1498	38.0
T. P. 1498	48 00 15.18	358 30	T. P. 1497	38.0
	89 49 42.80	155 25	T. P. 1499	64.9
T. P. 1499	48 00 17.09	335 25	T. P. 1498	64.9
	89 49 44.11	171 40	T. P. 1500	41.4
T. P. 1500	48 00 18.42	351 40	T. P. 1499	41.4
	89 49 44.40	228 03	T. P. 1501	106.2
		184 03	P. R. T. 207	39.7
T. P. 1501	48 00 20.71	48 03	T. P. 1500	106.2
	89 49 40.59	239 05	T. P. 1502	212.1
T. P. 1502	48 00 24.24	59 05	T. P. 1501	212.1
	89 49 31.81	200 58	T. P. 1503	192.8
T. P. 1503	48 00 30.07	20 58	T. P. 1502	192.8
	89 49 28.48	234 56	T. P. 1504	172.3
T. P. 1504	48 00 33.28	54 56	T. P. 1503	172.3
	89 49 21.68	212 19	T. P. 1505	58.0
T. P. 1505	48 00 34.86	32 19	T. P. 1504	58.0
	89 49 20.18	178 25	T. P. 1506	72.0
T. P. 1506	48 00 37.20	358 25	T. P. 1505	72.0
	89 49 20.28	231 24	T. P. 1507	54.6
T. P. 1507	48 00 38.30	51 24	T. P. 1506	54.6
	89 49 18.22	150 51	T. P. 1508	59.5
T. P. 1508	48 00 39.98	330 51	T. P. 1507	59.5
	89 49 19.62	112 50	T. P. 1509	41.2
T. P. 1509	48 00 40.50	292 50	T. P. 1508	41.2
	89 49 21.45	97 03	T. P. 1510	89.7
		68 35	Ref. Mon. 1324	68.7
		191 09	Ref. Mon. 1323	33.6
T. P. 1510	48 00 40.86	277 03	T. P. 1509	89.7
	89 49 25.75	193 00	T. P. 1511	13.3
		257 02	Ref. Mon. 1323	98.0
		325 22	Ref. Mon. 1324	44.0
T. P. 1511	48 00 41.28	13 00	T. P. 1510	13.3
	89 49 25.60	236 05	T. P. 1512	69.9
T. P. 1512	48 00 42.54	56 05	T. P. 1511	69.9
	89 49 22.80	231 33	T. P. 1513	43.4
T. P. 1513	48 00 43.41	51 33	T. P. 1512	43.4
	89 49 21.16	245 33	T. P. 1514	36.2
T. P. 1514	48 00 43.90	65 33	T. P. 1513	36.2
	89 49 19.57	232 21	T. P. 1515	44.2
T. P. 1515	48 00 44.77	52 21	T. P. 1514	44.2
	89 49 17.88	227 23	T. P. 1516	34.0
T. P. 1516	48 00 45.52	47 23	T. P. 1515	34.0
	89 49 16.68	237 10	T. P. 1517	36.9
		141 03	P. R. T. 195	6.0
T. P. 1517	48 00 46.16	57 10	T. P. 1516	36.9
	89 49 15.18	203 48	T. P. 1518	37.2
T. P. 1518	48 00 47.26	23 48	T. P. 1517	37.2
	89 49 14.46	158 26	T. P. 1519	92.5
T. P. 1519	48 00 50.05	338 26	T. P. 1518	92.5
	89 49 16.10	197 32	T. P. 1520	59.8
T. P. 1520	48 00 51.89	17 32	T. P. 1519	59.8
	89 49 15.23	196 36	T. P. 1521	59.5
T. P. 1521	48 00 53.74	16 36	T. P. 1520	59.5
	89 49 14.41	227 44	T. P. 1522	29.7
		342 24	P. R. T. 158	23.8
T. P. 1522	48 00 54.39	47 44	T. P. 1521	29.7
	89 49 13.35	218 31	T. P. 1523	62.6
T. P. 1523	48 00 55.97	38 31	T. P. 1522	62.6
	89 49 11.47	242 32	T. P. 1524	28.2
T. P. 1524	48 00 56.39	62 32	T. P. 1523	28.2
	89 49 10.26	287 28	T. P. 1525	56.6

BOUNDARY TURNING POINTS—PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
PIGEON RIVER—Continued	° ′ ″	° ′		
T. P. 1525	48 00 55.84	107 29	T. P. 1524	56.6
	89 49 07.66	274 29	T. P. 1526	51.2
T. P. 1526	48 00 55.71	94 29	T. P. 1525	51.2
	89 49 05.20	246 13	T. P. 1527	64.5
T. P. 1527	48 00 56.56	66 13	T. P. 1526	64.5
	89 49 02.35	240 19	T. P. 1528	78.7
T. P. 1528	48 00 57.82	60 19	T. P. 1527	78.7
	89 48 59.05	267 37	T. P. 1529	96.1
T. P. 1529	48 00 57.95	87 37	T. P. 1528	96.1
	89 48 54.42	250 43	T. P. 1530	63.6
T. P. 1530	48 00 58.63	70 43	T. P. 1529	63.6
	89 48 51.52	265 43	T. P. 1531	40.1
T. P. 1531	48 00 58.73	85 43	T. P. 1530	40.1
	89 48 49.59	247 01	T. P. 1532	71.7
		39 53	P. R. T. 154	20.6
T. P. 1532	48 00 59.63	67 01	T. P. 1531	71.7
	89 48 46.41	272 32	T. P. 1533	68.1
T. P. 1533	48 00 59.54	92 32	T. P. 1532	68.1
	89 48 43.13	244 17	T. P. 1534	78.8
T. P. 1534	48 01 00.64	64 17	T. P. 1533	78.8
	89 48 39.70	284 58	T. P. 1535	89.0
T. P. 1535	48 00 59.90	104 58	T. P. 1534	89.0
	89 48 35.55	255 41	T. P. 1536	48.5
T. P. 1536	48 01 00.29	75 41	T. P. 1535	48.5
	89 48 33.28	215 42	T. P. 1537	78.8
T. P. 1537	48 01 02.36	35 42	T. P. 1536	78.8
	89 48 31.06	251 44	T. P. 1538	105.3
T. P. 1538	48 01 03.43	71 44	T. P. 1537	105.3
	89 48 26.24	309 48	T. P. 1539	23.4
T. P. 1539	48 01 02.94	129 48	T. P. 1538	23.4
	89 48 25.37	37 39	T. P. 1540	44.2
T. P. 1540	48 01 01.81	217 39	T. P. 1539	44.2
	89 48 26.67	354 59	T. P. 1541	57.2
		45 54	Ref. Mon. 1326	27.2
		255 31	Ref. Mon. 1325	107.1
T. P. 1541	48 00 59.96	174 59	T. P. 1540	57.2
	89 48 26.43	342 49	T. P. 1542	220.0
		147 15	Ref. Mon. 1326	45.3
		316 10	P. R. T. 181	27.9
T. P. 1542	48 00 53.16	162 49	T. P. 1541	220.0
	89 48 23.29	330 29	T. P. 1543	60.9
T. P. 1543	48 00 51.44	150 29	T. P. 1542	60.9
	89 48 21.85	290 54	T. P. 1544	58.9
T. P. 1544	48 00 50.76	110 54	T. P. 1543	58.9
	89 48 19.19	265 36	T. P. 1545	156.5
T. P. 1545	48 00 51.15	85 36	T. P. 1544	156.5
	89 48 11.67	270 00	T. P. 1546	130.0
T. P. 1546	48 00 51.15	90 00	T. P. 1545	130.0
	89 48 05.39	248 12	T. P. 1547	53.9
T. P. 1547	48 00 51.80	68 12	T. P. 1546	53.9
	89 48 02.98	229 18	T. P. 1548	65.9
T. P. 1548	48 00 53.19	49 18	T. P. 1547	65.9
	89 48 00.57	245 21	T. P. 1549	45.6
T. P. 1549	48 00 53.80	65 21	T. P. 1548	45.6
	89 47 58.57	266 32	T. P. 1550	66.1
T. P. 1550	48 00 53.93	86 32	T. P. 1549	66.1
	89 47 55.38	284 17	T. P. 1551	56.8
T. P. 1551	48 00 53.48	104 17	T. P. 1550	56.8
	89 47 52.73	267 29	T. P. 1552	91.1
T. P. 1552	48 00 53.61	87 29	T. P. 1551	91.1
	89 47 48.34	244 43	T. P. 1553	39.8
T. P. 1553	48 00 54.16	64 43	T. P. 1553	39.8
	89 47 46.60	223 05	T. P. 1555	42.4
T. P. 1554	48 00 55.16	43 05	T. P. 1553	42.4
	89 47 45.20	159 51	T. P. 1555	84.2
T. P. 1555	48 00 57.72	339 51	T. P. 1554	84.2
	89 47 46.60	204 51	T. P. 1556	92.8
T. P. 1556	48 01 00.45	24 51	T. P. 1555	92.8
	89 47 44.72	228 28	T. P. 1557	46.8
T. P. 1557	48 01 01.45	48 28	T. P. 1556	46.8
	89 47 43.03	205 49	T. P. 1558	68.9
T. P. 1558	48 01 03.46	25 49	T. P. 1557	68.9
	89 47 41.58	236 46	T. P. 1559	34.7
T. P. 1559	48 01 04.07	56 46	T. P. 1558	34.7
	89 47 40.18	257 05	T. P. 1560	43.4
T. P. 1560	48 01 04.39	77 05	T. P. 1559	43.4
	89 47 38.14	259 55	T. P. 1561	47.4
		2 48	Ref. Mon. 1327	18.0
		182 48	Ref. Mon. 1328	20.0
T. P. 1561	48 01 04.66	79 55	T. P. 1560	47.4
	89 47 35.89	236 08	T. P. 1562	87.9
T. P. 1562	48 01 06.24	56 08	T. P. 1561	87.9
	89 47 32.37	257 36	T. P. 1563	51.2
T. P. 1563	48 01 06.60	77 36	T. P. 1562	51.2
	89 47 29.96	274 24	T. P. 1564	221.7
		216 02	P. R. T. 171	13.6
T. P. 1564	48 01 06.05	94 24	T. P. 1563	221.7
	89 47 19.29	296 52	T. P. 1565	84.1
T. P. 1565	48 01 04.82	116 52	T. P. 1564	84.1
	89 47 15.67	278 14	T. P. 1566	167.7
T. P. 1566	48 01 04.04	98 14	T. P. 1565	167.7
	89 47 07.66	254 35	T. P. 1567	90.2
T. P. 1567	48 01 04.82	74 35	T. P. 1566	90.2
	89 47 03.47	274 47	T. P. 1568	155.9
T. P. 1568	48 01 04.40	94 47	T. P. 1567	155.9
	89 46 55.97	251 34	T. P. 1569	44.3
T. P. 1569	48 01 04.85	71 34	T. P. 1568	44.3
	89 46 53.94	212 24	T. P. 1570	61.6
		168 52	Ref. Mon. 1329	45.6
T. P. 1570	48 01 06.53	32 24	T. P. 1569	61.6
	89 46 52.35	254 18	T. P. 1571	125.7
T. P. 1571	48 01 07.64	74 18	T. P. 1570	125.7
	89 46 46.51	303 04	T. P. 1572	51.3
T. P. 1572	48 01 06.73	123 04	T. P. 1571	51.3
	89 46 44.44	224 07	T. P. 1573	46.0
T. P. 1573	48 01 07.80	44 07	T. P. 1572	46.0
	89 46 42.89	202 12	T. P. 1574	135.0
T. P. 1574	48 01 11.84	22 12	T. P. 1573	135.0
	89 46 40.43	214 29	T. P. 1575	220.8
		357 41	P. R. T. 132	44.4
T. P. 1575	48 01 17.74	34 29	T. P. 1574	220.8
	89 46 34.40	198 42	T. P. 1576	137.2
T. P. 1576	48 01 21.95	18 42	T. P. 1575	137.2
	89 46 32.28	240 57	T. P. 1577	30.9
T. P. 1577	48 01 22.43	60 57	T. P. 1576	30.9
	89 46 30.98	288 51	T. P. 1578	61.3
T. P. 1578	48 01 21.79	108 51	T. P. 1577	61.3
	89 46 28.18	305 25	T. P. 1579	33.1
		29 21	Ref. Mon. 1330	36.0
		209 21	Ref. Mon. 1331	19.5
T. P. 1579	48 01 21.17	125 25	T. P. 1578	33.1
	89 46 26.87	336 54	T. P. 1580	81.5
T. P. 1580	48 01 18.74	156 54	T. P. 1579	81.5
	89 46 25.33	25 32	T. P. 1581	99.7
T. P. 1581	48 01 15.83	205 32	T. P. 1580	99.7
	89 46 27.41	321 14	T. P. 1582	78.2
T. P. 1582	48 01 13.85	141 14	T. P. 1581	78.2
	89 46 25.04	254 08	T. P. 1583	106.0
T. P. 1583	48 01 14.79	7 08	T. P. 1582	106.0
	89 46 20.12	227 33	T. P. 1584	127.4

BOUNDARY TURNING POINTS—PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
PIGEON RIVER—Continued	° ′ ″	° ′		
T. P. 1584	48 01 17.58	47 33	T. P. 1583	127.4
	89 46 15.59	241 01	T. P. 1585	84.6
T. P. 1585	48 01 18.91	61 01	T. P. 1584	84.6
	89 46 12.01	261 26	T. P. 1586	94.0
T. P. 1586	48 01 19.36	81 26	T. P. 1585	94.0
	89 46 07.53	230 45	T. P. 1587	120.1
		214 04	P. R. T. 161	60.0
T. P. 1587	48 01 21.82	50 45	T. P. 1586	120.1
	89 46 03.04	260 24	T. P. 1588	245.6
T. P. 1588	48 01 23.15	80 24	T. P. 1587	245.6
	89 45 51.35	275 21	T. P. 1589	128.6
T. P. 1589	48 01 22.76	95 21	T. P. 1588	128.6
	89 45 45.17	283 36	T. P. 1590	191.4
T. P. 1590	48 01 21.30	103 36	T. P. 1589	191.4
	89 45 36.20	249 09	T. P. 1591	179.8
T. P. 1591	48 01 23.38	69 09	T. P. 1590	179.8
	89 45 28.09	262 16	T. P. 1592	103.9
T. P. 1592	48 01 23.83	82 16	T. P. 1591	103.9
	89 45 23.12	272 46	T. P. 1593	62.1
T. P. 1593	48 01 23.73	92 46	T. P. 1592	62.1
	89 45 20.13	286 46	T. P. 1594	76.2
T. P. 1594	48 01 23.02	106 46	T. P. 1593	76.2
	89 45 16.60	320 26	T. P. 1595	89.5
T. P. 1595	48 01 20.79	140 26	T. P. 1594	89.5
	89 45 13.85	300 21	T. P. 1596	47.5
T. P. 1596	48 01 20.00	120 21	T. P. 1595	47.5
	89 45 11.86	273 35	T. P. 1597	32.1
		185 50	P. R. T. 153	9.9
T. P. 1597	48 01 19.94	93 35	T. P. 1596	32.1
	89 45 10.32	238 24	T. P. 1598	45.8
T. P. 1598	48 01 20.71	58 24	T. P. 1597	45.8
	89 45 08.44	260 02	T. P. 1599	75.1
T. P. 1599	48 01 21.13	80 02	T. P. 1598	75.1
	89 45 04.87	226 15	T. P. 1600	65.1
T. P. 1600	48 01 22.59	46 15	T. P. 1599	65.1
	89 45 02.60	217 06	T. P. 1601	91.5
T. P. 1601	48 01 24.95	37 06	T. P. 1600	91.5
	89 44 59.94	271 41	T. P. 1602	85.0
T. P. 1602	48 01 24.87	91 41	T. P. 1601	85.0
	89 44 55.83	295 22	T. P. 1603	64.2
T. P. 1603	48 01 23.98	115 22	T. P. 1602	64.2
	89 44 53.04	315 51	T. P. 1604	192.4
T. P. 1604	48 01 19.52	135 51	T. P. 1603	192.4
	89 44 46.57	270 00	T. P. 1605	31.0
T. P. 1605	48 01 19.52	90 00	T. P. 1604	31.0
	89 44 45.07	239 53	T. P. 1606	97.7
T. P. 1606	48 01 21.10	59 54	T. P. 1605	97.7
	89 44 41.00	289 43	T. P. 1607	31.1
T. P. 1607	48 01 20.76	109 43	T. P. 1606	31.1
	89 44 39.58	352 19	T. P. 1608	91.3
		63 24	Ref. Mon. 1332	57.8
		243 24	Ref. Mon. 1333	12.2
T. P. 1608	48 01 17.83	172 19	T. P. 1607	91.3
	89 44 38.99	295 05	T. P. 1609	69.6
T. P. 1609	48 01 16.88	115 06	T. P. 1608	69.6
	89 44 35.95	354 19	T. P. 1610	90.9
		142 06	P. R. T. 145	25.7
T. P. 1610	48 01 13.95	174 19	T. P. 1609	90.9
	89 44 35.52	337 53	T. P. 1611	34.5
T. P. 1611	48 01 12.91	157 53	T. P. 1610	34.5
	89 44 34.89	305 42	T. P. 1612	39.4
T. P. 1612	48 01 12.17	125 42	T. P. 1611	39.4
	89 44 33.31	273 11	T. P. 1613	54.1
T. P. 1613	48 01 12.07	93 11	T. P. 1612	54.1
	89 44 30.74	241 29	T. P. 1614	92.2
T. P. 1614	48 01 13.50	61 29	T. P. 1613	92.2
	89 44 26.83	264 20	T. P. 1615	141.7
T. P. 1615	48 01 13.95	84 20	T. P. 1614	141.7
	89 44 20.03	255 47	T. P. 1616	77.4
T. P. 1616	48 01 14.56	75 47	T. P. 1615	77.4
	89 44 16.41	231 06	T. P. 1617	73.2
T. P. 1617	48 01 16.05	51 06	T. P. 1616	73.2
	89 44 13.66	214 55	T. P. 1618	64.6
T. P. 1618	48 01 17.77	34 55	T. P. 1617	64.6
	89 44 11.87	239 18	T. P. 1619	37.2
		183 56	P. R. T. 143	16.0
T. P. 1619	48 01 18.38	59 18	T. P. 1618	37.2
	89 44 10.33	265 26	T. P. 1620	81.8
T. P. 1620	48 01 18.59	85 26	T. P. 1619	81.8
	89 44 06.39	255 53	T. P. 1621	92.3
T. P. 1621	48 01 19.32	75 53	T. P. 1620	92.3
	89 44 02.07	292 39	T. P. 1622	67.5
T. P. 1622	48 01 18.48	112 39	T. P. 1621	67.5
	89 43 59.07	330 45	T. P. 1623	28.7
T. P. 1623	48 01 17.67	150 45	T. P. 1622	28.7
	89 43 58.39	359 02	T. P. 1624	59.0
T. P. 1624	48 01 15.76	179 02	T. P. 1623	59.0
	89 43 58.34	318 22	T. P. 1625	48.2
T. P. 1625	48 01 14.60	138 22	T. P. 1624	48.2
	89 43 56.80	294 24	T. P. 1626	65.3
T. P. 1626	48 01 13.72	114 24	T. P. 1625	65.3
	89 43 53.93	5 33	T. P. 1627	36.2
T. P. 1627	48 01 12.56	185 33	T. P. 1626	36.2
	89 43 54.10	48 16	T. P. 1628	49.6
T. P. 1628	48 01 11.49	228 16	T. P. 1627	49.6
	89 43 55.88	66 02	T. P. 1629	49.2
T. P. 1629	48 01 10.84	246 02	T. P. 1628	49.2
	89 43 58.05	12 52	T. P. 1630	35.9
T. P. 1630	48 01 09.71	192 52	T. P. 1629	35.9
	89 43 58.44	319 02	T. P. 1631	50.3
T. P. 1631	48 01 08.48	139 02	T. P. 1630	50.3
	89 43 56.85	280 18	T. P. 1632	61.5
T. P. 1632	48 01 08.12	100 18	T. P. 1631	61.5
	89 43 53.93	251 24	T. P. 1633	53.3
T. P. 1633	48 01 08.67	71 24	T. P. 1632	53.3
	89 43 51.49	261 34	T. P. 1634	119.3
T. P. 1634	48 01 09.24	81 34	T. P. 1633	119.3
	89 43 45.79	270 27	T. P. 1635	63.0
T. P. 1635	48 01 09.22	90 27	T. P. 1634	63.0
	89 43 42.75	287 23	T. P. 1636	103.7
T. P. 1636	48 01 08.22	107 23	T. P. 1635	103.7
	89 43 37.98	246 09	T. P. 1637	75.4
T. P. 1637	48 01 09.21	66 09	T. P. 1636	75.4
	89 43 34.65	272 31	T. P. 1638	148.1
		45 38	P. R. T. 106	32.3
T. P. 1638	48 01 09.00	92 31	T. P. 1637	148.1
	89 43 27.51	251 52	T. P. 1639	61.0
T. P. 1639	48 01 09.61	71 52	T. P. 1638	61.0
	89 43 24.71	186 59	T. P. 1640	49.4
T. P. 1640	48 01 11.20	6 59	T. P. 1639	49.4
	89 43 24.42	139 01	T. P. 1641	80.8
T. P. 1641	48 01 13.17	319 01	T. P. 1640	80.8
	89 43 26.98	174 39	T. P. 1642	64.3
T. P. 1642	48 01 15.24	354 39	T. P. 1641	64.3
	89 43 27.27	280 12	T. P. 1643	46.8
T. P. 1643	48 01 14.97	100 12	T. P. 1642	46.8
	89 43 25.04	294 07	T. P. 1644	214.6
		10 28	Ref. Mon. 1334	55.3
		190 28	Ref. Mon. 1335	33.5

BOUNDARY TURNING POINTS—PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
PIGEON RIVER—Continued	° ′ ″	° ′		
T. P. 1644	48 01 12.13	114 07	T. P. 1643	214.6
	89 43 15.59	315 46	T. P. 1645	103.2
T. P. 1645	48 01 09.74	135 46	T. P. 1644	103.2
	89 43 12.12	334 10	T. P. 1646	105.6
T. P. 1646	48 01 06.66	154 10	T. P. 1645	105.6
	89 43 09.90	18 26	T. P. 1647	72.7
		352 52	P. R. T. 131	24.2
T. P. 1647	48 01 04.43	198 26	T. P. 1646	72.7
	89 43 11.01	47 58	T. P. 1648	82.1
T. P. 1648	48 01 02.65	227 58	T. P. 1647	82.1
	89 43 13.95	98 40	T. P. 1649	152.7
T. P. 1649	48 01 03.39	278 40	T. P. 1648	152.7
	89 43 21.24	64 38	T. P. 1650	107.4
T. P. 1650	48 01 01.90	244 38	T. P. 1649	107.4
	89 43 25.92	21 20	T. P. 1651	123.7
		62 24	P. R. T. 100	41.9
T. P. 1651	48 00 58.17	201 20	T. P. 1650	123.7
	89 43 28.09	335 16	T. P. 1652	112.3
		292 43	P. R. T. 125	22.0
T. P. 1652	48 00 54.87	155 16	T. P. 1651	112.3
	89 43 25.82	6 44	T. P. 1653	162.1
T. P. 1653	48 00 49.66	186 44	T. P. 1652	162.1
	89 43 26.74	312 31	T. P. 1654	48.8
		219 25	Ref. Mon. 1336	66.8
T. P. 1654	48 00 48.59	132 31	T. P. 1653	48.8
	89 43 25.00	263 00	T. P. 1655	82.1
T. P. 1655	48 00 48.91	83 00	T. P. 1654	82.1
	89 43 21.07	225 13	T. P. 1656	90.9
T. P. 1656	48 00 50.99	45 13	T. P. 1655	90.9
	89 43 17.96	238 00	T. P. 1657	84.9
T. P. 1657	48 00 52.44	58 00	T. P. 1656	84.9
	89 43 14.48	219 34	T. P. 1658	89.5
T. P. 1658	48 00 54.68	39 34	T. P. 1657	89.5
	89 43 11.73	196 51	T. P. 1659	196.6
T. P. 1659	48 01 00.77	16 51	T. P. 1658	196.6
	89 43 08.98	230 18	T. P. 1660	68.9
T. P. 1660	48 01 02.20	50 18	T. P. 1659	68.9
	89 43 06.42	260 08	T. P. 1661	46.7
T. P. 1661	48 01 02.45	80 08	T. P. 1660	46.7
	89 43 04.20	278 22	T. P. 1662	68.7
T. P. 1662	48 01 02.13	98 22	T. P. 1661	68.7
	89 43 00.92	305 06	T. P. 1663	69.6
T. P. 1663	48 01 00.84	125 06	T. P. 1662	69.6
	89 42 58.18	353 27	T. P. 1664	52.5
T. P. 1664	48 00 59.15	173 27	T. P. 1663	52.5
	89 42 57.89	10 14	T. P. 1665	157.5
T. P. 1665	48 00 54.13	190 14	T. P. 1664	157.5
	89 42 59.24	4 02	T. P. 1666	78.2
T. P. 1666	48 00 51.60	184 02	T. P. 1665	78.2
	89 42 59.50	40 40	T. P. 1667	46.8
T. P. 1667	48 00 50.45	220 40	T. P. 1666	46.8
	89 43 00.98	352 03	T. P. 1668	21.7
T. P. 1668	48 00 49.76	172 03	T. P. 1667	21.7
	89 43 00.83	312 42	T. P. 1669	26.4
T. P. 1669	48 00 49.18	132 42	T. P. 1668	26.4
	89 42 59.89	329 16	T. P. 1670	74.6
		67 50	Ref. Mon. 1338	56.8
		247 50	Ref. Mon. 1337	12.4
T. P. 1670	48 00 47.10	149 16	T. P. 1669	74.6
	89 42 58.06	351 52	T. P. 1671	42.4
T. P. 1671	48 00 45.74	171 52	T. P. 1670	42.4
	89 42 57.77	6 35	T. P. 1672	104.7
T. P. 1672	48 00 42.38	186 35	T. P. 1671	104.7
	89 42 58.35	11 46	T. P. 1673	161.9
T. P. 1673	48 00 37.24	191 46	T. P. 1672	161.9
	89 42 59.94	350 45	T. P. 1674	68.4
T. P. 1674	48 00 35.06	170 45	T. P. 1673	68.4
	89 42 59.40	310 00	T. P. 1675	44.6
		231 26	P. R. T. 109	28.4
T. P. 1675	48 00 34.13	130 00	T. P. 1674	44.6
	89 42 57.75	282 01	T. P. 1676	59.1
		165 28	P. R. T. 109	48.0
		345 28	P. R. T. 86	24.5
T. P. 1676	48 00 33.73	102 01	T. P. 1675	59.1
	89 42 54.97	247 53	T. P. 1677	69.1
T. P. 1677	48 00 34.57	67 53	T. P. 1676	69.1
	89 42 51.88	241 33	T. P. 1678	149.0
T. P. 1678	48 00 36.87	61 33	T. P. 1677	149.0
	89 42 45.56	274 46	T. P. 1679	48.2
T. P. 1679	48 00 36.74	94 46	T. P. 1678	48.2
	89 42 43.25	261 08	T. P. 1680	263.3
T. P. 1680	48 00 38.06	81 08	T. P. 1679	263.3
	89 42 30.69	285 06	T. P. 1681	44.5
		7 40	Ref. Mon. 1339	47.5
		187 40	Ref. Mon. 1340	28.5
T. P. 1681	48 00 37.68	105 06	T. P. 1680	44.5
	89 42 28.61	332 44	T. P. 1682	132.7
		135 27	Ref. Mon. 1340	56.0
		315 27	P. R. T. 101	71.2
T. P. 1682	48 00 33.86	152 44	T. P. 1681	132.7
	89 42 25.68	324 30	T. P. 1683	210.1
		170 53	P. R. T. 101	68.2
T. P. 1683	48 00 28.32	144 30	T. P. 1682	210.1
	89 42 19.80	308 17	T. P. 1684	217.9
T. P. 1684	48 00 23.95	128 18	T. P. 1683	217.9
	89 42 11.55	293 43	T. P. 1685	72.1
		359 22	P. R. T. 78	26.5
T. P. 1685	48 00 23.01	113 43	T. P. 1684	72.1
	89 42 08.37	259 01	T. P. 1686	104.9
T. P. 1686	48 00 23.66	79 01	T. P. 1685	104.9
	89 42 03.40	232 35	T. P. 1687	212.3
T. P. 1687	48 00 27.84	52 35	T. P. 1686	212.3
	89 41 55.27	247 55	T. P. 1688	303.2
T. P. 1688	48 00 31.53	67 55	T. P. 1687	303.2
	89 41 41.71	241 18	T. P. 1689	252.0
		157 28	P. R. T. 93	19.1
T. P. 1689	48 00 35.45	61 18	T. P. 1688	252.0
	89 41 31.05	256 03	T. P. 1690	183.0
T. P. 1690	48 00 36.87	76 03	T. P. 1689	183.0
	89 41 22.48	236 19	T. P. 1691	138.7
		90 05	Ref. Mon. 1341	46.2
		270 05	Ref. Mon. 1342	184.8
T. P. 1691	48 00 39.36	56 19	T. P. 1690	138.7
	89 41 16.91	267 45	T. P. 1692	51.0
T. P. 1692	48 00 39.43	87 45	T. P. 1691	51.0
	89 41 14.45	285 45	T. P. 1693	81.0
T. P. 1693	48 00 38.72	105 45	T. P. 1692	81.0
	89 41 10.69	354 27	T. P. 1694	72.3
		147 01	P. R. T. 89	38.0
T. P. 1694	48 00 36.38	174 27	T. P. 1693	72.3
	89 41 10.36	309 31	T. P. 1695	51.9
		28 37	P. R. T. 68	21.3
T. P. 1695	48 00 35.32	129 31	T. P. 1694	51.9
	89 41 08.43	268 10	T. P. 1696	125.1
T. P. 1696	48 00 35.45	88 10	T. P. 1695	125.1
	89 41 02.40	257 50	T. P. 1697	161.2
T. P. 1697	48 00 36.55	77 50	T. P. 1696	161.2
	89 40 54.80	266 42	T. P. 1698	139.2
T. P. 1698	48 00 36.81	86 42	T. P. 1697	139.2
	89 40 48.09	247 40	T. P. 1699	321.1

BOUNDARY TURNING POINTS—PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
PIGEON RIVER—Continued	° ′ ″	° ′		
T. P. 1699	48 00 40.76	67 40	T. P. 1698	321.1
	89 40 33.76	265 33	T. P. 1700	90.3
		32 34	P. R. T. 64	26.9
T. P. 1700	48 00 40.98	85 33	T. P. 1699	90.3
	89 40 29.42	253 34	T. P. 1701	81.3
T. P. 1701	48 00 41.73	73 34	T. P. 1700	81.3
	89 40 25.66	269 12	T. P. 1702	72.0
T. P. 1702	48 00 41.76	89 12	T. P. 1701	72.0
	89 40 22.18	304 55	T. P. 1703	64.6
T. P. 1703	48 00 40.56	124 55	T. P. 1702	64.6
	89 40 19.63	338 26	T. P. 1704	133.3
T. P. 1704	48 00 36.55	158 26	T. P. 1703	133.3
	89 40 17.26	319 44	T. P. 1705	290.9
		296 07	P. R. T. 81	57.9
T. P. 1705	48 00 29.36	139 45	T. P. 1704	290.9
	89 40 08.19	298 55	T. P. 1706	190.3
T. P. 1706	48 00 26.38	118 55	T. P. 1705	190.3
	89 40 00.16	243 09	T. P. 1707	177.1
T. P. 1707	48 00 28.97	63 09	T. P. 1706	177.1
	89 39 52.53	221 24	T. P. 1708	101.3
T. P. 1708	48 00 31.43	41 24	T. P. 1707	101.3
	89 39 49.30	194 11	T. P. 1709	196.0
T. P. 1709	48 00 37.58	14 11	T. P. 1708	196.0
	89 39 46.99	227 29	T. P. 1710	48.8
T. P. 1710	48 00 38.65	47 29	T. P. 1709	48.8
	89 39 45.25	262 20	T. P. 1711	52.5
		200 11	P. R. T. 77	22.9
T. P. 1711	48 00 38.88	82 20	T. P. 1710	52.5
	89 39 42.74	278 02	T. P. 1712	322.2
T. P. 1712	48 00 37.42	98 02	T. P. 1711	322.2
	89 39 27.35	309 43	T. P. 1713	84.5
T. P. 1713	48 00 35.67	129 43	T. P. 1712	84.5
	89 39 24.21	345 13	T. P. 1714	203.7
T. P. 1714	48 00 29.29	165 13	T. P. 1713	203.7
	89 39 21.70	332 03	T. P. 1715	202.6
T. P. 1715	48 00 23.50	152 03	T. P. 1714	202.6
	89 39 17.12	317 17	T. P. 1716	53.1
		243 26	Ref. Mon. 1343	12.3
		338 17	Ref. Mon. 1344	38.1
T. P. 1716	48 00 22.24	137 17	T. P. 1715	53.1
	89 39 15.38	334 46	T. P. 1717	232.2
T. P. 1717	48 00 15.44	154 46	T. P. 1716	232.2
	89 39 10.61	293 48	T. P. 1718	176.0
T. P. 1718	48 00 13.14	113 48	T. P. 1717	176.0
	89 39 02.84	261 47	T. P. 1719	133.1
T. P. 1719	48 00 13.75	81 48	T. P. 1718	133.1
	89 38 56.49	242 14	T. P. 1720	64.4
T. P. 1720	48 00 14.72	62 15	T. P. 1719	64.4
	89 38 53.74	206 00	T. P. 1721	225.9
		244 50	P. R. T. 52	45.9
T. P. 1721	48 00 21.30	26 00	T. P. 1720	225.9
	89 38 48.97	243 42	T. P. 1722	94.8
		212 02	P. R. T. 65	61.5
T. P. 1722	48 00 22.66	63 42	T. P. 1721	94.8
	89 38 44.86	267 55	T. P. 1723	220.1
		100 55	P. R. T. 65	53.4
T. P. 1723	48 00 22.92	87 55	T. P. 1722	220.1
	89 38 34.25	303 06	T. P. 1724	133.7
T. P. 1724	48 00 20.55	123 06	T. P. 1723	133.7
	89 38 28.85	330 21	T. P. 1725	232.4
T. P. 1725	48 00 14.01	150 21	T. P. 1724	232.4
	89 38 23.30	291 13	T. P. 1726	91.2
T. P. 1726	48 00 12.95	111 13	T. P. 1725	91.2
	89 38 19.20	243 04	T. P. 1727	141.3
T. P. 1727	48 00 15.02	63 04	T. P. 1726	141.3
	89 38 13.12	199 26	T. P. 1728	90.1
PIGEON RIVER Continued	° ′ ″	° ′		
T. P. 1728	48 00 17.77	19 26	T. P. 1727	90.1
	89 38 11.67	159 50	T. P. 1729	188.6
T. P. 1729	48 00 23.50	339 50	T. P. 1728	188.6
	89 38 14.81	175 31	T. P. 1730	102.3
T. P. 1730	48 00 26.80	355 31	T. P. 1729	102.3
	89 38 15.20	152 16	T. P. 1731	131.1
T. P. 1731	48 00 30.56	332 16	T. P. 1730	131.1
	89 38 18.14	192 24	T. P. 1732	51.2
T. P. 1732	48 00 32.18	12 24	T. P. 1731	51.2
	89 38 17.61	220 21	T. P. 1733	31.4
		165 14	P. R. T. 57	26.7
		270 43	Ref. Mon. 1345	24.0
T. P. 1733	48 00 32.95	40 21	T. P. 1732	31.4
	89 38 16.63	240 50	T. P. 1734	74.1
		171 18	Ref. Mon. 1346	38.7
		351 18	Ref. Mon. 1345	24.5
T. P. 1734	48 00 34.12	60 50	T. P. 1733	74.1
	89 38 13.51	264 15	T. P. 1735	309.2
T. P. 1735	48 00 35.13	84 15	T. P. 1734	309.2
	89 37 58.67	245 24	T. P. 1736	91.3
T. P. 1736	48 00 36.36	65 24	T. P. 1735	91.3
	89 37 54.66	257 13	T. P. 1737	198.9
T. P. 1737	48 00 37.78	77 13	T. P. 1736	198.9
	89 37 45.30	227 03	T. P. 1738	118.9
T. P. 1738	48 00 40.40	47 03	T. P. 1737	118.9
	89 37 41.10	246 19	T. P. 1739	84.6
T. P. 1739	48 00 41.51	66 19	T. P. 1738	84.6
	89 37 37.36	258 33	T. P. 1740	120.9
T. P. 1740	48 00 42.28	78 33	T. P. 1739	120.9
	89 37 31.65	268 17	T. P. 1741	201.1
T. P. 1741	48 00 42.48	88 18	T. P. 1740	201.1
	89 37 21.95	297 22	T. P. 1742	256.7
T. P. 1742	48 00 38.66	117 22	T. P. 1741	256.7
	89 37 10.95	259 21	T. P. 1743	102.8
T. P. 1743	48 00 39.27	79 21	T. P. 1742	102.8
	89 37 06.07	232 17	T. P. 1744	67.0
T. P. 1744	48 00 40.59	52 17	T. P. 1743	67.0
	89 37 03.52	207 38	T. P. 1745	95.9
T. P. 1745	48 00 43.35	27 38	T. P. 1744	95.9
	89 37 01.37	226 07	T. P. 1746	111.7
T. P. 1746	48 00 45.85	46 08	T. P. 1745	111.7
	89 36 57.49	202 12	T. P. 1747	106.4
		93 05	Ref. Mon. 1347-A	24.5
		273 05	Ref. Mon. 1348-A	13.6
T. P. 1747	48 00 49.04	22 12	T. P. 1746	106.4
	89 36 55.55	197 10	T. P. 1748	146.6
		94 08	Ref. Mon. 1347	22.9
		274 08	Ref. Mon. 1348	18.1
T. P. 1748	48 00 53.58	17 10	T. P. 1747	146.6
	89 36 53.46	222 08	T. P. 1749	141.6
T. P. 1749	48 00 56.98	42 08	T. P. 1748	141.6
	89 36 48.88	237 03	T. P. 1750	128.7
T. P. 1750	48 00 59.25	57 03	T. P. 1749	128.7
	89 36 43.67	195 56	T. P. 1751	160.4
T. P. 1751	48 01 04.24	15 56	T. P. 1750	160.4
	89 36 41.55	259 20	T. P. 1752	70.2
T. P. 1752	48 01 04.66	79 20	T. P. 1751	70.2
	89 36 38.22	304 08	T. P. 1753	108.7
T. P. 1753	48 01 02.69	124 08	T. P. 1752	108.7
	89 36 33.87	345 46	T. P. 1754	71.2
T. P. 1754	48 01 00.45	165 46	T. P. 1753	71.2
	89 36 33.03	11 48	T. P. 1755	193.3
T. P. 1755	48 00 54.33	191 48	T. P. 1754	193.3
	89 36 34.94	340 43	T. P. 1756	278.6
		214 48	P. R. T. 31	40.3
T. P. 1756	48 00 45.81	160 43	T. P. 1755	278.6
	89 36 30.50	359 25	T. P. 1757	99.5

BOUNDARY TURNING POINTS—PIGEON RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
PIGEON RIVER—Continued	° ′ ″	° ′		
T. P. 1757	48 00 42.59	179 25	T. P. 1756	99.5
	89 36 30.45	23 38	T. P. 1758	78.6
		347 14	P. R. T. 27	29.4
T. P. 1758	48 00 40.26	203 38	T. P. 1757	78.6
	89 36 31.97	50 44	T. P. 1759	67.2
		75 08	P. R. T. 30	41.7
		221 16	P. R. T. 27	57.6
T. P. 1759	48 00 38.88	230 44	T. P. 1758	67.2
	89 36 34.48	38 37	T. P. 1760	98.5
		200 12	P. R. T. 30	33.9
T. P. 1760	48 00 36.39	218 37	T. P. 1759	98.5
	89 36 37.44	5 08	T. P. 1761	39.2
T. P. 1761	48 00 35.12	185 08	T. P. 1760	39.2
	89 36 37.61	308 55	T. P. 1762	70.0
T. P. 1762	48 00 33.70	128 55	T. P. 1761	70.0
	89 36 34.98	339 12	T. P. 1763	107.0
T. P. 1763	48 00 30.46	159 12	T. P. 1762	107.0
	89 36 33.14	323 27	T. P. 1764	89.0
		332 05	P. R. T. 26	38.0
T. P. 1764	48 00 28.15	143 27	T. P. 1763	89.0
	89 36 30.59	341 26	T. P. 1765	100.2
		7 43	P. R. T. 24	37.9
		137 07	P. R. T. 26	51.7
T. P. 1765	48 00 25.07	161 26	T. P. 1764	100.2
	89 36 29.05	310 04	T. P. 1766	95.5
T. P. 1766	48 00 23.08	130 05	T. P. 1765	95.5
	89 36 25.52	288 00	T. P. 1767	41.7
T. P. 1767	48 00 22.66	108 00	T. P. 1766	41.7
	89 36 23.61	273 58	T. P. 1768	246.9
		160 22	Ref. Mon. 1349–A	26.2
		340 22	Ref. Mon. 1349	19.4
T. P. 1768	48 00 22.11	93 58	T. P. 1767	246.9
	89 36 11.73	303 13	T. P. 1769	204.4
T. P. 1769	48 00 18.48	123 14	T. P. 1768	204.4
	89 36 03.48	269 44	T. P. 1770	209.7
T. P. 1770	48 00 18.52	89 44	T. P. 1769	209.7
	89 35 53.36	323 37	T. P. 1771	47.2
		43 24	Ref. Mon. 1350	30.4
		265 49	Ref. Mon. 1351	52.1
T. P. 1771	48 00 17.29	143 37	T. P. 1770	47.2
	89 35 52.01	347 28	T. P. 1772	18.4
		108 01	Ref. Mon. 1350	51.4
		209 52	Ref. Mon. 1351	48.2
T. P. 1772	48 00 16.70	167 28	T. P. 1771	18.4
	89 35 51.82	334 59	T. P. 1773	16.6
T. P. 1773	48 00 16.22	154 59	T. P. 1772	16.6
	89 35 51.49	313 16	T. P. 1774	23.3
T. P. 1774	48 00 15.70	133 16	T. P. 1773	23.3
	89 35 50.67	261 02	T. P. 1775	57.7
T. P. 1775	48 00 15.99	81 02	T. P. 1774	57.7
	89 35 47.92	237 46	T. P. 1776	54.4
T. P. 1776	48 00 16.93	57 46	T. P. 1775	54.4
	89 35 45.70	254 56	T. P. 1777	26.9
T. P. 1777	48 00 17.16	74 56	T. P. 1776	26.9
	89 35 44.44	282 46	T. P. 1778	76.9
T. P. 1778	48 00 16.61	102 46	T. P. 1777	76.9
	89 35 40.82	302 47	T. P. 1779	70.2
T. P. 1779	48 00 15.38	122 47	T. P. 1778	70.2
	89 35 37.98	285 36	T. P. 1780	89.3
T. P. 1780	48 00 14.60	105 36	T. P. 1779	89.3
	89 35 33.83	323 57	T. P. 1781	41.8
T. P. 1781	48 00 13.51	143 57	T. P. 1780	41.8
	89 35 32.64	343 21	T. P. 1782	71.2
		66 14	Ref. Mon. 1352	54.1
		246 15	Ref. Mon. 1353	129.2
T. P. 1782	48 00 11.30	163 21	T. P. 1781	71.2
	89 35 31.65	301 57	T. P. 1783	100.2
		235 08	Island I	32.5
T. P. 1783	48 00 09.58	121 57	T. P. 1782	100.2
	89 35 27.55	275 07	T. P. 1784	220.7
		70 08	Island H	31.5
		171 08	Island G	39.6
T. P. 1784	48 00 08.94	95 07	T. P. 1783	220.7
	89 35 16.95	291 21	T. P. 1785	209.6
		32 38	Ref. Mon. 1354	73.6
		212 38	Ref. Mon. 1355	79.1
T. P. 1785	48 00 06.47	111 21	T. P. 1784	209.6
	89 35 07.53	331 21	T. P. 1786	55.5
		18 45	Ref. Mon. 1357	57.6
		303 04	Ref. Mon. 1356	79.7
T. P. 1786	48 00 04.90	151 21	T. P. 1785	55.5
	89 35 06.25	9 39	T. P. 1787	201.7
		82 36	Ref. Mon. 1357	45.5
		262 36	Ref. Mon. 1356	40.6
T. P. 1787	47 59 58.46	189 39	T. P. 1786	201.7
	89 35 07.88	316 59	T. P. 1788	110.4
		119 19	Ref. Mon. 1358	60.6
		299 20	Ref. Mon. 1359	91.5
T. P. 1788	47 59 55.85	136 59	T. P. 1787	110.4
	89 35 04.25	333 16	T. P. 1789	141.0
		7 10	Island E	100.7
		187 10	Ref. Mon. 1359	36.2
T. P. 1789	47 59 51.77	153 16	T. P. 1788	141.0
	89 35 01.19	315 36	T. P. 1790	122.6
		108 54	Island E	80.3
		288 54	Ref. Mon. 1361	190.0
T. P. 1790	47 59 48.94	135 36	T. P. 1789	122.6
	89 34 57.05	297 56	T. P. 1791	61.9
		74 33	Ref. Mon. 1360	159.3
		254 33	Ref. Mon. 1361	97.6
T. P. 1791	47 59 48.00	117 56	T. P. 1790	61.9
	89 34 54.41	340 24	T. P. 1792	65.3
		35 34	Island D	21.1
		215 34	Ref. Mon. 1361	67.6
T. P. 1792	47 59 46.01	160 24	T. P. 1791	65.3
	89 34 53.36	289 26	T. P. 1793	46.9
		142 20	Island D	56.0
		237 29	Island C	43.2
T. P. 1793	47 59 45.50	109 26	T. P. 1792	46.9
	89 34 51.22	243 40	T. P. 1794	312.3
		168 31	Island C	39.6
		168 31	Ref. Mon. 1361	134.9
T. P. 1794	47 59 49.98	63 41	T. P. 1793	312.3
	89 34 37.72	264 13	T. P. 1795	324.7
		1 21	Ref. Mon. 1363	83.0
		181 21	Ref. Mon. 1362	77.8
T. P. 1795	47 59 51.04	84 13	T. P. 1794	324.7
	89 34 22.14	245 56	T. P. 1796	155.4
		154 35	Ref. Mon. 1364	88.2
		334 35	Ref. Mon. 1365	66.7
T. P. 1796	47 59 53.10	65 56	T. P. 1795	155.4
	89 34 15.30	218 50	T. P. 1797=T. P. 269 I. W. C.	161.9
		187 46	I. W. C. Mon. 3	159.5
		231 32	Ref. Mon. 1366	178.3
T. P. 1797=T. P. 269 I. W. C.	47 59 57.18	38 50	T. P. 1796	161.9
	89 34 10.40	111 45	I. W. C. Mon. 3	86.1
		291 45	Ref. Mon. 1366	41.0

GEOGRAPHIC POSITIONS OF MONUMENTS REFERENCING THE TURNING POINTS OF THE INTERNATIONAL BOUNDARY THROUGH LAKE OF THE WOODS

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 1	49 23 04.15	25 41	T. P. 3	472.4
	95 08 48.28	55 30	T. P. 2	292.6
		89 58 50	Ref. Mon. 2	851.7
		89 58 50	T. P. 1	465.1
		348 28 50	T. P. 5	701.0
		357 36	T. P. 4	484.6
Ref. Mon. 2	49 23 04.13	269 58 20	Ref. Mon. 1	851.7
	95 09 30.50	269 58 20	T. P. 1	386.6
Mon. 924 (meridian boundary)	49 22 13.60	179 58 50	T. P. 1	1,561.5
	95 09 11.31	179 58 50	Mon. 925	792.7
Mon. 925 (meridian boundary)	49 22 39.26	179 58 50	T. P. 1	768.8
	95 09 11.32	249 41 40	Ref. Mon. 3	858.2
		359 58 50	Mon. 924	792.7
Ref. Mon. 3	49 22 48.89	42 50	T. P. 5	294.2
	95 08 31.42	69 42 10	Mon. 925	858.2
		87 41	T. P. 4	320.0
		338 13	T. P. 7	493.8
		352 12	T. P. 6	216.4
Ref. Mon. 4	49 22 02.04	200 05 40	T. P. 8	751.8
	95 08 09.77	208 53 20	Ref. Mon. 5	1,066.3
		236 54 30	T. P. 9	656.9
Ref. Mon. 5	49 22 32.25	28 53 40	Ref. Mon. 4	1,066.3
	95 07 44.24	48 28	T. P. 8	343.1
		94 08 10	T. P. 7	770.6
		108 00 00	T. P. 6	969.9
		356 30 10	T. P. 9	576.1
Ref. Mon. 6	49 21 45.92	139 35 20	T. P. 10	562.0
	95 06 38.43	191 19 40	Ref. Mon. 7	657.2
		191 19 40	T. P. 11	412.0
		244 52 40	T. P. 12	619.5
		261 20 20	T. P. 13	571.9
Ref. Mon. 7	49 22 06.78	11 19 40	Ref. Mon. 6	657.2
	95 06 32.04	11 19 40	T. P. 11	245.1
		66 18 30	T. P. 10	538.8
		311 26 50	T. P. 12	576.1
		321 59 40	T. P. 13	708.5
Ref. Mon. 8	49 21 32.65	178 43 50	Ref. Mon. 9	951.4
	95 05 22.03	178 43 50	T. P. 14	235.7
Ref. Mon. 9	49 22 03.44	358 43 50	Ref. Mon. 8	951.4
	95 05 23.07	358 43 50	T. P. 14	715.7
Ref. Mon. 10	49 20 58.46	144 32 40	T. P. 15	503.1
	95 03 14.56	221 18 10	Ref. Mon. 11	1,470.1
		221 18 10	T. P. 16	524.4
Ref. Mon. 11	49 21 34.21	41 18 50	Ref. Mon. 10	1,470.1
	95 02 26.48	41 18 50	T. P. 16	945.7
		61 11 10	T. P. 15	1,440.6
		358 19 50	Ref. Mon. 12	1,533.1
Ref. Mon. 12	49 20 44.60	178 19 50	Ref. Mon. 11	1,533.1
	95 02 24.27			
Ref. Mon. 13	49 21 47.39	355 09 10	Ref. Mon. 14	1,863.9
	95 00 53.37	355 09 10	T. P. 17	746.0
Ref. Mon. 14	49 20 47.27	175 09 20	Ref. Mon. 13	1,863.9
	95 00 45.57	175 09 20	T. P. 17	1,117.9
Ref. Mon. 15	49 22 27.93	351 19 20	Ref. Mon. 16	1,343.6
	94 59 24.14	351 19 20	T. P. 18	616.5
Ref. Mon. 16	49 21 44.93	171 19 20	Ref. Mon. 15	1,343.6
	94 59 14.09	171 19 20	T. P. 18	727.1
Ref. Mon. 17	49 22 10.19	256 45 50	Ref. Mon. 21	1,719.4
	94 58 27.83	352 52	Ref. Mon. 18	435.8
		352 52	T. P. 19	200.1
Ref. Mon. 18	49 21 56.19	172 52	Ref. Mon. 17	435.8
	94 58 25.15	172 52	T. P. 19	235.7
Ref. Mon. 19	49 22 18.81	329 44 00	Ref. Mon. 20	621.8
	94 57 31.20	329 44 00	T. P. 20	217.8
Ref. Mon. 20	49 22 01.43	149 44 10	Ref. Mon. 19	621.8
	94 57 15.67	149 44 10	T. P. 20	404.0
		224 34	Ref. Mon. 23	459.4
		224 34	T. P. 21	261.0
Ref. Mon. 21 [1]	49 22 22.92	76 47 00	Ref. Mon. 17	1,719.4
	94 57 04.86			
Ref. Mon. 23 [1]	49 22 12.02	44 35	Ref. Mon. 20	459.4
	94 56 59.69	44 35	T. P. 21	198.5
Ref. Mon. 24	49 21 18.05	295 47 00	Ref. Mon. 26	1,355.4
	94 55 33.39			
Ref. Mon. 25	49 20 54.96	38 43	T. P. 23	31.7
	94 54 21.64	118 30	Ref. Mon. 26	259.1
		129 39	T. P. 22	269.6
Ref. Mon. 26	49 20 58.96	115 47 50	Ref. Mon. 24	1,355.4
	94 54 32.92	202 38	T. P. 22	52.4
		298 30	Ref. Mon. 25	259.1
		305 31	T. P. 23	255.4
Ref. Mon. 27	49 20 49.65	314 46 10	Ref. Mon. 30	2,449.6
	94 54 05.91			
Ref. Mon. 28	49 20 25.16	338 54 40	Ref. Mon. 30	1,038.6
	94 52 58.29			
Ref. Mon. 29	49 20 06.53	353 06	Ref. Mon. 30	396.3
	94 52 42.14	353 06	T. P. 24	198.8
Ref. Mon. 30	49 19 53.80	134 47 10	Ref. Mon. 27	2,449.6
	94 52 39.78	158 54 50	Ref. Mon. 28	1,038.6
		173 06	Ref. Mon. 29	396.3
		173 06	T. P. 24	197.5
Ref. Mon. 31	49 19 36.55	340 38 30	Ref. Mon. 32	532.1
	94 51 18.56	340 38 30	T. P. 25	292.0
Ref. Mon. 32	49 19 20.30	160 38 40	Ref. Mon. 31	532.1
	94 51 09.82	160 38 40	T. P. 25	240.1
Ref. Mon. 33	49 19 31.81	282 19 10	Ref. Mon. 35	2,221.0
	94 50 41.02	282 19 10	T. P. 27	2,135.5
		282 19 10	T. P. 26	636.7
Ref. Mon. 34	49 19 13.42	248 14	Ref. Mon. 35	253.5
	94 49 05.22			
Ref. Mon. 35	49 19 16.47	68 14	Ref. Mon. 34	253.5
	94 48 53.57	102 20 30	Ref. Mon. 33	2,221.0
		102 20 30	T. P. 26	1,584.3
		102 20 30	T. P. 27	85.5
Ref. Mon. 36	49 18 32.74	276 36	Ref. Mon. 37	273.4
	94 49 33.43	276 36	T. P. 28	134.2
Ref. Mon. 37	49 18 31.72	96 36	Ref. Mon. 36	273.4
	94 49 19.98	96 36	T. P. 28	139.2
Ref. Mon. 38	49 17 38.37	263 35 40	Ref. Mon. 39	743.4
	94 49 49.17	263 35 40	T. P. 29	367.6
Ref. Mon. 39	49 17 41.05	83 36 10	Ref. Mon. 38	743.4
	94 49 12.61	83 36 10	T. P. 29	375.8
Ref. Mon. 40	49 12 54.08	283 26 50	Ref. Mon. 41	599.9
	94 48 05.01	283 26 50	T. P. 30	321.8
Ref. Mon. 41	49 12 49.56	103 27 10	Ref. Mon. 40	599.9
	94 47 36.18	103 27 10	T. P. 30	278.1
Ref. Mon. 42	49 12 00.36	337 32 50	Ref. Mon. 43	801.7
	94 47 56.97	337 32 50	T. P. 31	269.0
Ref. Mon. 43	49 11 36.37	157 33 00	Ref. Mon. 42	801.7
	94 47 41.84	157 33 00	T. P. 31	532.7
Ref. Mon. 44	49 07 25.42	258 00	Ref. Mon. 45	359.8
	94 46 39.26	314 21 40	Ref. Mon. 47	3,497.2
		314 21 40	T. P. 32	512.2
Ref. Mon. 45	49 07 27.85	78 00	Ref. Mon. 44	359.8
	94 46 21.90			

[1] Reference monument 22 was destroyed and was not rebuilt.

BOUNDARY REFERENCE MONUMENTS—LAKE OF THE WOODS—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″				° ′ ″	° ′ ″		
Ref. Mon. 46	49 05 49.68	233 11 50	Ref. Mon. 47	854.9	Ref. Mon. 49	48 53 23.50	18 29 30	T. P. 35	2,051.2
	94 45 09.74	233 11 50	T. P. 33	299.3		94 40 30.78	28 15 30	T. P. 36	2,629.3
							42 46 40	Ref. Mon. 48	2,008.0
Ref. Mon. 47	49 06 06.26	53 12 10	Ref. Mon. 46	854.9			42 46 40	T. P. 34	867.1
	94 44 36.00	53 12 10	T. P. 33	555.6					
		134 23 10	Ref. Mon. 44	3,497.2	Ref. Mon. 50	48 50 44.30	196 50 30	T. P. 37	2,083.9
		134 23 10	T. P. 32	2,985.2		94 41 53.63	204 28 50	T. P. 38	952.7
							231 53 40	Ref. Mon. 51	1,744.9
Ref. Mon. 48	48 52 35.79	222 45 50	Ref. Mon. 49	2,008.0					
	94 41 37.71	222 45 50	T. P. 34	1,140.9	Ref. Mon. 51	48 51 19.15	51 54 30	Ref. Mon. 50	1,744.9
		303 27 20	T. P. 35	855.0		94 40 46.28	77 54 50	T. P. 38	1,000.5
		351 56 50	T. P. 36	850.5			140 02 40	T. P. 37	1,197.5

GEOGRAPHIC POSITIONS OF MONUMENTS AND MARKED STATIONS REFERENCING THE TURNING POINTS OF THE INTERNATIONAL BOUNDARY THROUGH RAINY RIVER

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 52	48 50 18.46	48 24	T. P. 40	494.4
	94 41 32.15	250 31 10	T. P. 39	536.4
		314 14 50	Ref. Mon. 53	581.1
Ref. Mon. 53	48 50 05.34	95 36 40	T. P. 40	789.8
	94 41 11.74	134 15 00	Ref. Mon. 52	581.1
		188 42 20	T. P. 39	591.1
Ref. Mon. 54	48 49 56.35	17 57 00	Ref. Mon. 56	953.3
	94 42 14.25	288 29	T. P. 41	166.9
Ref. Mon. 55	48 49 27.55	88 21 30	Ref. Mon. 56	600.9
	94 41 59.20	88 21 30	T. P. 42	316.3
Ref. Mon. 56	48 49 26.99	197 56 50	Ref. Mon. 54	953.3
	94 42 28.65	207 53 40	T. P. 41	966.3
		268 21 10	Ref. Mon. 55	600.9
		268 21 10	T. P. 42	284.6
Ref. Mon. 57	48 49 01.17	64 04	Ref. Mon. 58	485.7
	94 41 44.82			
Ref. Mon. 58	48 48 54.30	244 04	Ref. Mon. 57	485.7
	94 42 06.23			
Ref. Mon. 59	48 48 39.70	56 46 30	Ref. Mon. 60	765.7
	94 41 26.26	56 46 30	T. P. 43	376.3
Ref. Mon. 60	48 48 26.12	236 46 10	Ref. Mon. 59	765.7
	94 41 57.65	236 46 10	T. P. 43	389.3
Ref. Mon. 61	48 48 00.97	74 42	Ref. Mon. 62	430.6
	94 41 32.79	74 42	T. P. 44	253.9
Ref. Mon. 62	48 47 57.29	254 42	Ref. Mon. 61	430.6
	94 41 53.14	254 42	T. P. 44	176.6
Ref. Mon. 63	48 47 30.58	29 04 00	Ref. Mon. 66	524.0
	94 41 31.94	29 04 00	T. P. 45	300.5
		65 15	Ref. Mon. 64	496.0
Ref. Mon. 64	48 47 23.86	245 15	Ref. Mon. 63	496.0
	94 41 54.01			
Ref. Mon. 65	48 46 38.82	6 37	T. P. 47	256.0
	94 41 11.30	70 41	Ref. Mon. 68	448.0
		101 36	T. P. 46	316.5
Ref. Mon. 66	48 47 15.75	209 03 50	Ref. Mon. 63	524.0
	94 41 44.41	209 03 50	T. P. 45	223.5
Ref. Mon. 67	48 46 18.17	36 00	Ref. Mon. 72	410.4
	94 40 20.24	89 13 40	Ref. Mon. 70	832.4
		89 13 40	T. P. 48	320.4
		310 03 50	Ref. Mon. 69	806.5
		327 36 10	T. P. 49	727.0
Ref. Mon. 68	48 46 34.02	208 00	T. P. 46	240.0
	94 41 32.01	250 41	Ref. Mon. 65	448.0
		285 06	T. P. 47	407.3
Ref. Mon. 69	48 46 01.36	67 26	T. P. 49	246.7
	94 39 50.01	130 04 10	Ref. Mon. 67	806.5
Ref. Mon. 70	48 46 17.80	269 13 20	Ref. Mon. 67	832.4
	94 41 01.00	269 13 20	T. P. 48	511.9
Ref. Mon. 71	48 45 44.42	25 07	Ref. Mon. 74	430.4
	94 39 31.53	25 07	T. P. 50	234.0
Ref. Mon. 72	48 46 07.42	216 00	Ref. Mon 67	410.4
	94 40 32.05			
Ref. Mon. 73	48 45 25.00	60 37	Ref. Mon. 76	461.9
	94 38 59.03	60 37	T. P. 51	175.9
Ref. Mon. 74	48 45 31.80	205 07	Ref. Mon. 71	430.4
	94 39 40.47	205 07	T. P. 50	196.4
Ref. Mon. 75	48 44 42.03	60 19	T. P. 53	216.8
	94 38 33.35	122 50	Ref. Mon. 78	496.5
		157 24	T. P. 52	491.9
Ref. Mon. 76	48 45 17.66	240 36	Ref. Mon. 73	461.9
	94 39 18.74	240 36	T. P. 51	286.1
Ref. Mon. 77	48 44 34.72	33 25	Ref. Mon. 80	456.4
	94 38 21.64	33 25	T. P. 54	231.5
Ref. Mon. 78	48 44 50.75	230 59	T. P. 52	293.6
	94 38 53.77	302 50	Ref. Mon. 75	496.5
		328 43	T. P. 53	440.7
Ref. Mon. 79	48 44 26.33	22 32	Ref. Mon. 82	397.6
	94 37 44.18	22 32	T. P. 55	196.6
Ref. Mon. 80	48 44 22.39	213 25	Ref. Mon. 77	456.4
	94 38 33.94	213 25	T. P. 54	224.9
Ref. Mon. 81	48 44 17.98	51 57	Ref. Mon. 84	440.4
	94 37 01.01	51 57	T. P. 56	187.3
Ref. Mon. 82	48 44 14.44	202 32	Ref. Mon. 79	397.6
	94 37 51.63	202 32	T. P. 55	200.9
Ref. Mon. 83	48 43 59.05	40 58	Ref. Mon. 86	436.5
	94 36 31.67	40 58	T. P. 57	183.8
Ref. Mon. 84	48 44 09.19	231 56	Ref. Mon. 81	440.4
	94 37 17.98	231 56	T. P. 56	253.0
Ref. Mon. 85	48 43 43.84	23 28	Ref. Mon. 88	442.4
	94 35 51.38	74 50	T. P. 58	257.7
		346 07	T. P. 59	465.8
Ref. Mon. 86	48 43 48.38	220 58	Ref. Mon. 83	436.5
	94 36 45.67	220 58	T. P. 57	252.7
Ref. Mon. 87	48 43 13.54	58 05	Ref. Mon. 89	334.2
	94 35 21.29	58 05	T. P. 60	167.1
		337 06	T. P. 61	340.8
Ref. Mon. 88	48 43 30.70	167 53	T. P. 58	346.2
	94 36 00.00	203 27	Ref. Mon. 85	442.4
		279 09	T. P. 59	291.6
Ref. Mon. 89	48 43 07.82	238 04	Ref. Mon. 87	334.2
	94 35 35.17	238 04	T. P. 60	167.1
		288 14	T. P. 61	438.4
Ref. Mon. 90	48 43 02.32	1 15	Baraba	377.4
	94 34 05.80	1 15	T. P. 62	196.2
		324 09	Ref. Mon. 91	480.0
Baraba	48 42 50.11	181 15	Ref. Mon. 90	377.4
	94 34 06.20	181 15	T. P. 62	181.2
Ref. Mon. 91	48 42 49.73	124 04	T. P. 62	344.5
	94 33 52.05	144 09	Ref. Mon. 90	480.0
		240 58 20	Ref. Mon. 92	841.7
		247 14 10	T. P. 63	704.3
Fuzzy	48 42 53.71	184 17	Rainy River water tank.	311.7
	94 33 20.82	184 17	T. P. 63	150.0
Rainy River water tank.	48 43 03.77	4 17	Fuzzy	311.7
	94 33 19.68	4 17	T. P. 63	161.7
Ref. Mon. 92	48 43 02.95	32 29	T. P. 63	161.1
	94 33 16.04	60 58 50	Ref. Mon. 91	841.7
		306 05 30	T. P. 64	512.4
		310 36 40	T. P. 65	865.0
		322 30 30	Ref. Mon. 93	838.0
Steam	48 42 49.05	226 39	Phone	369.1
	94 33 02.40	226 39	T. P. 64	185.9
Phone	48 42 57.25	46 39	Steam	369.1
	94 32 49.27	46 39	T. P. 64	183.1
Ref. Mon. 93	48 42 41.42	142 30 50	Ref. Mon. 92	838.0
	94 32 51.09	165 12	T. P. 64	375.5
		235 13	Crow	378.5
		235 13	T. P. 65	178.5
Crow	48 42 48.42	55 13	Ref. Mon. 93	378.5
	94 32 35.89	55 13	T. P. 65	200.0
Ref. Mon. 94	48 42 13.54	276 09 50	Ref. Mon. 95	629.8
	94 32 31.59	292 13	T. P. 66	302.1

BOUNDARY REFERENCE MONUMENTS AND MARKED STATIONS—RAINY RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 95	48 42 11.35	82 21	T. P. 66	349.5
	94 32 00.96	96 10 10	Ref. Mon. 94	629.8
		284 37 10	T. P. 68	688.0
		292 11 30	Ref. Mon. 96	923.6
		343 21	T. P. 67	220.9
Ref. Mon. 96	48 42 00.05	99 50 30	T. P. 67	803.7
	94 31 19.14	112 12 00	Ref. Mon. 95	923.6
		132 47	T. P. 68	258.0
		257 15	T. P. 69	361.9
Ref. Mon. 97	48 41 56.77	117 26	T. P. 69	393.3
	94 30 44.81	237 01	T. P. 70	292.7
		267 16 10	Ref. Mon. 98	977.2
		277 17 30	T. P. 71	968.1
Ref. Mon. 98	48 41 58.27	5 21	Calf	324.4
	94 29 57.07	5 21	T. P. 71	170.2
		87 16 50	Ref. Mon. 97	977.2
		98 47 10	T. P. 70	739.2
Calf	48 41 47.82	185 21	Ref. Mon. 98	324.4
	94 29 58.55	185 21	T. P. 71	154.2
Ref. Mon. 99	48 41 58.07	291 52 30	Ref. Mon. 100	1,274.7
	94 29 10.57	357 51	T. P. 72	168.5
Ref. Mon. 100	48 41 42.69	104 36 50	T. P. 72	1,215.9
	94 28 12.72	111 53 10	Ref. Mon. 99	1,274.7
		173 05	Ray	335.4
		173 05	T. P. 73	159.6
		251 59 50	Ref. Mon. 101	599.3
		269 30 20	T. P. 74	532.2
Ray	48 41 53.47	353 05	Ref. Mon. 100	335.4
	94 28 14.69	353 05	T. P. 73	175.8
Ref. Mon. 101	48 41 48.68	11 48	Lid	353.2
	94 27 44.85	11 48	T. P. 74	184.5
		72 00 10	Ref. Mon. 100	599.3
		87 24 20	T. P. 73	589.8
		312 54 50	T. P. 75	581.6
Lid	48 41 37.49	191 48	Ref. Mon. 101	353.2
	94 27 48.38	191 48	T. P. 74	168.6
Ref. Mon. 102	48 41 30.83	202 38	T. P. 75	168.4
	94 27 27.19	248 58 50	Ref. Mon. 103	628.5
		261 26	T. P. 76	400.0
Ref. Mon. 103	48 41 38.13	49 04	T. P. 76	253.1
	94 26 58.50	68 59 10	Ref. Mon. 102	628.5
		262 38 40	T. P. 78	812.8
		267 28 20	Ref. Mon. 104	928.4
		294 43	T. P. 77	258.9
Ref. Mon. 104	48 41 39.45	77 50 40	T. P. 77	708.2
	94 26 13.15	87 28 50	Ref. Mon. 103	928.4
		117 30	T. P. 78	136.8
Ref. Mon. 105	48 42 25.39	230 13 10	T. P. 81	560.9
	94 25 28.46	235 15	T. P. 80	304.0
		243 03 50	Ref. Mon. 106	540.2
		347 03	T. P. 79	199.5
Ref. Mon. 106	48 42 33.31	44 51 20	T. P. 79	619.4
	94 25 04.91	63 04 00	Ref. Mon. 105	540.2
		72 53	T. P. 80	242.6
		156 07	T. P. 81	124.9
		222 10	T. P. 82	262.8
Ref. Mon. 107	48 42 43.28	63 58	T. P. 82	257.5
	94 24 44.96	286 29 20	Ref. Mon. 108	906.9
		288 52 00	T. P. 83	518.0
Ref. Mon. 108	48 42 34.94	103 20	T. P. 83	389.9
	94 24 02.43	106 29 50	Ref. Mon. 107	906.9
		253 55 20	Ref. Mon. 109	1,303.6
		253 55 20	T. P. 84	911.8
Ref. Mon. 109	48 42 46.63	7 40	T. P. 85	123.0
	94 23 01.15	73 56 10	Ref. Mon. 108	1,303.6
		73 56 10	T. P. 84	391.8
		308 18	T. P. 86	343.8
		329 21	Ref. Mon. 110	415.8
Ref. Mon. 110	48 42 35.05	135 55	T. P. 85	328.2
	94 22 50.78	149 21	Ref. Mon. 109	415.8
		201 48	T. P. 86	155.7
Ref. Mon. 111	48 42 27.60	26 54	Limb	281.9
	94 22 03.75	26 54	T. P. 87	144.6
		284 16	Ref. Mon. 112	368.1
Limb	48 42 19.46	206 54	Ref. Mon. 111	281.9
	94 22 09.98	206 54	T. P. 87	137.3
Ref. Mon. 112	48 42 24.66	84 50	T. P. 87	423.9
	94 21 46.30	104 16	Ref. Mon. 111	368.1
Ref. Mon. 113	48 42 19.47	20 17	King	300.4
	94 21 08.79	20 17	T. P. 88	149.6
		287 23 50	T. P. 89	732.8
		299 17 00	Ref. Mon. 114	810.0
King	48 42 10.35	200 16	Ref. Mon. 113	300.4
	94 21 13.88	200 16	T. P. 88	150.8
Ref. Mon. 114	48 42 06.65	108 39 00	T. P. 88	800.3
	94 20 34.24	119 17 20	Ref. Mon. 113	810.0
		177 40	McGee	338.1
		177 40	T. P. 89	177.2
McGee	48 42 17.58	357 40	Ref. Mon. 114	338.1
	94 20 34.91	357 40	T. P. 89	160.9
Ref. Mon. 115	48 42 10.48	164 27	T. P. 90	182.1
	94 19 40.41	189 57 50	Ref. Mon. 116	966.3
		239 53 10	T. P. 91	1,639.1
Ref. Mon. 116	48 42 41.29	9 58 00	Ref. Mon. 115	966.3
	94 18 32.23	61 43 20	T. P. 90	1,638.3
		349 30	T. P. 91	131.8
Ref. Mon. 117	48 42 22.00	192 30	T. P. 92	197.3
	94 17 29.71	262 49 50	Ref. Mon. 118	671.6
		274 29 50	T. P. 93	653.1
Ref. Mon. 118	48 42 24.71	6 28	T. P. 93	135.9
	94 16 57.12	82 50 20	Ref. Mon. 117	671.6
		99 54 20	T. P. 92	633.1
Ref. Mon. 119	48 42 01.83	268 21	Ref. Mon. 120	486.6
	94 16 41.12	283 52	T. P. 94	281.5
Ref. Mon. 120	48 42 02.28	69 05	Trail	398.7
	94 16 17.34	69 05	T. P. 94	228.1
		88 21	Ref. Mon. 119	486.6
Trail	48 41 57.68	249 05	Ref. Mon. 120	398.7
	94 16 35.55	249 05	T. P. 94	170.6
Ref. Mon. 121	48 41 49.08	168 36	T. P. 95	233.3
	94 15 49.24	280 22	T. P. 96	207.8
		311 48 40	Ref. Mon. 122	708.9
Ref. Mon. 122	48 41 33.78	43 26	T. P. 97	149.1
	94 15 23.41	131 49 00	Ref. Mon. 121	708.9
		140 40 50	T. P. 95	906.5
		143 20 50	T. P. 96	542.5
Ref. Mon. 123	48 41 09.19	159 05 00	T. P. 97	697.3
	94 15 16.25	246 48	T. P. 98	138.8
		299 46	Ref. Mon. 124	444.3
		316 00	T. P. 99	346.2
Ref. Mon. 124	48 41 02.05	78 56	End	310.5
	94 14 57.40	78 56	T. P. 99	147.9
		119 47	Ref. Mon. 123	444.3
		136 51	T. P. 98	377.3
End	48 41 00.12	258 56	Ref. Mon. 124	310.5
	94 15 12.29	258 56	T. P. 99	162.6
Ref. Mon. 125	48 40 41.10	27 18 50	Ref. Mon. 126	1,014.3
	94 14 54.05	92 47	T. P. 100	162.5
Ref. Mon. 126	48 40 11.93	198 26 10	T. P. 100	958.3
	94 15 16.80	207 18 30	Ref. Mon. 125	1,014.3
		300 23	T. P. 101	153.0
Ref. Mon. 127	48 39 51.07	19 23 50	Ref. Mon. 128	534.8
	94 15 10.67	20 20	T. P. 103	321.9
		80 41	T. P. 102	126.0
		180 40 00	T. P. 101	566.8
Ref. Mon. 128	48 39 34.74	186 17	T. P. 102	487.0
	94 15 19.35	197 59	T. P. 103	213.0
		199 23 40	Ref. Mon. 127	534.8
		311 37	T. P. 104	454.6
Ref. Mon. 129	48 39 22.73	239 38	T. P. 104	136.8
	94 15 08.51	287 06 50	Ref. Mon. 130	655.6
		297 52 20	T. P. 106	669.8
		298 52	T. P. 105	484.6
Ref. Mon. 130	48 39 16.48	16 03	T. P. 106	125.0
	94 14 37.89	78 33	T. P. 105	206.3
		107 07 10	Ref. Mon. 129	655.6
Ref. Mon. 131	48 39 01.21	157 57	T. P. 107	240.1
	94 13 55.69	244 15	Ref. Mon. 132	436.3
		278 54 00	T. P. 108	605.7

BOUNDARY REFERENCE MONUMENTS AND MARKED STATIONS—RAINY RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon 132	48 39 07.35	64 15	Ref. Mon. 131	436.3
	94 13 36.50	93 55	T. P. 107	484.2
		287 50 50	T. P. 109	968.1
		317 06 30	Ref. Mon. 133	701.9
		324 03	T. P. 108	349.9
Ref. Mon. 133	48 38 50.70	137 06 50	Ref. Mon. 132	701.9
	94 13 13.16	243 53	T. P. 109	494.2
Ref. Mon. 134	48 39 07.73	307 02	Ref. Mon. 135	479.6
	94 12 06.54	307 02	T. P. 110	216.1
Ref. Mon. 135	48 38 58.38	127 02	Ref. Mon. 134	479.6
	94 11 47.84	127 02	T. P. 110	263.4
		248 26 20	Ref. Mon. 136	661.5
		260 53 20	T. P. 111	609.4
Ref. Mon. 136	48 39 06.24	5 15	T. P. 111	147.2
	94 11 17.78	68 26 50	Ref. Mon. 135	661.5
Ref. Mon. 137	48 38 47.91	195 44	T. P. 112	177.8
	94 10 05.86	267 31 50	Ref. Mon. 138	857.6
Ref. Mon. 138	48 38 49.11	19 05	Bare	288.0
	94 09 24.00	19 05	T. P. 113	142.8
		87 32 20	Ref. Mon. 137	857.6
		99 25 40	T. P. 112	819.7
		295 13	T. P. 114	377.9
		312 12	Ref. Mon. 139	448.7
Bare	48 38 40.29	199 05	Ref. Mon. 138	288.0
	94 09 28.60	199 05	T. P. 113	145.2
Ref. Mon. 139	48 38 39.35	113 42	T. P. 113	414.0
	94 09 07.77	132 12	Ref. Mon. 138	448.7
		183 54	T. P. 114	140.7
Ref. Mon. 140	48 38 47.50	280 23	T. P. 115	311.5
	94 08 35.28	289 01 00	Ref. Mon. 141	814.6
Ref. Mon. 141	48 38 38.91	109 01 20	Ref. Mon. 140	814.6
	94 07 57.66	114 18 00	T. P. 115	508.8
		253 03 20	Ref. Mon. 142	577.0
		267 04 30	T. P. 116	501.5
Ref. Mon. 142	48 38 44.35	19 43	T. P. 116	151.4
	94 07 30.69	73 03 40	Ref. Mon. 141	577.0
		306 23 10	Ref. Mon. 143	505.7
Ref. Mon. 143	48 38 34.64	126 23 30	Ref. Mon. 142	505.7
	94 07 10.80			
Ref. Mon. 144	48 38 35.60	238 14 00	Ref. Mon. 145	885.6
	94 06 44.82	238 14 00	T. P. 117	226.5
Ref. Mon. 145	48 38 50.69	58 14 20	Ref. Mon. 144	885.6
	94 06 08.04	58 14 20	T. P. 117	659.0
		312 55	T. P. 118	249.4
Ref. Mon. 146	48 38 32.54	118 38 50	T. P. 118	815.4
	94 05 24.16	152 19	T. P. 119	164.1
		221 04	Ref. Mon. 147	373.5
		243 39	T. P. 120	431.1
Ref. Mon. 147	48 38 41.66	41 04	Ref. Mon. 146	373.5
	94 05 12.18	67 02	T. P. 119	349.3
		302 37	T. P. 120	167.4
Ref. Mon. 148	48 38 36.23	229 35	Ref. Mon. 149	262.8
	94 04 47.22	245 57 50	T. P. 122	687.1
		249 32	T. P. 121	254.0
Ref. Mon. 149	48 38 41.75	49 35	Ref. Mon. 148	262.8
	94 04 37.44	255 38	T. P. 122	441.2
		335 04	T. P. 121	89.9
Ref. Mon. 150	48 38 43.60	276 37	Ref. Mon. 152	181.8
	94 04 08.87			
Ref. Mon. 151	48 38 50.33	11 35	Ref. Mon. 152	233.6
	94 03 57.76	348 40	T. P. 123	129.4
Ref. Mon. 152	48 38 42.92	96 37	Ref. Mon. 150	181.8
	94 04 00.05	191 35	Ref. Mon. 151	233.6
		215 19	T. P. 123	125.1
Ref. Mon. 153	48 38 38.53	15 16	Ref. Mon. 154	171.5
	94 03 37.30	83 17	T. P. 124	277.7
		350 02	T. P. 125	103.3
Ref. Mon. 154	48 38 33.18	119 58	T. P. 124	266.3
	94 03 39.51	195 16	Ref. Mon. 153	171.5
		224 42	T. P. 125	89.6
Ref. Mon. 155	48 38 41.31	300 47	T. P. 126	170.3
	94 03 15.58	320 59	Ref. Mon. 156	215.1
Ref. Mon. 156	48 38 35.90	140 59	Ref. Mon. 155	215.1
	94 03 08.97	187 48	T. P. 126	80.7
Ref. Mon. 157	48 38 39.68	285 21	T. P. 127	368.6
	94 02 52.45	303 15	Ref. Mon. 158	463.6
Ref. Mon. 158	48 38 31.45	123 15	Ref. Mon. 157	463.6
	94 02 33.51	168 22	T. P. 127	159.9
Ref. Mon. 159	48 38 33.89	313 43 00	Ref. Mon. 160	551.3
	94 02 11.31	338 00	T. P. 128	201.9
Ref. Mon. 160	48 38 21.56	120 59	T. P. 128	376.5
	94 01 51.85	133 43 20	Ref. Mon. 159	551.3
		210 49	Ref. Mon. 161	409.3
		215 14	T. P. 129	215.5
Ref. Mon. 161	48 38 32.94	25 57	T. P. 129	195.2
	94 01 41.60	30 49	Ref. Mon. 160	409.3
Ref. Mon. 162	48 38 40.14	288 23 20	T. P. 131	579.6
	94 00 29.00	302 16 40	Ref. Mon. 163	613.6
		324 42	T. P. 130	160.9
Ref. Mon. 163	48 38 29.53	114 46	T. P. 130	469.0
	94 00 03.65	122 17 00	Ref. Mon. 162	613.6
		192 09	T. P. 131	148.2
Ref. Mon. 164	48 38 35.14	305 09 50	Ref. Mon. 165	934.3
	93 59 31.49	326 44	T. P. 132	342.3
Ref. Mon. 165	48 38 17.72	113 37 20	T. P. 132	628.6
	93 58 54.19	125 10 20	Ref. Mon. 164	934.3
		142 02	T. P. 133	263.2
		241 22	Ref. Mon. 166	374.5
		265 04	T. P. 134	304.7
Ref. Mon. 166	48 38 23.53	9 20	Bat	294.0
	93 58 38.13	9 20	T. P. 134	155.3
		61 22	Ref. Mon. 165	374.5
		93 16	T. P. 133	491.5
Bat	48 38 14.14	189 20	Ref. Mon. 166	294.0
	93 58 40.46	189 20	T. P. 134	138.6
Ref. Mon. 167	48 38 13.86	188 18	T. P. 135	142.2
	93 58 05.23	251 51 20	Ref. Mon. 168	529.8
Ref. Mon. 168	48 38 19.21	71 51 40	Ref. Mon. 167	529.8
	93 57 40.58	87 05	T. P. 135	484.7
		321 55	T. P. 136	209.6
		345 41	Ref. Mon. 169	309.5
Ref. Mon. 169	48 38 09.51	165 41	Ref. Mon. 168	309.5
	93 57 36.85	201 21	T. P. 136	144.9
Ref. Mon. 170	48 38 09.00	9 45	T. P. 137	190.9
	93 57 08.67	359 33	Ref. Mon. 171	371.4
Ref. Mon. 171	48 37 56.98	169 06	T. P. 137	186.6
	93 57 08.53	179 33	Ref. Mon. 170	371.4
Ref. Mon. 172	48 38 02.16	10 48	T. P. 138	146.2
	93 56 00.70	320 09	Ref. Mon. 173	478.1
Ref. Mon. 173	48 37 50.27	123 49	T. P. 138	401.7
	93 55 45.74	140 09	Ref. Mon. 172	478.1
Ref. Mon. 174	48 38 01.51	296 18	T. P. 139	221.2
	93 55 10.13	307 25	Ref. Mon. 175	404.7
Ref. Mon. 175	48 37 53.55	127 26	Ref. Mon. 174	404.7
	93 54 54.44	140 15	T. P. 139	192.5
Ref. Mon. 176	48 38 04.40	241 58	T. P. 140	163.3
	93 54 54.99	283 12	Ref. Mon. 177	158.8
Ref. Mon. 177	48 38 03.23	103 12	Ref. Mon. 176	158.8
	93 54 47.44	174 43	T. P. 140	113.5
		245 23	Ref. Mon. 178	495.5
		266 02 30	T. P. 141	562.9
Ref. Mon. 178	48 38 09.91	65 23	Ref. Mon. 177	495.5
	93 54 25.44	326 27	T. P. 141	201.1
Ref. Mon. 179	48 38 01.39	275 47 30	Ref. Mon. 180	746.6
	93 53 39.55	11 19	T. P. 142	151.4
Ref. Mon. 180	48 37 58.95	84 36 00	T. P. 142	775.9
	93 53 03.28	95 48 00	Ref. Mon. 179	746.6
		281 36 40	T. P. 144	653.5
		359 55	T. P. 143	143.9
Ref. Mon. 181	48 37 50.11	110 11	T. P. 143	374.1
	93 52 46.12	243 55	T. P. 144	321.5
		252 36 00	Ref. Mon. 182	771.1
		265 17 40	T. P. 145	722.1

BOUNDARY REFERENCE MONUMENTS AND MARKED STATIONS—RAINY RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 182	48 37 57.58	5 24	T. P. 145	172.1
	93 52 10.18	72 36 30	Ref. Mon. 181	771.1
Ref. Mon. 183	48 37 46.28	259 52 20	T. P. 146	800.3
	93 51 30.84	262 24 10	Ref. Mon. 184	1,231.9
		265 35 20	T. P. 147	1,063.4
Ref. Mon. 184	48 37 51.55	63 15	T. P. 147	180.2
	93 50 31.20	82 24 50	Ref. Mon. 183	1,231.9
		87 05	T. P. 146	433.8
Ref. Mon. 185	48 37 33.43	183 37	T. P. 148	183.5
	93 50 11.39	278 29	T. P. 149	240.0
		294 18 30	Ref. Mon. 186	512.3
Ref. Mon. 186	48 37 26.60	114 18 50	Ref. Mon. 185	512.3
	93 49 48.60	127 25	T. P. 149	288.9
		130 52 30	T. P. 148	602.1
Ref. Mon. 187	48 37 05.89	67 14	T. P. 150	187.9
	93 49 36.41	342 56 40	T. P. 151	613.0
		346 01 40	Ref. Mon. 188	620.3
Ref. Mon. 188	48 36 46.40	148 35 50	T. P. 150	620.0
	93 49 29.10	166 01 40	Ref. Mon. 187	620.3
		242 11	T. P. 151	34.0
		327 54	T. P. 152	484.0
		348 53	Ref. Mon. 189	420.0
Ref. Mon. 189	48 36 33.06	168 53	Ref. Mon. 188	420.0
	93 49 25.14	269 21	T. P. 152	176.2
Ref. Mon. 190	48 36 08.23	312 28 40	Ref. Mon. 191	704.8
	93 49 18.92	328 38 30	T. P. 153	687.1
Ref. Mon. 191	48 35 52.82	58 46	T. P. 153	213.7
	93 48 53.55	132 29 00	Ref. Mon. 190	704.8
Ref. Mon. 192	48 35 17.54	71 48	T. P. 154	70.4
	93 48 43.25	345 17 20	Ref. Mon. 193	1,187.5
Ref. Mon. 193	48 34 40.36	161 53 40	T. P. 154	1,185.2
	93 48 28.54	165 17 30	Ref. Mon. 192	1,187.5
		214 41	T. P. 155	226.2
		331 00 00	Ref. Mon. 194	934.8
Ref. Mon. 194	48 34 13.89	19 15 50	T. P. 157	749.8
	93 48 06.43	79 31	T. P. 156	165.5
		151 00 10	Ref. Mon. 193	934.8
		162 05 20	T. P. 155	1,054.8
Ref. Mon. 195	48 33 52.58	2 01 40	T. P. 158	858.2
	93 48 26.89	202 13 00	T. P. 156	678.6
		276 38	T. P. 157	183.1
		353 35 10	Ref. Mon. 196	904.3
Ref. Mon. 196	48 33 23.48	107 20	T. P. 158	137.6
	93 48 21.96	173 35 10	Ref. Mon. 195	904.3
Ref. Mon. 197	48 32 55.70	139 24	T. P. 159	223.7
	93 48 35.48	349 38	Ref. Mon. 198	487.1
Ref. Mon. 198	48 32 40.19	22 03	T. P. 161	423.2
	93 48 31.21	40 00	Ref. Mon. 199	439.2
		88 09	T. P. 160	104.5
		160 14 10	T. P. 159	689.6
		169 38	Ref. Mon. 197	487.1
Ref. Mon. 199	48 32 29.30	208 07	T. P. 160	377.6
	93 48 44.97	220 00	Ref. Mon. 198	439.2
		294 20	Luttrell	282.8
		294 20	T. P. 161	135.5
Luttrell	48 32 25.52	114 20	Ref. Mon. 199	282.8
	93 48 32.41	114 20	T. P. 161	147.3
Ref. Mon. 200	48 31 57.29	10 12 30	Ref. Mon. 201	534.9
	93 48 59.79	45 26	T. P. 163	177.8
		160 55	T. P. 162	278.8
		354 12	T. P. 164	451.7
Ref. Mon. 201	48 31 40.25	175 28	T. P. 163	402.9
	93 49 04.41	180 15 40	T. P. 162	789.9
		190 12 30	Ref. Mon. 200	534.9
		241 16	T. P. 164	160.2
		304 22 50	T. P. 165	620.7
Ref. Mon. 202	48 31 19.70	144 17	T. P. 165	350.0
	93 48 29.48	272 04	T. P. 166	394.3
		286 19 50	Ref. Mon. 203	879.7
Ref. Mon. 203	48 31 11.69	117 23 20	T. P. 166	507.0
	93 47 48.34	160 20 20	Ref. Mon. 202	879.7
		326 21	T. P. 167	474.9
Ref. Mon. 204	48 30 53.98	189 41	T. P. 167	154.0
	93 47 36.78	239 28	Ref. Mon. 205	488.8
		256 38	T. P. 168	434.8
Ref. Mon. 205	48 31 02.01	59 28	Ref. Mon. 204	488.8
	93 47 16.26	359 15	T. P. 168	147.8
Ref. Mon. 206	48 31 02.73	282 40 40	T. P. 169	545.1
	93 46 30.11	287 00 40	Ref. Mon. 207	561.4
Ref. Mon. 207	48 30 57.42	107 01 00	Ref. Mon. 206	561.4
	93 46 03.95	173 36	Lumber	172.0
		173 36	T. P. 169	44.9
		260 51	T. P. 170	463.0
Lumber	48 31 02.95	353 36	Ref. Mon. 207	172.0
	93 46 04.89	353 36	T. P. 169	127.1
Ref. Mon. 208	48 31 02.36	39 53	T. P. 171	222.8
	93 45 05.03	83 59 20	T. P. 170	756.3
		261 44 30	T. P. 172	932.9
		270 39 50	Ref. Mon. 209	1,118.4
Ref. Mon. 209	48 31 01.94	82 52 20	T. P. 171	1,271.0
	93 44 10.53	90 40 30	Ref. Mon. 208	1,118.4
		127 00	T. P. 172	244.3
		250 31	T. P. 173	423.0
		267 34 20	T. P. 174	1,169.4
Ref. Mon. 210	48 31 07.60	62 27	T. P. 174	271.4
	93 43 01.87	88 05 20	T. P. 173	1,010.8
		272 20	T. P. 175	480.5
		285 09 50	Ref. Mon. 211	568.7
Ref. Mon. 211	48 31 02.79	105 10 10	Ref. Mon. 210	568.7
	93 42 35.12	151 55	T. P. 175	146.4
		254 09	T. P. 176	293.0
Ref. Mon. 212	48 31 01.86	97 30 20	T. P. 176	832.7
	93 41 41.16	287 26 00	T. P. 178	644.5
		327 02	T. P. 177	256.6
		332 41	Ref. Mon. 213	416.8
Ref. Mon. 213	48 30 49.87	152 41	Ref. Mon. 212	416.8
	93 41 31.84	161 35	T. P. 177	163.4
		247 18	T. P. 178	459.3
Ref. Mon. 214	48 30 56.12	129 32	T. P. 179	221.2
	93 40 31.35	258 08 10	Ref. Mon. 215	1,236.3
Ref. Mon. 215	48 31 04.35	4 11	T. P. 180	156.6
	93 39 32.39	78 08 50	Ref. Mon. 214	1,236.3
		85 19 00	T. P. 179	1,385.1
		271 06 00	T. P. 181	875.1
Ref. Mon. 216	48 31 00.26	88 09 20	T. P. 180	926.0
	93 38 47.85	160 19	T. P. 181	116.2
		214 58 00	Ref. Mon. 217	763.8
		223 23 40	T. P. 183	779.8
		225 00	T. P. 182	357.9
Ref. Mon. 217	48 31 20.52	26 21	T. P. 182	416.1
	93 38 26.52	34 58 20	Ref. Mon. 216	763.8
		209 00 20	T. P. 184	775.9
		301 09	Law	217.9
		301 09	T. P. 183	114.5
Law	48 31 16.87	121 09	Ref. Mon. 217	217.9
	93 38 17.43	121 09	T. P. 183	103.4
Ref. Mon. 218	48 31 46.69	61 10	T. P. 184	269.0
	93 37 56.70	208 51	T. P. 185	213.7
		220 18	Ref. Mon. 219	451.0
Ref. Mon. 219	48 31 57.83	40 18	Ref. Mon. 218	451.0
	93 37 42.48	50 15	T. P. 185	245.2
		302 19	T. P. 187	257.6
		323 08	Ref. Mon 220	300.5
		352 07	T. P. 186	89.7
Ref. Mon. 220	48 31 50.04	132 04	T. P. 186	226.3
	93 37 33.69	143 08	Ref. Mon. 219	300.5
		200 00	T. P. 187	109.4
		321 22 50	T. P. 188	591.5
Ref. Mon. 221	48 31 37.91	44 05	T. P. 188	121.5
	93 37 11.58	326 57	T. P. 189	456.4
		333 30 00	Ref. Mon. 222	596.1
Ref. Mon. 222	48 31 20.64	153 30 10	Ref. Mon. 221	596.1
	93 36 58.62	173 32	T. P. 189	151.9
		268 50	T. P. 190	309.0
Ref. Mon. 223	48 31 27.21	59 01	T. P. 190	381.9
	93 36 27.60	292 33	Ref. Mon. 224	357.4
		301 40	T. P. 191	229.8

BOUNDARY REFERENCE MONUMENTS AND MARKED STATIONS—RAINY RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 224	48 31 22.77	96 58	T. P. 191	135.4
	93 36 11.52	112 33	Ref. Mon. 223	357.4
Ref. Mon. 225	48 31 46.49	258 11	T. P. 193	475.5
	93 35 46.59	294 54	Ref. Mon. 226	346.9
		353 12	T. P. 192	101.0
Ref. Mon. 226	48 31 41.76	98 36	T. P. 192	306.1
	93 35 31.26	114 54	Ref. Mon. 225	346.9
		211 46	T. P. 193	286.3
Ref. Mon. 227	48 31 32.33	160 33	Hathway	419.8
	93 34 48.31	160 33	T. P. 194	176.8
		240 57 50	Ref. Mon. 228	905.0
		242 25	T. P. 195	337.1
Hathway	48 31 45.14	340 33	Ref. Mon. 227	419.8
	93 34 55.13	340 33	T. P. 194	243.0
Ref. Mon. 228	48 31 46.55	60 06 20	T. P. 195	568.1
	93 34 09.74	60 58 20	Ref. Mon. 227	905.0
		72 13 40	T. P. 194	892.8
		269 02 10	T. P. 196	684.6
Ref. Mon. 229	48 31 50.44	70 13	T. P. 196	321.4
	93 33 21.64	282 48 20	T. P. 197	641.5
		289 10 40	Ref. Mon. 230	848.2
Ref. Mon. 230	48 31 41.42	109 11 10	Ref. Mon. 229	848.2
	93 32 42.59	127 51	T. P. 197	222.4
		225 03	T. P. 198	293.7
		236 50 20	T. P. 199	767.9
Ref. Mon. 231	48 31 51.37	78 54 20	T. P. 198	519.0
	93 32 07.64	146 35	T. P. 199	135.0
		241 29 10	Ref. Mon. 232	1,135.9
		241 29 10	T. P. 200	730.8
Ref. Mon. 232	48 32 08.92	61 29 50	Ref. Mon. 231	1,135.9
	93 31 18.98	61 29 50	T. P. 200	405.2
		286 24	T. P. 201	380.0
Ref. Mon. 233	48 32 07.68	79 25	T. P. 201	375.7
	93 30 43.21	227 00 50	Ref. Mon. 234	1,137.3
Ref. Mon. 234	48 32 32.79	7 23	T. P. 202	118.3
	93 30 02.65	47 01 20	Ref. Mon. 233	1,137.3
		267 59	T. P. 203	413.5
Ref. Mon. 235	48 32 28.57	91 39	T. P. 202	453.9
	93 29 41.27	170 08	T. P. 203	147.2
		242 05 30	Ref. Mon. 236	743.2
		252 11 10	T. P. 204	734.4
Ref. Mon. 236	48 32 39.83	62 05 50	Ref. Mon. 235	743.2
	93 29 09.25	341 00	T. P. 204	130.3
Ref. Mon. 237	48 32 51.32	272 39	Ref. Mon. 238	339.2
	93 28 05.31	330 35	T. P. 205	137.4
Ref. Mon. 238	48 32 50.81	69 01	T. P. 205	290.6
	93 27 48.79	92 39	Ref. Mon. 237	339.2
		197 44	T. P. 206	274.1
Ref. Mon. 239	48 33 02.49	63 17	T. P. 206	221.8
	93 27 35.06	174 41 20	Ref. Mon. 240	617.1
		182 32	T. P. 207	338.6
Ref. Mon. 240	48 33 22.38	209 03	T. P. 208	453.7
	93 27 37.84	238 37	Ref. Mon. 241	347.0
		345 23	T. P. 207	285.4
		354 41 20	Ref. Mon. 239	617.1
Ref. Mon. 241	48 33 28.23	58 37	Ref. Mon. 240	347.0
	93 27 23.40	160 38	T. P. 208	228.9
Ref. Mon. 242	48 33 58.16	165 53 30	T. P. 210	801.9
	93 27 32.82	174 35 50	Ref. Mon. 243	815.5
		228 00	T. P. 209	172.0
Ref. Mon. 243	48 34 24.45	73 55	T. P. 210	123.5
	93 27 36.57	343 38 10	T. P. 209	726.2
		354 35 50	Ref. Mon. 242	815.5
Ref. Mon. 244	48 35 20.75	247 07	Ref. Mon. 245	270.3
	93 28 10.72	290 01	T. P. 211	206.1
Ref. Mon. 245	48 35 24.16	17 30	T. P. 211	184.2
	93 27 58.57	67 07	Ref. Mon. 244	270.3
		200 56	T. P. 213	196.6
		272 18	T. P. 212	58.6
Ref. Mon. 246	48 35 29.28	48 02	T. P. 212	240.3
	93 27 46.99	98 36	T. P. 213	168.9
		194 26	T. P. 214	147.3
		247 18 00	Ref. Mon. 247	676.7
Ref. Mon. 247	48 35 37.74	67 18 30	Ref. Mon. 246	676.7
	93 27 16.52	78 35 40	T. P. 214	599.4
		359 46	T. P. 215	126.6
Ref. Mon. 248	48 35 40.92	76 25	T. P. 215	956.6
	93 26 31.12	261 25 40	T. P. 217	548.0
		278 46	Ref. Mon. 249	472.4
		302 08	T. P. 216	199.5
Ref. Mon. 249	48 35 38.59	83 27	T. P. 216	299.9
	93 26 08.34	98 46	Ref. Mon. 248	472.4
		206 01	T. P. 217	170.9
Ref. Mon. 250	48 36 09.68	41 21	T. P. 218	440.3
	93 25 32.68	253 39	Ref. Mon. 251	494.0
		255 39	T. P. 219	245.6
		257 57	T. P. 220	497.0
Ref. Mon. 251	48 36 14.18	58 27 20	T. P. 218	897.6
	93 25 09.55	71 40	T. P. 219	248.7
		73 39	Ref. Mon. 250	494.0
		341 12	T. P. 220	37.3
Ref. Mon. 252	48 36 18.69	223 23	T. P. 222	181.7
	93 24 57.43	232 53 00	Ref. Mon. 253	1,002.7
		235 50 00	T. P. 223	930.1
		239 56 00	T. P. 224	1,074.8
		256 43	T. P. 221	62.0
Ref. Mon. 253	48 36 38.28	19 51	T. P. 223	88.0
	93 24 18.40	51 22 30	T. P. 221	946.3
		52 53 30	Ref. Mon. 252	1,002.7
		54 58 30	T. P. 222	824.0
		297 00	T. P. 224	146.5
Ref. Mon. 254	48 36 22.50	191 36	T. P. 225	167.3
	93 24 11.73	213 23	Ref. Mon. 256	297.4
		215 57	Ref. Mon. 255	173.1
		220 02	T. P. 226	234.5
		294 11 10	T. P. 228	649.3
		299 23	T. P. 227	404.0
Ref. Mon. 255	48 36 27.03	35 57	Ref. Mon. 254	173.1
	93 24 06.77	109 15	T. P. 225	72.0
Ref. Mon. 256	48 36 30.54	10 33	T. P. 226	70.0
	93 24 03.74	33 23	Ref. Mon. 254	297.4
Ref. Mon. 257	48 36 11.52	99 06	T. P. 228	463.0
	93 23 20.50	101 25 50	T. P. 227	711.6
		232 04 20	T. P. 229	509.6
		260 10 20	Ref. Mon. 258	763.3
Ref. Mon. 258	48 36 15.73	80 10 50	Ref. Mon. 257	763.3
	93 22 43.79	117 36	T. P. 229	395.0
		252 47 30	T. P. 230	580.8
Ref. Mon. 259	48 36 21.55	88 25	T. P. 230	286.0
	93 22 02.76	161 01	Ref. Mon. 260	485.6
		185 11	T. P. 231	244.2
Ref. Mon. 260	48 36 36.42	320 11	T. P. 231	281.2
	93 22 10.47	341 01	Ref. Mon. 259	485.6
Ref. Mon. 261	48 36 34.45	179 23 20	T. P. 232	502.4
	93 21 42.37	188 33 20	Ref. Mon. 263	789.8
Ref. Mon. 262	48 36 37.83	178 26 20	Ref. Mon. 263	676.9
	93 21 35.73			
Ref. Mon. 263	48 36 59.74	8 33 20	Ref. Mon. 261	789.8
	93 21 36.63	23 47	T. P. 232	304.5
		358 26 20	Ref. Mon. 262	676.9
Ref. Mon. 264	48 36 39.84	213 42 50	Ref. Mon. 266	523.8
	93 21 24.67	229 01	T. P. 234	420.7
		252 48	T. P. 233	148.0
Ref. Mon. 265	48 36 54.19	274 06	Ref. Mon. 266	107.0
	93 21 15.68	274 06	T. P. 235	85.0
Ref. Mon. 266	48 36 53.94	20 52	T. P. 233	419.4
	93 21 10.47	33 43 00	Ref. Mon. 264	523.8
		94 06	Ref. Mon. 265	107.0
		94 06	T. P. 235	22.0
		350 28	T. P. 234	162.0

GEOGRAPHIC POSITIONS OF MONUMENTS REFERENCING THE TURNING POINTS OF THE INTERNATIONAL BOUNDARY FROM RANIER, MINN., TO CURTAIN FALLS

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 267	48 38 12.49	339 17 10	Ref. Mon. 268	2,284.4
	93 21 15.79	339 17 10	T. P. 236	1,222.8
Ref. Mon. 268	48 37 03.31	159 17 40	Ref. Mon. 267	2,284.4
	93 20 36.34	159 17 40	T. P. 236	1,061.6
Ref. Mon. 269	48 39 17.46	352 13 30	Ref. Mon. 270	3,048.7
	93 15 25.12	352 13 30	T. P. 237	1,343.4
Ref. Mon. 270	48 37 39.67	172 13 50	Ref. Mon. 269	3,048.7
	93 15 04.97	172 13 50	T. P. 237	1,705.3
Ref. Mon. 271	48 38 41.15	1 52 30	Ref. Mon. 272	535.1
	93 12 26.21	1 52 30	T. P. 238	243.9
Ref. Mon. 272	48 38 23.84	181 52 30	Ref. Mon. 271	535.1
	93 12 27.06	181 52 30	T. P. 238	291.2
Ref. Mon. 273	48 37 41.19	259 56	Ref. Mon. 274	198.3
	93 11 06.36	259 56	T. P. 239	92.5
Ref. Mon. 274	48 37 42.31	79 56	Ref. Mon. 273	198.3
	93 10 56.82	79 56	T. P. 239	105.8
Ref. Mon. 275	48 37 36.17	333 24 50	Ref. Mon. 276	1,599.4
	93 10 50.84	333 24 50	T. P. 240	420.9
Ref. Mon. 276	48 36 49.86	153 25 10	Ref. Mon. 275	1,599.4
	93 10 15.90	153 25 10	T. P. 240	1,178.5
Ref. Mon. 277	48 37 49.64	7 50 00	Ref. Mon. 278	809.8
	93 05 22.76	7 50 00	T. P. 241	292.6
Ref. Mon. 278	48 37 23.67	187 49 50	Ref. Mon. 277	809.8
	93 05 28.15	187 49 50	T. P. 241	517.2
Ref. Mon. 279	48 36 54.01	244 18 30	Ref. Mon. 280	2,695.1
	93 01 29.36			
Ref. Mon. 280	48 37 31.82	64 20 00	Ref. Mon. 279	2,695.1
	92 59 30.76	288 04 30	Ref. Mon. 281	1,418.7
		288 04 30	T. P. 242	577.3
Ref. Mon. 281	48 37 17.56	108 05 20	Ref. Mon. 280	1,418.7
	92 58 24.91	108 05 20	T. P. 242	841.4
Ref. Mon. 282	48 37 41.33	204 33 00	Ref. Mon. 283	1,043.7
	92 57 25.35	204 33 00	T. P. 243	424.2
		245 13 40	Ref. Mon. 284	1,811.2
		245 13 40	T. P. 244	600.0
Ref. Mon. 283	48 38 12.06	24 33 10	Ref. Mon. 282	1,043.7
	92 57 04.17	24 33 10	T. P. 243	619.5
Ref. Mon. 284	48 38 05.89	65 14 40	Ref. Mon. 282	1,811.2
	92 56 05.03	65 14 40	T. P. 244	1,211.2
Ref. Mon. 285	48 36 27.60	260 46 20	Ref. Mon. 286	1,304.0
	92 57 24.83	260 46 20	T. P. 245	525.4
Ref. Mon. 286	48 36 34.37	80 47 10	Ref. Mon. 285	1,304.0
	92 56 22.00	80 47 10	T. P. 245	778.6
Ref. Mon. 287	48 36 32.29	343 19 30	Ref. Mon. 288	1,140.6
	92 55 49.08	343 19 30	T. P. 246	227.7
Ref. Mon. 288	48 35 56.92	163 19 40	Ref. Mon. 287	1,140.6
	92 55 33.11	163 19 40	T. P. 246	912.9
Ref. Mon. 289	48 36 00.23	5 14 40	Ref. Mon. 290	729.0
	92 54 33.94	5 14 40	T. P. 247	401.8
Ref. Mon. 290	48 35 36.73	185 14 40	Ref. Mon. 289	729.0
	92 54 37.19	185 14 40	T. P. 247	327.2
Ref. Mon. 291	48 35 33.25	207 37 40	Ref. Mon. 292	668.1
	92 53 46.78	207 37 40	T. P. 248	313.0
Ref. Mon. 292	48 35 52.41	27 37 50	Ref. Mon. 291	668.1
	92 53 31.66	27 37 50	T. P. 248	355.2
Ref. Mon. 293	48 33 46.46	240 38 50	Ref. Mon. 294	3,292.7
	92 51 18.14			
Ref. Mon. 294	48 34 38.71	60 40 40	Ref. Mon. 293	3,292.7
	92 48 58.12			
Ref. Mon. 295	48 32 35.82	350 49 10	Ref. Mon. 296	792.7
	92 43 45.08	350 49 10	T. P. 249	430.4
Ref. Mon. 296	48 32 10.49	170 49 10	Ref. Mon. 295	792.7
	92 43 38.91	170 49 10	T. P. 249	362.3
Ref. Mon. 297	48 32 16.84	221 54 50	Ref. Mon. 298	1,621.8
	92 42 24.00			
Ref. Mon. 298	48 32 55.91	41 55 30	Ref. Mon. 297	1,621.8
	92 41 31.18			
Ref. Mon. 299	48 32 09.82	205 59 10	Ref. Mon. 300	2,810.6
	92 39 54.78	205 59 10	T. P. 250	1,268.1
Ref. Mon. 300	48 33 31.61	25 59 50	Ref. Mon. 299	2,810.6
	92 38 54.72	25 59 50	T. P. 250	1,542.5
Ref. Mon. 301	48 32 00.38	221 47 30	Ref. Mon. 302	1,707.4
	92 38 49.68	221 47 30	T. P. 251	1,373.9
Ref. Mon. 302	48 32 41.59	41 48 10	Ref. Mon. 301	1,707.4
	92 37 54.20	41 48 10	T. P. 251	333.5
Ref. Mon. 303	48 31 24.37	282 08 30	Ref. Mon. 304	777.9
	92 38 09.79	282 08 30	T. P. 252	604.5
Ref. Mon. 304	48 31 19.08	102 09 00	Ref. Mon. 303	777.9
	92 37 32.72	102 09 00	T. P. 252	173.4
Ref. Mon. 305	48 31 02.07	247 13	Ref. Mon. 306	431.9
	92 37 40.87	247 13	T. P. 253	212.4
Ref. Mon. 306	48 31 07.49	67 13	Ref. Mon. 305	431.9
	92 37 21.47	67 13	T. P. 253	219.5
Ref. Mon. 307	48 30 51.52	272 41	Ref. Mon. 308	242.0
	92 37 43.32	272 41	T. P. 254	142.8
Ref. Mon. 308	48 30 51.15	40 45	Ref. Mon. 309	240.7
	92 37 31.54	40 45	T. P. 255	103.7
		92 41	Ref. Mon. 307	242.0
		92 41	T. P. 254	99.2
		344 20	Ref. Mon. 310	222.2
		344 20	T. P. 256	139.2
Ref. Mon. 309	48 30 45.25	8 26	Ref. Mon. 312	248.5
	92 37 39.19	8 26	T. P. 257	194.0
		220 45	Ref. Mon. 308	240.7
		220 45	T. P. 255	136.9
Ref. Mon. 310	48 30 44.23	164 20	Ref. Mon. 308	222.2
	92 37 28.62	164 20	T. P. 256	83.0
Ref. Mon. 311	48 30 39.19	32 47	Ref. Mon. 314	348.4
	92 37 44.80	32 47	T. P. 259	219.1
		306 43	Ref. Mon. 312	98.2
		306 43	T. P. 258	48.2
Ref. Mon. 312	48 30 37.30	126 43	Ref. Mon. 311	98.2
	92 37 40.97	126 43	T. P. 258	50.0
		188 26	Ref. Mon. 309	248.5
		188 26	T. P. 257	54.5
Ref. Mon. 313	48 30 29.71	90 07	Ref. Mon. 314	67.5
	92 37 50.70	90 07	T. P. 260	25.4
Ref. Mon. 314	48 30 29.71	2 27	Ref. Mon. 315	289.0
	92 37 53.99	2 27	T. P. 261	160.8
		212 47	Ref. Mon. 311	348.4
		212 47	T. P. 259	129.3
		270 07	Ref. Mon. 313	67.5
		270 07	T. P. 260	42.1
Ref. Mon. 315	48 30 20.36	182 27	Ref. Mon. 314	289.0
	92 37 54.59	182 27	T. P. 261	128.2
Ref. Mon. 316	48 30 19.52	226 42	Ref. Mon. 317	122.3
	92 37 48.51	226 42	T. P. 262	64.8
Ref. Mon. 317	48 30 22.24	46 42	Ref. Mon. 316	122.3
	92 37 44.17	46 42	T. P. 262	57.5
		278 45	Ref. Mon. 318	233.5
Ref. Mon. 318	48 30 21.08	98 45	Ref. Mon. 317	233.5
	92 37 32.93			

BOUNDARY REFERENCE MONUMENTS—RANIER, MINN., TO CURTAIN FALLS—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 319	48 30 14.31	289 40	Ref. Mon. 320	310.5
	92 37 45.92	289 40	T. P. 263	201.5
Ref. Mon. 320	48 30 10.93	109 40	Ref. Mon. 319	310.5
	92 37 31.68	109 40	T. P. 263	109.0
Ref. Mon. 321	48 30 01.90	130 54	Ref. Mon. 322	84.3
	92 37 47.66	130 54	T. P. 264	57.4
Ref. Mon. 322	48 30 03.69	310 54	Ref. Mon. 321	84.3
	92 37 50.76	310 54	T. P. 264	26.9
Ref. Mon. 323	48 30 00.01	322 49	Ref. Mon. 324	71.6
	92 38 08.74			
Ref. Mon. 324	48 29 58.16	86 39	Ref. Mon. 326	252.9
	92 38 06.64	86 39	T. P. 265	130.8
		142 49	Ref. Mon. 323	71.6
Ref. Mon. 325	48 29 59.30	16 46	Ref. Mon. 326	51.9
	92 38 18.20	16 46	T. P. 266	23.6
Ref. Mon. 326	48 29 57.69	196 46	Ref. Mon. 325	51.9
	92 38 18.93	196 46	T. P. 266	28.4
		266 39	Ref. Mon. 324	252.9
		266 39	T. P. 265	122.1
Ref. Mon. 327	48 30 00.62	20 08	Ref. Mon. 328	79.5
	92 38 23.14	20 08	T. P. 267	27.5
Ref. Mon. 328	48 29 58.20	200 08	Ref. Mon. 327	79.5
	92 38 24.47	200 08	T. P. 267	52.0
Ref. Mon. 329	48 29 58.11	195 42	Ref. Mon. 330	128.8
	92 38 49.45	195 42	T. P. 268	55.1
Ref. Mon. 330	48 30 02.12	15 42	Ref. Mon. 329	128.8
	92 38 47.76	15 42	T. P. 268	72.6
Ref. Mon. 331	48 30 03.52	177 15	Ref. Mon. 332	147.6
	92 39 13.98	177 15	T. P. 269	89.4
Ref. Mon. 332	48 30 08.30	357 15	Ref. Mon. 331	147.6
	92 39 14.32	357 15	T. P. 269	58.3
Ref. Mon. 333	48 29 45.10	180 59	Ref. Mon. 334	113.4
	92 39 40.77	180 59	T. P. 270	60.4
Ref. Mon. 334	48 29 48.77	0 59	Ref. Mon. 333	113.4
	92 39 40.68	0 59	T. P. 270	53.0
Ref. Mon. 335	48 29 46.16	185 39 30	Ref. Mon. 336	507.9
	92 41 08.88	185 39 30	T. P. 271	149.3
Ref. Mon. 336	48 30 02.53	5 39 30	Ref. Mon. 335	507.9
	92 41 06.44	5 39 30	T. P. 271	358.6
Ref. Mon. 337	48 29 33.17	155 28 10	Ref. Mon. 338	534.4
	92 41 50.59	162 30	T. P. 272	278.2
Ref. Mon. 338	48 29 48.91	327 57	T. P. 272	260.5
	92 42 01.40	335 28 00	Ref. Mon. 337	534.4
Ref. Mon. 339	48 29 04.60	65 36	Ref. Mon. 340	381.6
	92 41 52.82	94 14	T. P. 273	224.2
Ref. Mon. 340	48 28 59.50	215 25	T. P. 273	213.7
	92 42 09.74	245 35	Ref. Mon. 339	381.6
Ref. Mon. 341	48 28 23.06	16 19 00	Ref. Mon. 343	728.3
	92 42 21.12	31 55	T. P. 275	349.3
		86 57	T. P. 274	239.2
		144 08	Ref. Mon. 342	407.3
Ref. Mon. 342	48 28 33.75	0 02	T. P. 274	342.8
	92 42 32.74	324 08	Ref. Mon. 341	407.3
Ref. Mon. 343	48 28 00.43	182 50	T. P. 275	402.8
	92 42 31.08	196 18 50	Ref. Mon. 341	728.3
Ref. Mon. 344	48 28 02.14	1 08 50	Ref. Mon. 346	788.6
	92 42 52.35	327 28 40	Ref. Mon. 345	815.6
		342 14	T. P. 276	488.8
Ref. Mon. 345	48 27 39.87	127 33	T. P. 276	364.8
	92 42 31.01	147 29 00	Ref. Mon. 344	815.6
Ref. Mon. 346	48 27 36.61	181 08 50	Ref. Mon. 344	788.6
	92 42 53.12			
Ref. Mon. 347	48 26 38.25	67 30 40	Ref. Mon. 348	812.5
	92 40 51.03	88 04 30	T. P. 277	526.8
Ref. Mon. 348	48 26 28.19	217 24	T. P. 277	369.0
	92 41 27.56	247 30 10	Ref. Mon. 347	812.5
Ref. Mon. 349	48 26 25.20	59 28	Ref. Mon. 350	352.7
	92 39 30.61	86 18	T. P. 278	359.6
Ref. Mon. 350	48 26 19.40	160 33	T. P. 278	165.4
	92 39 45.39	239 28	Ref. Mon. 349	352.7
Ref. Mon. 351	48 26 13.43	29 30 40	Ref. Mon. 352	590.1
	92 39 13.78	71 35	T. P. 279	174.6
Ref. Mon. 352	48 25 56.80	195 15	T. P. 279	475.1
	92 39 27.92	209 30 30	Ref. Mon. 351	590.1
Ref. Mon. 353	48 26 32.38	23 40 50	Ref. Mon. 354	1,020.5
	92 37 03.03			
Ref. Mon. 354	48 26 02.12	203 40 40	Ref. Mon. 353	1,020.5
	92 37 22.97			
Ref. Mon. 355	48 26 49.44	27 12 40	Ref. Mon. 356	1,883.6
	92 34 17.25	27 12 40	T. P. 280	797.4
Ref. Mon. 356	48 25 55.20	207 12 10	Ref. Mon. 355	1,883.6
	92 34 59.15	207 12 10	T. P. 280	1,086.2
Ref. Mon. 357	48 27 42.33	11 38 40	Ref. Mon. 358	1,929.9
	92 31 56.94	11 38 40	T. P. 281	1,581.1
Ref. Mon. 358	48 26 41.14	191 38 30	Ref. Mon. 357	1,929.9
	92 32 15.89	191 38 30	T. P. 281	348.8
Ref. Mon. 359	48 26 57.20	45 21	Ref. Mon. 360	256.1
	92 30 49.05	45 21	T. P. 282	129.3
Ref. Mon. 360	48 26 51.37	225 21	Ref. Mon. 359	256.1
	92 30 57.92	225 21	T. P. 282	126.8
Ref. Mon. 361	48 26 57.42	59 28	Ref. Mon. 362	475.7
	92 30 15.23	59 28	T. P. 283	264.9
Ref. Mon. 362	48 26 49.60	239 28	Ref. Mon. 361	475.7
	92 30 35.16	239 28	T. P. 283	210.7
Ref. Mon. 363	48 26 10.47	74 13	Ref. Mon. 364	193.5
	92 29 34.08	74 13	T. P. 284	101.5
Ref. Mon. 364	48 26 08.77	254 13	Ref. Mon. 363	193.5
	92 29 43.14	254 13	T. P. 284	92.0
		331 07 00	Ref. Mon. 366	524.7
Ref. Mon. 365	48 25 44.66	103 50	T. P. 286	71.6
	92 28 57.70	355 04	Ref. Mon. 368	96.2
Ref. Mon. 366	48 25 53.90	151 07 10	Ref. Mon. 364	524.7
	92 29 30.82	305 37	T. P. 285	245.4
Ref. Mon. 367	48 25 40.43	105 09	Ref. Mon. 368	132.7
	92 28 51.07			
Ref. Mon. 368	48 25 41.55	175 04	Ref. Mon. 365	96.2
	92 28 57.30	250 00	T. P. 287	57.4
		285 09	Ref. Mon. 367	132.7
		315 51	Ref. Mon. 369	265.6
		315 51	T. P. 288	88.8
Ref. Mon. 369	48 25 35.38	73 36	Ref. Mon. 370	190.1
	92 28 48.30	73 36	T. P. 289	39.0
		135 51	Ref. Mon. 368	265.6
		135 51	T. P. 288	176.8
Ref. Mon. 370	48 25 33.65	253 36	Ref. Mon. 369	190.1
	92 28 57.17	253 36	T. P. 289	151.1
		302 01	Ref. Mon. 371	434.1
		302 01	T. P. 290	148.3
Ref. Mon. 371	48 25 26.20	50 58	Ref. Mon. 372	191.0
	92 28 39.26	50 58	T. P. 291	107.1
		122 01	Ref. Mon. 370	434.1
		122 01	T. P. 290	285.9
Ref. Mon. 372	48 25 22.30	230 58	Ref. Mon. 371	191.0
	92 28 46.48	230 58	T. P. 291	84.0
Ref. Mon. 373	48 25 12.68	4 16	Ref. Mon. 374	257.0
	92 28 30.47	4 16	T. P. 292	164.2
Ref. Mon. 374	48 25 04.38	184 16	Ref. Mon. 373	257.0
	92 28 31.40	184 16	T. P. 292	92.7
Ref. Mon. 375	48 24 56.83	24 35	T. P. 293	196.6
	92 27 18.62	343 05 00	Ref. Mon. 376	956.5
Ref. Mon. 376	48 24 27.21	163 05 10	Ref. Mon. 375	956.5
	92 27 05.08			
Ref. Mon. 377	48 24 01.23	116 08	Ref. Mon. 378	495.1
	92 27 13.01	116 08	T. P. 294	216.9

BOUNDARY REFERENCE MONUMENTS—RANIER, MINN., TO CURTAIN FALLS—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 378	48 24 08.29	296 08	Ref. Mon. 377	495.1
	92 27 34.62	296 08	T. P. 294	278.2
Ref. Mon. 379	48 22 17.73	101 05	T. P. 295	239.0
	92 28 23.46	145 01 20	Ref. Mon. 380	585.1
Ref. Mon. 380	48 22 33.25	325 01 00	Ref. Mon. 379	585.1
	92 28 39.76	346 54	T. P. 295	445.0
Ref. Mon. 381	48 21 56.13	49 03 20	Ref. Mon. 382	1,150.4
	92 28 15.41			
Ref. Mon. 382	48 21 31.72	229 02 50	Ref. Mon. 381	1,150.4
	92 28 57.62			
Ref. Mon. 383	48 21 08.44	76 57	Ref. Mon. 384	227.2
	92 28 06.91	76 57	T. P. 296	78.1
Ref. Mon. 384	48 21 06.78	256 57	Ref. Mon. 383	227.2
	92 28 17.66	256 57	T. P. 296	149.1
Ref. Mon. 385	48 19 42.56	63 06	Ref. Mon. 386	182.6
	92 27 04.10	63 06	T. P. 297	90.3
Ref. Mon. 386	48 19 39.88	243 06	Ref. Mon. 385	182.6
	92 27 12.00	243 06	T. P. 297	92.3
Ref. Mon. 387	48 18 58.67	56 05	T. P. 299	78.2
	92 26 25.17	77 42	Ref. Mon. 388	117.9
		77 42	T. P. 298	80.1
Ref. Mon. 388	48 18 57.86	257 42	Ref. Mon. 387	117.9
	92 26 30.76	257 42	T. P. 298	37.8
		290 12	T. P. 299	53.6
Ref. Mon. 389	48 18 53.70	92 54	Ref. Mon. 390	122.9
	92 26 20.08	92 54	T. P. 301	93.8
		116 23	T. P. 300	126.2
Ref. Mon. 390	48 18 53.91	191 02	T. P. 300	50.8
	92 26 26.04	272 54	Ref. Mon. 389	122.9
		272 54	T. P. 301	29.2
Ref. Mon. 391	48 18 47.10	13 46	T. P. 302	209.0
	92 26 16.05	66 13	Ref. Mon. 392	273.6
Ref. Mon. 392	48 18 43.53	246 13	Ref. Mon. 391	273.6
	92 26 28.20	294 48	T. P. 302	221.0
Ref. Mon. 393	48 18 35.09	40 57	Ref. Mon. 394	206.7
	92 26 08.09	40 57	T. P. 303	110.3
Ref. Mon. 394	48 18 30.03	220 57	Ref. Mon. 393	206.7
	92 26 14.67	220 57	T. P. 303	96.4
Ref. Mon. 395	48 18 23.27	336 39	T. P. 304	145.0
	92 25 56.87	40 03	Ref. Mon. 396	184.0
Ref. Mon. 396	48 18 18.71	220 03	Ref. Mon. 395	184.0
	92 26 02.62	267 30	T. P. 304	176.0
Ref. Mon. 397	48 18 21.97	44 44	Ref. Mon. 398	189.9
	92 25 37.24	85 49	T. P. 305	136.0
Ref. Mon. 398	48 18 17.60	179 06	T. P. 305	125.0
	92 25 43.73	224 44	Ref. Mon. 397	189.9
Ref. Mon. 399	48 18 11.25	95 03	Ref. Mon. 400	223.7
	92 25 21.55	130 16	T. P. 306	274.0
Ref. Mon. 400	48 18 11.89	184 59	T. P. 306	158.0
	92 25 32.37	275 03	Ref. Mon. 399	223.7
Ref. Mon. 401	48 17 47.88	63 00 00	Ref. Mon. 402	664.2
	92 24 40.38	63 00 00	T. P. 308	355.1
		111 42 20	T. P. 307	726.0
Ref. Mon. 402	48 17 38.12	171 44 10	T. P. 307	576.0
	92 25 09.09	242 59 40	Ref. Mon. 401	664.2
		242 59 40	T. P. 308	309.1
Ref. Mon. 403	48 16 53.95	97 40 50	Ref. Mon. 404	548.5
	92 24 13.20			
Ref. Mon. 404	48 16 56.32	277 40 30	Ref. Mon. 403	548.5
	92 24 39.56			
Ref. Mon. 405	48 16 19.66	64 19 30	Ref. Mon. 406	566.2
	92 23 58.47	64 19 30	T. P. 309	169.6
Ref. Mon. 406	48 16 11.72	244 19 10	Ref. Mon. 405	566.2
	92 24 23.21	244 19 10	T. P. 309	396.6
Ref. Mon. 407	48 15 38.73	63 52	Ref. Mon. 408	335.6
	92 23 28.27			
Ref. Mon. 408	48 15 33.94	243 51	Ref. Mon. 407	335.6
	92 23 42.87			
Ref. Mon. 409	48 15 32.46	90 53	Ref. Mon. 410	74.4
	92 23 31.29	90 53	T. P. 311	39.7
Ref. Mon. 410	48 15 32.49	7 12	T. P. 312	151.6
	92 23 34.90	182 12	T. P. 310	121.2
		270 53	Ref. Mon. 409	74.4
		270 53	T. P. 311	34.8
		342 12	T. P. 313	253.9
Ref. Mon. 411	48 15 07.58	7 13	T. P. 323	75.8
	92 23 08.22	67 53	Ref. Mon. 414	472.3
		67 53	T. P. 319	397.8
		67 53	T. P. 321	242.3
		67 53	T. P. 322	77.2
Ref. Mon. 412	48 15 16.81	301 39 20	Ref. Mon. 415	1,347.1
	92 23 50.67			
Ref. Mon. 413	48 14 59.00	20 52	T. P. 325	52.9
	92 23 03.44	40 52	Ref. Mon. 416	481.8
		40 52	T. P. 328	386.2
		75 02	T. P. 326	186.4
		139 52	T. P. 324	103.2
Ref. Mon. 414	48 15 01.82	147 53	T. P. 318	98.6
	92 23 29.43	153 38	T. P. 317	172.8
		171 53	T. P. 316	295.4
		203 36	T. P. 315	281.8
		206 48	T. P. 314	407.4
		247 53	Ref. Mon. 411	472.3
		247 53	T. P. 322	395.0
		247 53	T. P. 321	229.9
		247 53	T. P. 319	74.4
		256 23	T. P. 320	144.0
Ref. Mon. 415	48 14 53.91	121 40 00	Ref. Mon. 412	1,347.1
	92 22 55.09			
Ref. Mon. 416	48 14 47.20	220 52	Ref. Mon. 413	481.8
	92 23 18.72	220 52	T. P. 328	95.6
		233 34	T. P. 327	215.2
		255 52	T. P. 329	39.0
Ref. Mon. 417	48 14 36.11	154 59	T. P. 330	130.7
	92 23 10.90	174 29	T. P. 331	92.6
		304 59	Ref. Mon. 418	150.7
Ref. Mon. 418	48 14 33.32	124 59	Ref. Mon. 417	150.7
	92 23 04.92	182 39	T. P. 332	265.1
		198 29	T. P. 333	242.4
		271 39	T. P. 334	32.1
		345 29	T. P. 335	133.4
Ref. Mon. 419	48 14 21.47	101 57	Ref. Mon. 420	81.8
	92 22 57.50	101 57	T. P. 337	39.2
Ref. Mon. 420	48 14 22.02	173 37	T. P. 336	106.2
	92 23 01.38	281 57	Ref. Mon. 419	81.8
		281 57	T. P. 337	42.6
Ref. Mon. 421	48 14 11.04	92 27	Ref. Mon. 422	124.1
	92 22 46.21			
Ref. Mon. 422	48 14 11.21	169 17	T. P. 338	146.2
	92 22 52.22	272 27	Ref. Mon. 421	124.1
Ref. Mon. 423	48 14 07.61	30 19	T. P. 342	139.5
	92 22 41.11	42 39	Ref. Mon. 424	161.7
		56 39	T. P. 341	26.3
		123 24	T. P. 339	215.2
		134 39	T. P. 340	75.9
Ref. Mon. 424	48 14 03.77	222 39	Ref. Mon. 423	161.7
	92 22 46.42			
Ref. Mon. 425	48 13 56.53	72 49	Ref. Mon. 426	114.0
	92 22 37.69	72 49	T. P. 344	88.6
Ref. Mon. 426	48 13 55.44	202 29	T. P. 343	121.3
	92 22 42.96	252 49	Ref. Mon. 425	114.0
		252 49	T. P. 344	25.4
		349 49	T. P. 345	88.1
Ref. Mon. 427	48 13 44.63	97 48	Ref. Mon. 428	107.2
	92 22 34.45			
Ref. Mon. 428	48 13 45.11	163 08	T. P. 346	143.1
	92 22 39.60	239 38	T. P. 347	32.7
		277 48	Ref. Mon. 427	107.2
		301 33	T. P. 348	172.8
Ref. Mon. 429	48 13 33.74	72 52	Ref. Mon. 430	64.2
	92 22 27.64			

BOUNDARY REFERENCE MONUMENTS—RANIER, MINN., TO CURTAIN FALLS—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 430	48 13 33.13	166 45	T. P. 350	95.6
	92 22 30.61	177 12	T. P. 349	181.9
		210 42	T. P. 351	23.0
		252 52	Ref. Mon. 429	64.2
		286 32	T. P. 352	75.9
Ref. Mon 431	48 13 29.42	56 35	Ref. Mon. 432	66.4
	92 22 21.62			
Ref. Mon. 432	48 13 28.24	236 35	Ref. Mon. 431	66.4
	92 22 24.31			
Ref. Mon. 433	48 13 26.45	8 05	Ref. Mon. 434	98.9
	92 22 20.42			
Ref. Mon. 434	48 13 23.28	164 05	T. P. 353	220.3
	92 22 21.09	183 05	T. P. 354	54.7
		188 05	Ref. Mon. 433	98.9
		219 05	T. P. 355	143.4
		238 13	T. P. 356	163.5
		281 00	T. P. 357	143.3
Ref. Mon. 435	48 13 23.99	263 19	Ref. Mon. 437	90.6
	92 22 12.02			
Ref. Mon. 436	48 13 11.92	165 48	T. P. 359	45.7
	92 22 10.60	175 23	T. P. 358	212.1
		221 08	Ref. Mon. 438	367.6
		234 53	T. P. 360	57.8
Ref. Mon. 437	48 13 24.33	83 19	Ref. Mon. 435	90.6
	92 22 07.66			
Ref. Mon. 438	48 13 20.88	36 43	T. P. 362	97.1
	92 21 58.88	40 28	T. P. 361	180.4
		41 09	Ref. Mon. 436	367.6
		68 28	T. P. 363	29.0
		135 03	T. P. 364	124.4
Ref. Mon. 439	48 13 27.78	51 56	T. P. 365	110.7
	92 22 02.60	58 26	T. P. 366	44.8
		293 26	T. P. 367	107.7
		294 20	Ref. Mon. 440	455.9
		294 20	T. P. 370	435.7
		294 20	T. P. 368	204.4
Ref. Mon. 440	48 13 21.69	101 41	T. P. 369	130.4
	92 21 42.48	114 21	Ref. Mon. 439	455.9
		114 21	T. P. 368	251.5
		114 21	T. P. 370	20.2
		198 01	T. P. 371	69.9
Ref. Mon. 441	48 13 26.33	203 57	Ref. Mon. 442	165.5
	92 21 42.08			
Ref. Mon. 442	48 13 31.23	5 11	T. P. 373	60.8
	92 21 38.83	12 34	T. P. 372	151.6
		14 21	Ref. Mon. 440	304.0
		232 01	T. P. 375	218.2
		238 21	T. P. 374	54.7
Ref. Mon. 443	48 13 47.89	229 19	T. P. 380	34.8
	92 21 13.53	245 59	T. P. 381	178.9
		339 31	Ref. Mon. 444	83.1
		339 31	T. P. 379	42.6
Ref. Mon. 444	48 13 45.37	45 41	T. P. 378	101.7
	92 21 12.12	49 48	T. P. 376	302.9
		49 59	T. P. 377	194.0
		159 31	Ref. Mon. 443	83.1
		159 31	T. P. 379	40.5
Ref. Mon. 445	48 13 53.94	53 28	T. P. 382	61.7
	92 20 55.17	273 16	T. P. 384	133.4
		302 33	Ref. Mon. 446	63.8
		302 33	T. P. 383	34.2
Ref. Mon. 446	48 13 52.83	122 33	Ref. Mon. 445	63.8
	92 20 52.56	122 33	T. P. 383	29.6
Ref. Mon. 447	48 13 55.75	276 37	Ref. Mon. 448	296.6
	92 20 42.11			
Ref. Mon. 448	48 13 54.65	83 42	T. P. 386	51.7
	92 20 27.83	96 37	Ref. Mon. 447	296.6
		100 12	T. P. 385	209.1
		132 47	T. P. 387	21.5
Ref. Mon. 449	48 14 02.81	271 27	Ref. Mon. 450	133.0
	92 20 26.93	271 27	T. P. 389	36.9
		353 15	T. P. 388	42.9
Ref. Mon. 450	48 14 02.70	91 27	Ref. Mon. 449	133.0
	92 20 20.49	91 27	T. P. 389	96.1
Ref. Mon. 451	48 14 05.47	309 30	Ref. Mon. 452	19.5
	92 20 21.09	309 30	T. P. 390	13.0
Ref. Mon. 452	48 14 05.07	129 30	Ref. Mon. 451	19.5
	92 20 20.36	129 30	T. P. 390	6.5
Ref. Mon. 453	48 14 06.94	61 28	T. P. 391	79.9
	92 20 16.51	68 53	T. P. 392	49.6
		317 28	T. P. 394	38.1
		335 28	Ref. Mon. 454	36.2
		335 28	T. P. 393	11.2
Ref. Mon. 454	48 14 05.88	155 28	Ref. Mon. 453	36.2
	92 20 15.78	155 28	T. P. 393	25.0
Ref. Mon. 455	48 14 07.07	213 03	Ref. Mon. 457	44.6
	92 20 13.20			
Ref. Mon. 456	48 14 01.69	139 16	T. P. 401	62.3
	92 20 01.33	147 16	T. P. 400	86.2
		153 11	T. P. 398	134.7
		156 06	T. P. 399	104.7
		178 46	Ref. Mon. 458	134.7
		178 46	T. P. 402	19.4
		257 16	T. P. 403	40.2
Ref. Mon. 457	48 14 08.28	21 29	T. P. 395	60.2
	92 20 12.02	33 03	Ref. Mon. 455	44.6
		233 38	T. P. 396	23.3
		250 25	T. P. 397	44.5
Ref. Mon. 458	48 14 06.05	358 46	Ref. Mon. 456	134.7
	92 20 01.47	358 46	T. P. 402	115.4
Ref. Mon. 459	48 14 07.23	322 47	Ref. Mon. 460	65.6
	92 19 49.74	322 47	T. P. 406	50.8
Ref. Mon. 460	48 14 05.54	56 57	T. P. 404	177.3
	92 19 47.81	85 28	T. P. 405	55.7
		142 47	Ref. Mon. 459	65.6
		142 47	T. P. 406	14.8
		244 35	T. P. 407	69.9
Ref. Mon. 461	48 14 09.64	305 48	Ref. Mon. 462	55.1
	92 19 42.60			
Ref. Mon. 462	48 14 08.59	125 48	Ref. Mon. 461	55.1
	92 19 40.43			
Ref. Mon. 463	48 14 11.63	301 04	Ref. Mon. 464	22.7
	92 19 39.37			
Ref. Mon. 464	48 14 11.25	43 52	T. P. 408	74.2
	92 19 38.43	121 04	Ref. Mon. 463	22.7
		187 04	T. P. 409	16.9
Ref. Mon. 465	48 14 13.09	307 59	Ref. Mon. 466	68.3
	92 19 36.15			
Ref. Mon. 466	48 14 11.73	118 15	T. P. 410	74.6
	92 19 33.54	123 09	T. P. 411	60.7
		125 44	T. P. 412	15.3
		127 59	Ref. Mon. 465	68.3
		170 12	T. P. 413	8.3
Ref. Mon. 467	48 14 14.01	23 50	T. P. 414	33.4
	92 19 31.18	327 38	T. P. 415	16.6
		347 59	Ref. Mon. 468	62.4
Ref. Mon. 468	48 14 12.04	167 59	Ref. Mon. 467	62.4
	92 19 30.55	253 03	Ref. Mon. 470	450.1
		253 03	T. P. 416	245.5
Ref. Mon. 469	48 14 25.62	271 40	Ref. Mon. 472	421.9
	92 19 00.09			
Ref. Mon. 470	48 14 16.28	73 03	Ref. Mon. 468	450.1
	92 19 09.69	73 03	T. P. 416	204.5
Ref. Mon. 471	48 14 32.93	306 03	Ref. Mon. 472	404.4
	92 18 55.49	346 26	T. P. 417	215.0
Ref. Mon. 472	48 14 25.22	91 40	Ref. Mon. 469	421.9
	92 18 39.65	95 59	T. P. 417	278.0
		126 03	Ref. Mon. 471	404.4
Ref. Mon. 473	48 14 32.46	335 09	Ref. Mon. 474	284.7
	92 18 27.90			
Ref. Mon. 474	48 14 24.09	155 09	Ref. Mon. 473	284.7
	92 18 22.10			
Ref. Mon. 475	48 14 37.98	21 51	Ref. Mon. 476	303.2
	92 17 44.45			

BOUNDARY REFERENCE MONUMENTS—RANIER, MINN., TO CURTAIN FALLS—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 476	48 14 28.86	201 51	Ref. Mon. 475	303.2
	92 17 49.93			
Ref. Mon. 477	48 14 59.12	35 16 10	T. P. 418	721.0
	92 16 28.71	292 56	T. P. 419	420.0
		324 48 50	Ref. Mon. 478	947.4
Ref. Mon. 478	48 14 34.05	100 55 30	T. P. 418	980.0
	92 16 02.25	144 49 10	Ref. Mon. 477	947.4
		165 23 50	T. P. 419	631.0
Ref. Mon. 479	48 15 05.87	116 06 50	Ref. Mon. 481	878.4
	92 15 57.97			
Ref. Mon. 480	48 15 40.37	2 53 50	T. P. 420	512.0
	92 16 23.31	78 19 40	Ref. Mon. 483	697.5
Ref. Mon. 481	48 15 18.38	235 04	T. P. 420	293.0
	92 16 36.21	296 06 30	Ref. Mon. 479	878.4
Ref. Mon. 482	48 15 44.13	131 15 00	Ref. Mon. 484	688.3
	92 16 50.37			
Ref. Mon. 483	48 15 35.80	258 19 10	Ref. Mon. 480	697.5
	92 16 56.43			
Ref. Mon. 484	48 15 58.82	53 32	Ref. Mon. 485	389.6
	92 17 15.46	53 32	T. P. 421	221.8
		311 14 40	Ref. Mon. 482	688.3
Ref. Mon. 485	48 15 51.32	233 31	Ref. Mon. 484	389.6
	92 17 30.65	233 31	T. P. 421	167.8
Ref. Mon. 486	48 16 21.57	50 28	Ref. Mon. 487	436.0
	92 17 31.10	50 28	T. P. 422	235.0
Ref. Mon. 487	48 16 12.58	230 28	Ref. Mon. 486	436.0
	92 17 47.40	230 28	T. P. 422	201.0
Ref. Mon. 488	48 16 32.47	121 31	Ref. Mon. 489	171.4
	92 17 31.47	121 31	T. P. 423	82.5
Ref. Mon. 489	48 16 35.37	233 01	T. P. 424	43.3
	92 17 38.56	301 31	Ref. Mon. 488	171.4
		301 31	T. P. 423	88.9
Ref. Mon. 490	48 16 37.39	127 34	Ref. Mon. 492	80.7
	92 17 39.92			
Ref. Mon. 491	48 16 34.44	140 50	T. P. 428	14.5
	92 17 41.93	152 19	T. P. 429	37.2
		153 15	T. P. 427	8.0
		153 29	Ref. Mon. 493	103.5
		165 05	T. P. 430	54.2
		165 15	T. P. 431	85.0
		234 23	T. P. 425	77.2
		240 28	T. P. 426	46.8
Ref. Mon. 492	48 16 38.99	35 07	T. P. 435	24.5
	92 17 43.02	143 23	T. P. 436	14.2
		164 01	T. P. 437	28.7
		307 34	Ref. Mon. 490	80.7
		330 03	T. P. 434	16.9
		331 23	T. P. 433	33.0
		352 41	T. P. 432	42.4
Ref. Mon. 493	48 16 37.44	333 29	Ref. Mon. 491	103.5
	92 17 44.17			
Ref. Mon. 494	48 16 41.32	58 25	Ref. Mon. 495	33.9
	92 17 42.83	58 25	T. P. 438	22.1
Ref. Mon. 495	48 16 40.75	238 25	Ref. Mon. 494	33.9
	92 17 44.23	238 25	T. P. 438	11.8
Ref. Mon. 496	48 16 48.52	56 35	Ref. Mon. 497	381.3
	92 17 37.44			
Ref. Mon. 497	48 16 41.72	153 33 40	Ref. Mon. 498	688.4
	92 17 52.88	236 35	Ref. Mon. 496	381.3
Ref. Mon. 498	48 17 01.68	333 33 30	Ref. Mon. 497	688.4
	92 18 07.75			
Ref. Mon. 499	48 17 28.49	316 01 50	Ref. Mon. 500	859.6
	92 18 19.46	316 01 50	T. P. 439	440.8
Ref. Mon. 500	48 17 08.46	136 02 10	Ref. Mon. 499	859.6
	92 17 50.52	136 02 10	T. P. 439	418.8
Ref. Mon. 501	48 18 27.41	291 37 10	Ref. Mon. 502	749.7
	92 17 57.44	291 37 10	T. P. 440	389.8
Ref. Mon. 502	48 18 18.47	111 37 30	Ref. Mon. 501	749.7
	92 17 23.62	111 37 30	T. P. 440	359.8
Ref. Mon. 503	48 18 39.87	218 05	Ref. Mon. 504	313.8
	92 18 08.66			
Ref. Mon. 504	48 18 47.86	38 05	Ref. Mon. 503	313.8
	92 17 59.26			
Ref. Mon. 505	48 18 57.16	248 09	Ref. Mon. 506	418.6
	92 18 27.95	248 09	T. P. 441	138.8
Ref. Mon. 506	48 19 02.21	68 09	Ref. Mon. 505	418.6
	92 18 09.09	68 09	T. P. 441	279.8
Ref. Mon. 507	48 19 15.59	244 20	T. P. 442	495.0
	92 18 37.25	270 30 20	Ref. Mon. 508	815.9
Ref. Mon. 508	48 19 15.36	90 30 50	Ref. Mon. 507	815.9
	92 17 57.65	120 57	T. P. 442	431.0
Ref. Mon. 509	48 19 32.39	273 08	Ref. Mon. 510	493.1
	92 17 54.31	309 29	T. P. 443	300.0
Ref. Mon. 510	48 19 31.51	57 53	T. P. 443	308.0
	92 17 30.41	93 08	Ref. Mon. 509	493.1
Ref. Mon. 511	48 20 06.32	266 39	Ref. Mon. 512	386.4
	92 17 38.52			
Ref. Mon. 512	48 20 07.05	86 39	Ref. Mon. 511	386.4
	92 17 19.79			
Ref. Mon. 513	48 20 36.02	281 24	Ref. Mon. 514	477.4
	92 17 30.85	281 24	T. P. 444	243.2
Ref. Mon. 514	48 20 32.97	101 24	Ref. Mon. 513	477.4
	92 17 08.13	101 24	T. P. 444	234.2
Ref. Mon. 515	48 21 23.61	13 08 30	Ref. Mon. 516	1,079.2
	92 16 10.60			
Ref. Mon. 516	48 20 49.58	193 08 20	Ref. Mon. 515	1,079.2
	92 16 22.51			
Ref. Mon. 517	48 21 24.35	18 17 20	Ref. Mon. 518	731.8
	92 15 08.47	75 20 30	T. P. 445	770.0
Ref. Mon. 518	48 21 01.86	134 08 10	T. P. 445	718.0
	92 15 19.62	198 17 10	Ref. Mon. 517	731.8
Ref. Mon. 519	48 21 18.72	342 05 10	Ref. Mon. 520	809.4
	92 13 51.09			
Ref. Mon. 520	48 20 53.79	162 05 20	Ref. Mon. 519	809.4
	92 13 38.99			
Ref. Mon. 521	48 20 58.30	24 01	Ref. Mon. 522	186.5
	92 13 15.91	24 01	T. P. 446	69.7
		323 12	T. P. 447	187.9
		325 07	T. P. 448	265.2
Ref. Mon. 522	48 20 52.78	204 01	Ref. Mon. 521	186.5
	92 13 19.60	204 01	T. P. 446	116.7
		263 59	T. P. 447	189.5
		281 44	T. P. 448	232.4
Ref. Mon. 523	48 20 46.85	82 30	Ref. Mon. 524	46.3
	92 13 03.72	82 30	T. P. 450	21.3
		131 04	T. P. 449	107.9
Ref. Mon. 524	48 20 46.65	155 16	T. P. 449	84.7
	92 13 05.95	262 30	Ref. Mon. 523	46.3
		262 30	T. P. 450	25.0
		321 01	T. P. 451	177.0
Ref. Mon. 525	48 20 44.51	9 27	Ref. Mon. 526	135.8
	92 13 00.98			
Ref. Mon. 526	48 20 40.17	189 27	Ref. Mon. 525	135.8
	92 13 02.06	206 33	T. P. 451	70.0
Ref. Mon. 527	48 20 52.32	264 58	Ref. Mon. 530	239.4
	92 12 34.31	264 58	T. P. 454	145.7
Ref. Mon. 528	48 20 42.13	262 28	Ref. Mon. 529	357.0
	92 12 40.97			
Ref. Mon. 529	48 20 43.64	82 28	Ref. Mon. 528	357.0
	92 12 23.79	184 19	Ref. Mon. 530	289.8
		184 19	T. P. 453	208.4
		184 19	T. P. 452	32.1
Ref. Mon. 530	48 20 53.00	4 19	Ref. Mon. 529	289.8
	92 12 22.73	4 19	T. P. 452	257.7
		4 19	T. P. 453	81.4
		84 58	Ref. Mon. 527	239.4
		84 58	T. P. 454	93.7

BOUNDARY REFERENCE MONUMENTS—RANIER, MINN., TO CURTAIN FALLS—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 531	48 20 56.17	224 12 50	Ref. Mon. 533	878.0
	92 12 29.28	224 12 50	T. P. 455	465.5
Ref. Mon. 532	48 21 00.28	222 08	Ref. Mon. 535	234.4
	92 11 52.98			
Ref. Mon. 533	48 21 16.54	44 13 10	Ref. Mon. 531	878.0
	92 11 59.54	44 13 10	T. P. 455	412.5
Ref. Mon. 534	48 20 54.19	115 48	T. P. 457	118.0
	92 11 34.69	148 47	Ref. Mon. 535	423.2
		148 47	T. P. 456	281.6
		205 20	Ref. Mon. 537	127.5
		205 20	T. P. 458	52.7
Ref. Mon. 535	48 21 05.90	42 08	Ref. Mon. 532	234.4
	92 11 45.34	328 47	Ref. Mon. 534	423.2
		328 47	T. P. 456	141.6
Ref. Mon. 536	48 20 56.52	135 41	Ref. Mon. 538	112.8
	92 11 21.89			
Ref. Mon. 537	48 20 57.92	25 20	Ref. Mon. 534	127.5
	92 11 32.04	25 20	T. P. 458	74.7
		68 20	T. P. 457	173.0
Ref. Mon. 538	48 20 59.13	315 41	Ref. Mon. 536	112.8
	92 11 25.71			
Ref. Mon. 539	48 21 07.10	274 32	T. P. 459	100.0
	92 10 47.04	303 34	Ref. Mon. 540	136.5
Ref. Mon. 540	48 21 04.65	123 34	Ref. Mon. 539	136.5
	92 10 41.52	168 15	T. P. 459	69.0
Ref. Mon. 541	48 21 12.57	307 02	Ref. Mon. 542	149.3
	92 10 45.23			
Ref. Mon. 542	48 21 09.66	127 02	Ref. Mon. 541	149.3
	92 10 39.45			
Ref. Mon. 543	48 21 20.51	229 26 20	Ref. Mon. 545	853.5
	92 10 47.86	229 26 20	T. P. 461	262.7
		253 48	Ref. Mon. 544	338.9
		317 06	T. P. 460	108.0
Ref. Mon. 544	48 21 23.58	55 25	T. P. 460	306.0
	92 10 32.05	73 48	Ref. Mon. 543	338.9
Ref. Mon. 545	48 21 38.48	49 26 40	Ref. Mon. 543	853.5
	92 10 16.36	49 26 40	T. P 461	590.8
		219 28 50	Ref. Mon. 547	780.7
Ref. Mon. 546	48 21 39.93	146 34	T. P. 462	308.0
	92 09 34.45	212 31 20	Ref. Mon. 548	1,178.6
		244 34 20	T. P. 463	1,216.0
Ref. Mon. 547	48 21 57.99	39 29 00	Ref. Mon. 545	780.7
	92 09 52.24			
Ref. Mon. 548	48 22 12.10	32 31 40	Ref. Mon. 546	1,178.6
	92 09 03.67	47 29 00	T. P. 462	1,090.0
		315 26 20	T. P. 463	662.0
Ref. Mon. 549	48 21 39.86	37 23 10	Ref. Mon. 550	1,152.1
	92 08 16.39	37 23 10	T. P. 464	693.0
Ref. Mon. 550	48 21 10.22	217 22 40	Ref. Mon. 549	1,152.1
	92 08 50.37	217 22 40	T. P. 464	459.0
Ref. Mon. 551	48 21 47.67	8 24 40	Ref. Mon. 552	1,288.1
	92 06 02.99			
Ref. Mon. 552	48 21 06.42	188 24 40	Ref. Mon. 551	1,288.1
	92 06 12.14			
Ref. Mon. 553	48 21 23.95	39 41 20	Ref. Mon. 554	619.4
	92 05 17.50	39 41 20	T. P. 465	297.2
Ref. Mon. 554	48 21 08.52	219 41 10	Ref. Mon. 553	619.4
	92 05 36.71	219 41 10	T. P. 465	322.2
Ref. Mon. 555	48 21 19.51	339 47	Ref. Mon. 556	331.0
	92 05 03.51	339 47	T. P. 466	191.0
Ref. Mon. 556	48 21 09.46	159 47	Ref. Mon. 555	331.0
	92 04 57.95	159 47	T. P. 466	140.0
Ref. Mon. 557	48 21 40.51	328 53 20	Ref. Mon. 558	827.6
	92 04 51.11	328 53 20	T. P. 467	406.8
Ref. Mon. 558	48 21 17.57	148 53 40	Ref. Mon. 557	827.6
	92 04 30.34	148 53 40	T. P. 467	420.8
Ref. Mon. 559	48 21 36.63	249 57 30	Ref. Mon. 561	1,244.5
	92 04 03.71	274 49 00	T. P. 469	938.0
		304 50 20	Ref. Mon. 562	906.5
		318 25	Ref. Mon. 560	199.4
		318 25	T. P. 468	92.7
Ref. Mon. 560	48 21 31.80	138 25	Ref. Mon. 559	199.4
	92 03 57.28	138 25	T. P. 468	106.7
Ref. Mon. 561	48 21 50.43	24 54 30	T. P. 469	557.0
	92 03 06.91	69 58 20	Ref. Mon. 559	1,244.5
Ref. Mon. 562	48 21 19.86	124 50 50	Ref. Mon. 559	906.5
	92 03 27.57			
Ref. Mon. 563	48 20 53.35	20 01	T. P. 472	275.0
	92 02 37.33	81 03	Ref. Mon. 564	295.1
		81 03	T. P. 471	153.1
		98 50	T. P. 470	376.0
Ref. Mon. 564	48 20 51.86	142 21	T. P. 470	131.0
	92 02 51.48	261 02	Ref. Mon. 563	295.1
		261 02	T. P. 471	142.1
		317 06	T. P. 472	290.0
Ref. Mon. 565	48 20 30.12	81 09	Ref. Mon. 566	364.8
	92 02 36.93	125 59	T. P. 473	377.0
Ref. Mon. 566	48 20 28.30	191 17	T. P. 473	283.0
	92 02 54.43	261 09	Ref. Mon. 565	364.8
Ref. Mon. 567	48 20 08.26	34 58	Ref. Mon. 568	405.7
	92 02 29.52	77 55	T. P. 474	400.0
Ref. Mon. 568	48 19 57.49	147 27	T. P. 474	295.0
	92 02 40.81	214 58	Ref. Mon. 567	405.7
Ref. Mon. 569	48 20 04.13	33 52	Ref. Mon. 570	285.5
	92 02 10.36	33 52	T. P. 475	176.7
Ref. Mon. 570	48 19 56.45	213 52	Ref. Mon. 569	285.5
	92 02 18.08	213 52	T. P. 475	108.7
Ref. Mon. 571	48 19 54.94	67 17	Ref. Mon. 572	157.6
	92 02 07.13			
Ref. Mon. 572	48 19 52.97	247 17	Ref. Mon. 571	157.6
	92 02 14.19			
Ref. Mon. 573	48 19 48.32	77 01	Ref. Mon. 574	354.4
	92 01 59.44			
Ref. Mon. 574	48 19 45.74	257 01	Ref. Mon. 573	354.4
	92 02 16.21			
Ref. Mon. 575	48 19 44.28	23 30	Ref. Mon. 576	467.7
	92 01 51.06	357 38	T. P. 476	353.0
Ref. Mon. 576	48 19 30.39	203 30	Ref. Mon. 575	467.7
	92 02 00.11	249 14	T. P. 476	215.0
Ref. Mon. 577	48 19 38.23	4 57	Ref. Mon. 578	448.8
	92 01 12.10			
Ref. Mon. 578	48 19 23.76	184 57	Ref. Mon. 577	448.8
	92 01 13.98			
Ref. Mon. 579	48 19 27.09	16 34	Ref. Mon. 580	196.9
	92 00 40.76	16 34	T. P. 477	132.4
Ref. Mon. 580	48 19 20.98	196 34	Ref. Mon. 579	196.9
	92 00 43.48	196 34	T. P. 477	64.4
Ref. Mon. 581	48 19 29.03	0 31	T. P. 478	393.0
	91 59 59.76	49 41 00	Ref. Mon. 582	556.4
Ref. Mon. 582	48 19 17.37	229 40 50	Ref. Mon. 581	556.4
	92 00 20.36	274 29	T. P. 478	422.0
Ref. Mon. 583	48 19 10.77	74 28	Ref. Mon. 584	494.4
	91 59 52.24			
Ref. Mon. 584	48 19 06.49	254 28	Ref. Mon. 583	494.4
	92 00 15.36			
Ref. Mon. 585	48 18 49.97	109 46	Ref. Mon. 586	491.7
	92 00 05.92			
Ref. Mon. 586	48 18 55.35	289 46	Ref. Mon. 585	491.7
	92 00 28.38			
Ref. Mon. 587	48 17 50.00	91 41 30	Ref. Mon. 589	649.0
	92 00 31.42	96 41 30	T. P. 479	308.0

BOUNDARY REFERENCE MONUMENTS—RANIER, MINN., TO CURTAIN FALLS—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 588	48 18 25.84	8 33 20	Ref. Mon. 589	1,042.9
	92 00 55.17			
Ref. Mon. 589	48 17 52.45	188 31 10	Ref. Mon. 588	1,042.9
	92 01 02.69	276 41 10	Ref. Mon. 587	649.0
		276 41 10	T. P. 479	341.0
Ref. Mon. 590	48 17 22.97	286 18	Ref. Mon. 591	251.5
	92 00 49.92	333 15	T. P. 480	326.0
Ref. Mon. 591	48 17 20.69	23 13	T. P. 480	240.0
	92 00 38.21	106 18	Ref. Mon. 590	251.5
Ref. Mon. 592	48 16 48.96	260 28 20	Ref. Mon. 593	506.6
	92 00 38.19	260 28 20	T. P. 481	261.8
Ref. Mon. 593	48 16 51.67	80 28 40	Ref. Mon. 592	506.6
	92 00 13.95	80 28 40	T. P. 481	244.8
Ref. Mon. 594	48 15 57.69	277 14 50	Ref. Mon. 597	932.6
	92 00 44.77	277 14 50	T. P. 482	452.3
Ref. Mon. 595	48 16 16.10	334 34 40	Ref. Mon. 596	1,324.5
	92 00 09.37			
Ref. Mon. 596	48 15 37.38	154 35 00	Ref. Mon. 595	1,324.5
	91 59 41.80			
Ref. Mon. 597	48 15 53.88	97 15 30	Ref. Mon. 594	932.6
	91 59 59.91	97 15 30	T. P. 482	480.3
Ref. Mon. 598	48 15 33.52	225 13	Ref. Mon. 599	290.3
	91 59 26.28	225 13	T. P. 483	169.2
Ref. Mon. 599	48 15 40.14	45 13	Ref. Mon. 598	290.3
	91 59 16.29	45 13	T. P. 483	121.2
Ref. Mon. 600	48 14 52.79	267 41	Ref. Mon. 601	128.5
	91 58 53.34	267 41	T. P. 484	76.4
Ref. Mon. 601	48 14 52.95	87 41	Ref. Mon. 600	128.5
	91 58 47.11	87 41	T. P. 484	52.1
Ref. Mon. 602	48 14 47.84	151 28	T. P. 487	107.8
	91 58 37.25	165 19	T. P. 488	73.0
		182 18	Ref. Mon. 603	82.3
		210 59	T. P. 489	29.6
		253 35	Ref. Mon. 605	103.6
		331 35	T. P. 490	14.5
Ref. Mon. 603	48 14 50.51	2 18	Ref. Mon. 602	82.3
	91 58 37.10	61 59	T. P. 488	24.7
		95 01	T. P. 486	91.0
		96 52	T. P. 485	143.7
		102 50	T. P. 487	56.2
Ref. Mon. 604	48 14 46.82	312 37	Ref. Mon. 607	46.4
	91 58 38.59			
Ref. Mon. 605	48 14 48.79	73 35	Ref. Mon. 602	103.6
	91 58 32.44			
Ref. Mon. 606	48 14 44.70	328 12	Ref. Mon. 608	73.4
	91 58 39.24			
Ref. Mon. 607	48 14 45.81	132 37	Ref. Mon. 604	46.4
	91 58 36.94			
Ref. Mon. 608	48 14 42.68	148 12	Ref. Mon. 606	73.4
	91 58 37.37	171 39	Ref. Mon. 609	68.8
		171 39	T. P. 496	38.3
		306 35	T. P. 498	142.3
Ref. Mon. 609	48 14 44.88	27 39	T. P. 495	23.6
	91 58 37.85	71 19	T. P. 494	13.9
		142 19	T. P. 493	32.0
		175 59	T. P. 492	54.4
		187 31	T. P. 491	62.2
		325 29	T. P. 497	100.5
		351 39	Ref. Mon. 608	68.8
		351 39	T. P. 496	30.5
Ref. Mon. 610	48 14 39.84	92 43	T. P. 498	64.5
	91 58 28.71	155 42	Ref. Mon. 611	121.0
Ref. Mon. 611	48 14 43.40	335 42	Ref. Mon. 610	121.0
	91 58 31.12			
Ref. Mon. 612	48 14 46.83	29 39	T. P. 501	102.6
	91 58 24.24	30 09	T. P. 500	117.1
		32 03	T. P. 499	125.9
		32 06	T. P. 502	49.9
		102 33	Ref. Mon. 613	51.9
		145 18	T. P. 503	9.7
Ref. Mon. 613	48 14 47.20	229 45	T. P. 506	406.3
	91 58 26.69	240 05	Ref. Mon. 614	402.1
		240 05	T. P. 505	326.0
		240 05	T. P. 504	61.0
		282 33	Ref. Mon. 612	51.9
Ref. Mon. 614	48 14 53.69	60 06	Ref. Mon. 613	402.1
	91 58 09.80	60 06	T. P. 504	341.0
		60 06	T. P. 505	76.0
		148 15	T. P. 506	73.0
Ref. Mon. 615	48 14 59.33	176 43	Ref. Mon. 616	90.3
	91 58 17.65	225 35	T. P. 509	27.0
		302 31	T. P. 508	75.5
		314 55	T. P. 507	114.5
Ref. Mon. 616	48 15 02.25	12 20	T. P. 510	60.6
	91 58 17.90	57 13	T. P. 511	60.0
		98 45	T. P. 512	52.3
		101 18	Ref. Mon. 617	98.3
		138 04	T. P. 513	60.1
		154 16	T. P. 514	84.0
		166 50	T. P. 515	140.7
		356 43	Ref. Mon. 615	90.3
Ref. Mon. 617	48 15 02.88	281 18	Ref. Mon. 616	98.3
	91 58 22.57	318 24	T. P. 511	69.2
Ref. Mon. 618	48 15 10.92	101 16	T. P. 518	55.2
	91 58 14.10	106 16	Ref. Mon. 621	66.1
		106 46	T. P. 519	18.9
		204 46	T. P. 521	54.3
		210 26	T. P. 522	108.4
		216 16	T. P. 520	20.0
Ref. Mon. 619	48 15 10.39	240 58	Ref. Mon. 621	71.7
	91 58 20.22	263 20	T. P. 517	44.0
		337 29	T. P. 516	101.0
Ref. Mon. 620	48 15 12.47	189 31	Ref. Mon. 622	147.0
	91 58 09.50			
Ref. Mon. 621	48 15 11.52	10 36	T. P. 516	130.3
	91 58 17.18	32 34	T. P. 517	35.2
		60 58	Ref. Mon. 619	71.7
		286 16	Ref. Mon. 618	66.1
Ref. Mon. 622	48 15 17.17	9 31	Ref. Mon. 620	147.0
	91 58 08.33			
Ref. Mon. 623	48 15 17.47	349 46	Ref. Mon. 624	214.5
	91 57 33.07	349 46	T. P. 523	123.6
Ref. Mon. 624	48 15 10.63	169 46	Ref. Mon. 623	214.5
	91 57 31.22	169 46	T. P. 523	91.0
Ref. Mon. 625	48 15 09.32	3 12	Ref. Mon. 626	71.9
	91 57 22.56	67 18	T. P. 524	51.4
Ref. Mon. 626	48 15 07.00	140 08	T. P. 524	67.7
	91 57 22.76	183 12	Ref. Mon. 625	71.9
Ref. Mon. 627	48 15 06.22	96 45	Ref. Mon. 628	53.1
	91 57 12.98	96 45	T. P. 527	28.3
Ref. Mon. 628	48 15 06.43	201 45	T. P. 525	69.3
	91 57 15.54	259 29	T. P. 526	26.3
		276 45	Ref. Mon. 627	53.1
		276 45	T. P. 527	24.8
		320 50	T. P. 528	32.4
Ref. Mon. 629	48 14 57.68	37 45	Ref. Mon. 630	145.3
	91 57 08.32	101 02	T. P. 529	121.2
Ref. Mon. 630	48 14 53.96	167 45	T. P. 529	141.3
	91 57 12.63	217 45	Ref. Mon. 629	145.3
Ref. Mon. 631	48 14 48.67	28 34	T. P. 530	104.0
	91 56 50.02	69 09	Ref. Mon. 632	239.3
Ref. Mon. 632	48 14 45.92	249 09	Ref. Mon. 631	239.3
	91 57 00.86	272 03	T. P. 530	174.0
		340 51	T. P. 531	174.0
Ref. Mon. 633	48 14 41.72	70 01 40	Ref. Mon. 635	770.8
	91 56 48.54	80 01	T. P. 531	200.0
Ref. Mon. 634	48 14 49.92	322 35 20	Ref. Mon. 635	650.5
	91 57 42.81	322 35 20	T. P. 532	456.7
Ref. Mon. 635	48 14 33.19	142 35 30	Ref. Mon. 634	650.5
	91 57 23.66	142 35 30	T. P. 532	193.7
		250 01 10	Ref. Mon. 633	770.8
Ref. Mon. 636	48 14 20.94	11 17	T. P. 534	253.0
	91 57 32.29	278 04	T. P. 533	154.0
		333 47	Ref. Mon. 637	328.3
Ref. Mon. 637	48 14 11.40	103 25	T. P. 534	200.0
	91 57 25.26	153 47	Ref. Mon. 636	328.3
		181 34	T. P. 533	273.0
Ref. Mon. 638	48 14 00.88	275 38 00	Ref. Mon. 640	840.3
	91 57 48.24	275 38 00	T. P. 535	386.6

BOUNDARY REFERENCE MONUMENTS—RANIER, MINN., TO CURTAIN FALLS—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 639	48 14 00.33	265 25	T. P. 537	104.0
	91 57 09.06	337 07	Ref. Mon. 640	71.3
		337 07	T. P. 536	32.6
Ref. Mon. 640	48 13 58.20	95 38 30	Ref. Mon. 638	840.3
	91 57 07.72	95 38 30	T. P. 535	453.6
		157 07	Ref. Mon. 639	71.3
		157 07	T. P. 536	38.6
		225 46	T. P. 537	106.0
		296 04 20	Ref. Mon. 641	706.2
		296 04 20	T. P. 538	592.6
Ref. Mon. 641	48 13 48.15	116 04 50	Ref. Mon. 640	706.2
	91 56 36.98	116 04 50	T. P. 538	113.6
		249 13	T. P. 539	131.7
Ref. Mon. 642	48 13 59.81	171 43	Ref. Mon. 643	231.0
	91 56 14.02	171 43	T. P. 540	115.6
Ref. Mon. 643	48 14 07.21	351 43	Ref. Mon. 642	231.0
	91 56 15.63	351 43	T. P. 540	115.4
Ref. Mon 644	48 14 03.75	214 49	Ref. Mon. 645	406.7
	91 55 49.37	214 49	T. P. 541	220.0
Ref. Mon. 645	48 14 14.55	34 50	Ref. Mon. 644	406.7
	91 55 38.12	34 50	T. P. 541	186.7
Ref. Mon. 646	48 14 10.13	139 18	Ref. Mon. 647	220.7
	91 55 12.12	139 18	T. P. 542	110.4
Ref. Mon. 647	48 14 15.55	319 18	Ref. Mon. 646	220.7
	91 55 19.10	319 18	T. P. 542	110.3
Ref. Mon. 648	48 14 17.60	188 24	Ref. Mon. 649	106.3
	91 55 00.36	188 24	T. P. 543	53.0
Ref. Mon. 649	48 14 21.00	8 24	Ref. Mon. 648	106.3
	91 54 59.61	8 24	T. P. 543	53.3
		276 54	T. P. 544	135.7
Ref. Mon. 650	48 14 16.52	202 45	Ref. Mon. 651	97.0
	91 54 46.40			
Ref. Mon. 651	48 14 19.41	22 45	Ref. Mon. 650	97.0
	91 54 44.58	63 39	T. P. 546	55.5
		107 59	T. P. 545	72.0
Ref. Mon. 652	48 14 16.34	120 40	T. P. 547	72.9
	91 54 34.97	188 58	Ref. Mon. 653	123.6
		188 58	T. P. 548	64.0
Ref. Mon. 653	48 14 20.30	8 58	Ref. Mon. 652	123.6
	91 54 34.04	8 58	T. P. 548	59.6
Ref. Mon. 654	48 14 15.46	233 23	Ref. Mon. 655	132.5
	91 54 27.05			
Ref. Mon. 655	48 14 18.02	53 23	Ref. Mon. 654	132.5
	91 54 21.89	82 33	T. P. 551	61.7
		90 00	T. P. 550	88.4
		96 01	T. P. 549	105.9
Ref. Mon. 656	48 14 14.64	237 49	Ref. Mon. 657	127.8
	91 54 23.16	277 59	T. P. 552	55.6
Ref. Mon. 657	48 14 16.84	35 01	T. P. 552	92.4
	91 54 17.92	57 49	Ref. Mon. 656	127.8

GEOGRAPHIC POSITIONS OF MONUMENTS AND MARKED STATIONS REFERENCING THE TURNING POINTS OF THE INTERNATIONAL BOUNDARY FROM CURTAIN FALLS TO LAKE SUPERIOR

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 658	48 14 09.01	155 56	Ref. Mon. 659	275.0
	91 54 04.67	155 56	T. P. 553	167.7
Ref. Mon. 659	48 14 17.14	335 55	Ref. Mon. 658	275.0
	91 54 10.11	335 55	T. P. 553	107.3
Ref. Mon. 660	48 14 15.67	248 16 20	Ref. Mon. 661	588.7
	91 53 40.08	248 16 20	T. P. 554	119.3
Ref. Mon. 661	48 14 22.73	68 16 40	Ref. Mon. 660	588.7
	91 53 13.57	68 16 40	T. P. 554	469.5
Ref. Mon. 662	48 13 27.38	218 38 20	Ref. Mon. 663	590.1
	91 53 17.12	218 38 20	T. P. 555	463.3
Ref. Mon. 663	48 13 42.30	38 38 30	Ref. Mon. 662	590.1
	91 52 59.27	38 38 30	T. P. 555	126.7
Ref. Mon. 664	48 13 03.69	208 03	Ref. Mon. 666	370.5
	91 52 07.35	208 03	T. P. 556	200.9
Ref. Mon. 665	48 12 43.67	180 48 10	Ref. Mon. 666	945.4
	91 51 59.55			
Ref. Mon. 666	48 13 14.27	0 48 10	Ref. Mon. 665	945.4
	91 51 58.91	28 03	Ref. Mon. 664	370.5
		28 03	T. P. 556	169.6
		354 00 30	Ref. Mon. 667	1,673.5
		354 00 30	T. P. 557	1,518.5
Ref. Mon. 667	48 12 20.39	174 00 30	Ref. Mon. 666	1,673.5
	91 51 50.45	174 00 30	T. P. 557	155.0
Ref. Mon. 668	48 12 39.39	327 03 20	Ref. Mon. 669	679.1
	91 50 50.05	327 03 20	T. P. 558	272.7
Ref. Mon. 669	48 12 20.93	147 03 40	Ref. Mon. 668	679.1
	91 50 32.16	147 03 40	T. P. 558	406.5
Ref. Mon. 670	48 12 30.40	198 21	T. P. 559	228.8
	91 50 12.28	254 06	Ref. Mon. 671	229.5
Ref. Mon. 671	48 12 32.43	74 06	Ref. Mon. 670	229.5
	91 50 01.59	136 06	T. P. 559	214.4
		242 44 10	Ref. Mon. 672	608.0
		242 44 10	T. P. 560	114.0
Ref. Mon. 672	48 12 41.45	62 44 30	Ref. Mon. 671	608.0
	91 49 35.41	62 44 30	T. P. 560	494.0
Ref. Mon. 673	48 12 45.70	279 58 50	Ref. Mon. 674	613.6
	91 49 18.95	279 58 50	T. P. 561	498.6
Ref. Mon. 674	48 12 42.26	99 59 10	Ref. Mon. 673	613.6
	91 48 49.68	99 59 10	T. P. 561	115.0
Ref. Mon. 675	48 12 32.52	282 47	Ref. Mon. 676	423.0
	91 49 03.35	282 47	T. P. 562	275.0
Ref. Mon. 676	48 12 29.49	102 47	Ref. Mon. 675	423.0
	91 48 43.38	102 47	T. P. 562	148.0
Ref. Mon. 677	48 12 26.41	2 38	Ref. Mon. 678	221.6
	91 48 33.35	2 38	T. P. 563	106.5
Ref. Mon. 678	48 12 19.24	182 38	Ref. Mon. 677	221.6
	91 48 33.84	182 38	T. P. 563	115.1
Ref. Mon. 679	48 12 07.41	218 50	Ref. Mon. 680	208.2
	91 47 52.90	218 50	T. P. 564	104.0
		263 20 00	T. P. 565	530.0
Ref. Mon. 680	48 12 12.66	38 50	Ref. Mon. 679	208.2
	91 47 46.58	38 50	T. P. 564	104.2
		284 16	T. P. 565	408.4
Ref. Mon. 681	48 12 31.40	26 08 30	Ref. Mon. 683	2,273.8
	91 46 57.08			
Ref. Mon. 682	48 11 50.46	39 24 20	Ref. Mon. 683	1,005.6
	91 47 14.68	39 24 20	T. P. 566	130.1
		232 44 20	T. P. 568	641.4
		319 05 30	Ref. Mon. 684	546.2
		319 05 30	T. P. 567	157.4
Ref. Mon. 683	48 11 25.31	206 07 50	Ref. Mon. 681	2,273.8
	91 47 45.59	219 23 50	Ref. Mon. 682	1,005.6
		219 23 50	T. P. 566	875.5
Ref. Mon. 684	48 11 37.10	139 05 40	Ref. Mon. 682	546.2
	91 46 57.36	139 05 40	T. P. 567	388.8
		190 48 10	T. P. 568	815.4
Ref. Mon. 685	48 11 58.88	163 26	Ref. Mon. 686	261.1
	91 45 49.06	163 26	T. P. 569	120.3
Ref. Mon. 686	48 12 06.93	275 16	Ref. Mon. 687	297.1
	91 45 52.66	275 16	T. P. 570	149.7
		343 26	Ref. Mon. 685	261.1
		343 26	T. P. 569	140.8
Ref. Mon. 687	48 12 06.10	95 16	Ref. Mon. 686	297.1
	91 45 38.34	95 16	T. P. 570	147.4
Ref. Mon. 688	48 12 21.65	331 30	Ref. Mon. 689	304.1
	91 45 42.04	331 30	T. P. 571	139.7
Ref. Mon. 689	48 12 13.00	151 30	Ref. Mon. 688	304.1
	91 45 35.02	151 30	T. P. 571	164.4
Ref. Mon. 690	48 12 30.44	8 43 50	Ref. Mon. 691	686.5
	91 45 18.91	8 43 50	T. P. 572	264.6
Ref. Mon. 691	48 12 08.47	188 43 50	Ref. Mon. 690	686.5
	91 45 23.95	188 43 50	T. P. 572	421.9
Ref. Mon. 692	48 12 00.07	243 09	Ref. Mon. 693	388.9
	91 45 22.29	243 09	T. P. 573	232.8
Ref. Mon. 693	48 12 05.75	63 09	Ref. Mon. 692	388.9
	91 45 05.49	63 09	T. P. 573	156.1
Ref. Mon. 694	48 11 46.53	247 37 20	Ref. Mon. 696	1,091.5
	91 45 26.84	247 37 20	T. P. 574	738.0
Ref. Mon. 695	48 11 51.90	174 58	Ref. Mon. 696	250.6
	91 44 36.90	174 58	T. P. 575	121.5
Ref. Mon. 696	48 11 59.98	67 37 50	Ref. Mon. 694	1,091.5
	91 44 37.97	67 37 50	T. P. 574	353.5
		354 58	Ref. Mon. 695	250.6
		354 58	T. P. 575	129.1
Ref. Mon. 697	48 12 00.74	314 42	Ref. Mon. 698	184.1
	91 44 33.23	314 42	T. P. 576	121.1
Ref. Mon. 698	48 11 56.55	134 43	Ref. Mon. 697	184.1
	91 44 26.93	134 43	T. P. 576	63.0
Ref. Mon. 699	48 12 13.77	217 58	Ref. Mon. 700	168.3
	91 44 34.80	217 58	T. P. 577	126.2
Ref. Mon. 700	48 12 18.06	37 58	Ref. Mon. 699	168.3
	91 44 29.78	37 58	T. P. 577	42.0
		289 17	Ref. Mon. 702	305.4
		289 17	T. P. 578	229.4
Ref. Mon. 701	48 12 16.48	301 24	Ref. Mon. 703	179.2
	91 44 15.93	301 24	T. P. 580	62.0
		357 37	Ref. Mon. 702	52.0
		357 37	T. P. 579	25.0
Ref. Mon. 702	48 12 14.80	109 17	Ref. Mon. 700	305.4
	91 44 15.82	109 17	T. P. 578	76.0
		177 37	Ref. Mon. 701	52.0
		177 37	T. P. 579	27.0
Ref. Mon. 703	48 12 13.46	121 24	Ref. Mon. 701	179.2
	91 44 08.52	121 24	T. P. 580	117.2
Ref. Mon. 704	48 12 08.86	4 29	Ref. Mon. 705	359.4
	91 43 30.35	4 29	T. P. 581	113.7
Ref. Mon. 705	48 11 57.26	184 29	Ref. Mon. 704	359.4
	91 43 31.71	184 29	T. P. 581	245.7
Ref. Mon. 706	48 12 02.25	14 29	Ref. Mon. 707	398.2
	91 42 53.46	14 29	T. P. 582	116.7

BOUNDARY REFERENCE MONUMENTS AND MARKED STATIONS—CURTAIN FALLS TO LAKE SUPERIOR—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 707	48 11 49.76	194 29	Ref. Mon. 706	398.2
	91 42 58.28	194 29	T. P. 582	281.5
		245 38	Ref. Mon. 708	409.3
		245 38	T. P. 583	259.3
		308 24 50	Ref. Mon. 709	760.1
		308 24 50	T. P. 584	566.1
Ref. Mon. 708	48 11 55.23	65 38	Ref. Mon. 707	409.3
	91 42 40.23	65 38	T. P. 583	150.0
Ref. Mon. 709	48 11 34.47	79 20	Ref. Mon. 710	399.6
	91 42 29.44	79 20	T. P. 585	157.0
		128 25 10	Ref. Mon. 707	760.1
		128 25 10	T. P. 584	194.0
Ref. Mon. 710	48 11 32.08	259 20	Ref. Mon. 709	399.6
	91 42 48.46	259 20	T. P. 585	242.6
Ref. Mon. 711	48 11 16.14	81 00 10	Ref. Mon. 712	504.5
	91 42 37.23	81 00 10	T. P. 586	135.0
Ref. Mon. 712	48 11 13.58	260 59 50	Ref. Mon. 711	504.5
	91 43 01.36	260 59 50	T. P. 586	369.6
Ref. Mon. 713	48 10 57.27	355 52	Ref. Mon. 714	398.2
	91 43 17.24	355 52	T. P. 587	245.9
Ref. Mon. 714	48 10 44.41	62 34	Ref. Mon. 715	445.7
	91 43 15.85	62 34	T. P. 588	94.5
		175 52	Ref. Mon. 713	398.2
		175 52	T. P. 587	152.4
Ref. Mon. 715	48 10 37.77	242 34	Ref. Mon. 714	445.7
	91 43 35.00	242 34	T. P. 588	351.2
Ref. Mon. 716	48 10 26.11	297 45	Ref. Mon. 717	114.3
	91 43 25.36	297 45	T. P. 589	72.3
Ref. Mon. 717	48 10 24.38	117 45	Ref. Mon. 716	114.3
	91 43 20.46	117 45	T. P. 589	42.0
Ref. Mon. 718	48 10 15.70	282 52	Ref. Mon. 719	302.9
	91 43 36.38	282 52	T. P. 590	193.6
		307 01 50	Ref. Mon. 721	642.5
		307 01 50	T. P. 591	359.9
Ref. Mon. 719	48 10 13.51	102 52	Ref. Mon. 718	302.9
	91 43 22.09	102 52	T. P. 590	109.3
Ref. Mon. 720	48 10 21.04	285 57	Ref. Mon. 722	465.0
	91 43 11.07	285 57	T. P. 592	219.1
Ref. Mon. 721	48 10 03.17	127 02 10	Ref. Mon. 718	642.5
	91 43 11.56	127 02 10	T. P. 591	282.6
Ref. Mon. 722	48 10 16.90	105 57	Ref. Mon. 720	465.0
	91 42 49.43	105 57	T. P. 592	246.0
Ref. Mon. 723	48 10 18.99	181 57	Ref. Mon. 724	220.6
	91 42 33.56	181 57	T. P. 593	118.8
Ref. Mon. 724	48 10 26.13	1 57	Ref. Mon. 723	220.6
	91 42 33.20	1 57	T. P. 593	101.8
		315 48 10	Ref. Mon. 725	842.9
		315 48 10	T. P. 594	482.2
Ref. Mon. 725	48 10 06.56	135 48 40	Ref. Mon. 724	842.9
	91 42 04.76	135 48 40	T. P. 594	360.7
Ref. Mon. 726	48 09 52.42	58 24	Ref. Mon. 727	199.5
	91 42 14.09	58 24	T. P. 595	96.0
Ref. Mon. 727	48 09 49.03	238 24	Ref. Mon. 726	199.5
	91 42 22.31	238 24	T. P. 595	103.5
Ref. Mon. 728	48 09 40.12	7 31	T. P. 597	112.0
	91 42 15.65	89 31	Ref. Mon. 729	102.2
		89 31	T. P. 596	35.4
Ref. Mon. 729	48 09 40.09	269 30	Ref. Mon. 728	102.2
	91 42 20.60	269 30	T. P. 596	66.8
		321 27	T. P. 597	140.6
Ref. Mon. 730	48 09 30.03	53 02	Ref. Mon. 731	372.6
	91 42 16.00	53 02	T. P. 598	47.0
Ref. Mon. 731	48 09 22.77	233 02	Ref. Mon. 730	372.6
	91 42 30.41	233 02	T. P. 598	325.6
Ref. Mon. 732	48 09 13.28	65 07	T. P. 600	154.0
	91 42 22.01	110 57	Ref. Mon. 733	104.5
		110 57	T. P. 599	54.3
Ref. Mon. 733	48 09 14.49	22 25	T. P. 600	110.6
	91 42 26.73	290 57	Ref. Mon. 732	104.5
		290 57	T. P. 599	50.2
Ref. Mon. 734	48 09 04.10	271 32	Ref. Mon. 735	174.7
	91 42 30.93	271 32	T. P. 601	127.3
		299 08	T. P. 602	155.5
Ref. Mon. 735	48 09 03.95	28 42	T. P. 602	80.9
	91 42 22.48	91 32	Ref. Mon. 734	174.7
		91 32	T. P. 601	47.4
Ref. Mon. 736	48 08 50.99	67 11	Ref. Mon. 737	168.4
	91 42 12.79	67 11	T. P. 603	80.4
Ref. Mon. 737	48 08 48.88	247 11	Ref. Mon. 736	168.4
	91 42 20.30	247 11	T. P. 603	88.0
Ref. Mon. 738	48 08 42.18	223 35	Ref. Mon. 739	90.6
	91 42 12.48	223 35	T. P. 604	39.2
Ref. Mon. 739	48 08 44.31	43 35	Ref. Mon. 738	90.6
	91 42 09.46	43 35	T. P. 604	51.5
		297 39	Ref. Mon. 741	335.9
		297 39	T. P. 606	182.9
		337 21	Ref. Mon. 740	169.9
		337 21	T. P. 605	88.5
Ref. Mon. 740	48 08 39.23	157 21	Ref. Mon. 739	169.9
	91 42 06.29	157 21	T. P. 605	81.5
Ref. Mon. 741	48 08 39.26	117 39	Ref. Mon. 739	335.9
	91 41 55.06	117 39	T. P. 606	153.0
		162 56	T. P. 607	105.7
		277 12	Ref. Mon. 742	176.4
		277 12	T. P. 608	47.2
Ref. Mon. 742	48 08 38.54	97 12	Ref. Mon. 741	176.4
	91 41 46.60	97 12	T. P. 608	129.2
		120 54	T. P. 607	240.0
Ref. Mon. 743	48 08 31.79	306 26	Ref. Mon. 744	174.6
	91 41 54.91	306 26	T. P. 609	86.5
Ref. Mon. 744	48 08 28.44	126 26	Ref. Mon. 743	174.6
	91 41 48.12	126 26	T. P. 609	88.1
Ref. Mon. 745	48 08 15.90	69 47	Ref. Mon. 746	91.6
	91 41 55.17	69 47	T. P. 610	54.6
Ref. Mon. 746	48 08 14.87	249 47	Ref. Mon. 745	91.6
	91 41 59.33	249 47	T. P. 610	37.0
Ref. Mon. 747	48 07 57.01	296 51	Ref. Mon. 748	214.4
	91 42 02.45	296 51	T. P. 611	107.2
Ref. Mon. 748	48 07 53.87	116 51	Ref. Mon. 747	214.4
	91 41 53.20	116 51	T. P. 611	107.2
Ref. Mon. 749	48 07 50.76	90 57	Ref. Mon. 750	109.2
	91 41 59.66	90 57	T. P. 612	38.4
Ref. Mon. 750	48 07 50.82	270 57	Ref. Mon. 749	109.2
	91 42 04.95	270 57	T. P. 612	70.8
Ref. Mon. 751	48 07 42.28	288 26	Ref. Mon. 752	121.6
	91 42 08.75			
Ref. Mon. 752	48 07 41.04	108 26	Ref. Mon. 751	121.6
	91 42 03.17			
Ref. Mon. 753	48 07 33.20	337 41	Ref. Mon. 754	216.8
	91 42 15.30	337 41	T. P. 613	113.1
Ref. Mon. 754	48 07 26.71	157 41	Ref. Mon. 753	216.8
	91 42 11.32	157 41	T. P. 613	103.7
Ref. Mon. 755	48 07 30.68	331 16	Ref. Mon. 756	427.3
	91 42 32.76	331 16	T. P. 614	213.6
Ref. Mon. 756	48 07 18.55	151 16	Ref. Mon. 755	427.3
	91 42 22.83	151 16	T. P. 614	213.6
Ref. Mon. 757	48 07 09.09	116 27	Ref. Mon. 758	143.0
	91 42 29.95	116 27	T. P. 615	76.8
Ref. Mon. 758	48 07 11.15	296 27	Ref. Mon. 757	143.0
	91 42 36.14	296 27	T. P. 615	66.2
Ref. Mon. 759	48 07 05.48	354 48	Ref. Mon. 760	163.4
	91 42 42.19	354 48	T. P. 616	65.8

BOUNDARY REFERENCE MONUMENTS AND MARKED STATIONS—CURTAIN FALLS TO LAKE SUPERIOR—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 760	48 07 00.21	29 24	Ref. Mon. 761	208.8
	91 42 41.47	29 24	T. P. 617	141.2
		174 48	Ref. Mon. 759	163.4
		174 48	T. P. 616	97.5
Ref. Mon. 761	48 06 54.32	209 24	Ref. Mon. 760	208.8
	91 42 46.43	209 24	T. P. 617	67.7
		279 06	T. P. 619	204.9
		285 35	T. P. 620	236.9
		291 23	Ref. Mon. 763	223.6
		291 23	T. P. 618	101.7
Ref. Mon. 762	48 06 56.55	17 55	Ref. Mon. 763	158.2
	91 42 34.01			
Ref. Mon. 763	48 06 51.68	111 23	Ref. Mon. 761	223.6
	91 42 36.36	111 23	T. P. 618	121.9
		172 55	T. P. 619	49.6
		197 55	Ref. Mon. 762	158.2
		227 55	T. P. 620	26.8
Ref. Mon. 764	48 06 53.88	328 58	Ref. Mon. 765	253.8
	91 42 15.30	328 58	T. P. 621	148.0
Ref. Mon. 765	48 06 46.84	148 58	Ref. Mon. 764	253.8
	91 42 08.98	148 58	T. P. 621	105.7
Ref. Mon. 766	48 06 56.39	175 51	Ref. Mon. 767	96.4
	91 41 47.60	175 51	T. P. 622	37.5
Ref. Mon. 767	48 06 59.50	266 15	Ref. Mon. 769	326.7
	91 41 47.94	266 15	T. P. 623	280.7
		355 51	Ref. Mon. 766	96.4
		355 51	T. P. 622	58.9
Ref. Mon. 768	48 07 07.08	173 49	Ref. Mon. 772	205.8
	91 41 30.47	173 49	T. P. 626	136.0
Ref. Mon. 769	48 07 00.19	86 15	Ref. Mon. 767	326.7
	91 41 32.18	86 15	T. P. 623	46.0
		208 12	Ref. Mon. 770	239.2
		208 12	T. P. 625	190.4
		208 12	T. P. 624	34.2
Ref. Mon. 770	48 07 07.02	28 12	Ref. Mon. 769	239.2
	91 41 26.71	28 12	T. P. 624	205.0
		28 12	T. P. 625	48.8
Ref. Mon. 771	48 07 13.22	94 25	Ref. Mon. 772	195.5
	91 41 22.11	94 25	T. P. 627	80.3
Ref. Mon. 772	48 07 13.70	274 24	Ref. Mon. 771	195.5
	91 41 31.54	274 24	T. P. 627	115.2
		353 49	Ref. Mon. 768	205.8
		353 49	T. P. 626	69.8
Ref. Mon. 773	48 07 17.74	234 27	Ref. Mon. 774	352.1
	91 41 02.78	234 27	T. P. 628	193.9
Ref. Mon. 774	48 07 24.36	54 27	Ref. Mon. 773	352.1
	91 40 48.92	54 27	T. P. 628	158.2
Ref. Mon. 775	48 07 03.79	259 24	Ref. Mon. 776	173.0
	91 41 03.00	259 24	T. P. 629	54.8
Ref. Mon. 776	47 07 04.82	79 24	Ref. Mon. 775	173.0
	91 40 54.78	79 24	T. P. 629	118.2
Ref. Mon. 777	48 06 45.71	322 40	Ref. Mon. 778	314.8
	91 41 17.65	322 40	T. P. 630	96.5
Ref. Mon. 778	48 06 37.60	142 40	Ref. Mon. 777	314.8
	91 41 08.42	142 40	T. P. 630	218.3
		281 17 40	Ref. Mon. 779	543.3
		281 17 40	T. P. 631	302.8
		301 48 50	Ref. Mon. 781	816.5
		301 48 50	T. P. 632	429.3
Ref. Mon. 779	48 06 34.16	101 18 00	Ref. Mon. 778	543.3
	91 40 42.67	101 18 00	T. P. 631	240.4
Ref. Mon. 780	48 06 32.49	348 47	Ref. Mon. 781	278.0
	91 40 37.50	348 47	T. P. 633	161.3
Ref. Mon. 781	48 06 23.67	121 49 20	Ref. Mon. 778	816.5
	91 40 34.88	121 49 20	T. P. 632	387.2
		168 47	Ref. Mon. 780	278.0
		168 47	T. P. 633	116.7
Ref. Mon. 782	48 06 37.57	344 07	Ref. Mon. 783	351.2
	91 40 17.94	344 07	T. P. 634	192.7
Ref. Mon. 783	48 06 26.63	164 08	Ref. Mon. 782	351.2
	91 40 13.30	164 08	T. P. 634	158.5
		236 11 20	Ref. Mon. 784	543.5
		236 11 20	T. P. 635	279.6
Ref. Mon. 784	48 06 36.42	8 48	Ref. Mon. 785	396.6
	91 39 51.47	8 48	T. P. 636	322.2
		56 11 40	Ref. Mon. 783	543.5
		56 11 40	T. P. 635	263.9
		305 41	Ref. Mon. 786	325.1
		305 41	T. P. 638	163.7
Ref. Mon. 785	48 06 23.73	188 48	Ref. Mon. 784	396.6
	91 39 54.40	188 48	T. P. 636	74.4
		205 34	T. P. 637	103.9
Ref. Mon. 786	48 06 30.28	68 46	T. P. 637	300.3
	91 39 38.70	125 41	Ref. Mon. 784	325.1
		125 41	T. P. 638	161.4
Ref. Mon. 787	48 06 35.82	146 40	Ref. Mon. 789	325.1
	91 39 37.24	146 40	T. P. 639	239.8
Ref. Mon. 788	48 06 39.63	118 11	Ref. Mon. 789	325.8
	91 39 32.00	118 11	T. P. 640	240.5
Ref. Mon. 789	48 06 44.61	298 11	Ref. Mon. 788	325.8
	91 39 45.88	298 11	T. P. 640	85.3
		326 39	Ref. Mon. 787	325.1
		326 39	T. P. 639	85.3
Ref. Mon. 790	48 06 43.08	152 03	Ref. Mon. 791	267.0
	91 39 24.12	211 33	Ref. Mon. 792	359.3
		211 33	T. P. 641	241.9
Ref. Mon. 791	48 06 50.71	332 03	Ref. Mon. 790	267.0
	91 39 30.17			
Ref. Mon. 792	48 06 52.99	31 33	Ref. Mon. 790	359.3
	91 39 15.02	31 33	T. P. 641	117.4
Ref. Mon. 793	48 06 58.15	335 00	Ref. Mon. 795	448.1
	91 39 11.30	335 00	T. P. 644	372.5
		335 00	T. P. 643	256.7
		359 31	Ref. Mon. 794	307.2
		359 31	T. P. 642	184.1
Ref. Mon. 794	48 06 48.21	179 31	Ref. Mon. 793	307.2
	91 39 11.17	179 31	T. P. 642	123.1
Ref. Mon. 795	48 06 45.00	68 26	T. P. 645	60.4
	91 39 02.15	155 00	Ref. Mon. 793	448.1
		155 00	T. P. 643	191.4
		155 00	T. P. 644	75.6
Ref. Mon. 796	48 06 32.64	100 12 40	Ref. Mon. 797	582.0
	91 38 45.66	100 12 40	T. P. 646	526.5
Ref. Mon. 797	48 06 35.98	214 23	T. P. 645	310.6
	91 39 13.35	280 12 20	Ref. Mon. 796	582.0
		280 12 20	T. P. 646	55.5
		312 10 00	Ref. Mon. 798	558.2
		312 10 00	T. P. 647	424.7
Ref. Mon. 798	48 06 23.85	48 58	Ref. Mon. 799	154.0
	91 38 53.35	48 58	T. P. 649	18.9
		80 34	T. P. 648	30.5
		132 10 10	Ref. Mon. 797	558.2
		132 10 10	T. P. 647	133.5
		316 08	Ref. Mon. 801	198.0
		316 08	T. P. 651	30.2
		316 08	T. P. 650	17.4
Ref. Mon. 799	48 06 20.58	221 51	T. P. 648	129.0
	91 38 58.97	228 58	Ref. Mon. 798	154.0
		228 58	T. P. 649	135.2
Ref. Mon. 800	48 06 19.18	219 56	T. P. 652	88.2
	91 38 55.17	269 30	Ref. Mon. 801	174.7
		318 49	T. P. 653	204.8
Ref. Mon. 801	48 06 19.23	14 23	T. P. 653	160.7
	91 38 46.72	89 30	Ref. Mon. 800	174.7
		119 14	T. P. 652	135.3
		136 08	Ref. Mon. 798	198.0
		136 08	T. P. 650	180.6
		136 08	T. P. 651	167.8
Ref. Mon. 802	48 05 45.47	222 13	Ref. Mon. 803	392.0
	91 38 29.38	222 13	T. P. 654	188.0

BOUNDARY REFERENCE MONUMENTS AND MARKED STATIONS—CURTAIN FALLS TO LAKE SUPERIOR—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 803	48 05 54.87	42 13	Ref. Mon. 802	392.0
	91 38 16.64	42 13	T. P. 654	204.0
Ref. Mon. 804	48 06 19.85	322 58 00	Ref. Mon. 805	1,464.6
	91 37 05.77	322 58 00	T. P. 655	437.0
Ref. Mon. 805	48 05 41.99	142 58 30	Ref. Mon. 804	1,464.6
	91 36 23.14	142 58 30	T. P. 655	1,027.6
Ref. Mon. 806	48 05 53.38	161 14 30	Ref. Mon. 807	728.7
	91 35 11.25	161 14 30	T. P. 656	518.9
Ref. Mon. 807	48 06 15.73	341 14 20	Ref. Mon. 806	728.7
	91 35 22.58	341 14 20	T. P. 656	209.8
Ref. Mon. 808	48 06 34.54	1 49 00	Ref. Mon. 809	798.6
	91 34 31.22	1 49 00	T. P. 657	286.0
Ref. Mon. 809	48 06 08.69	181 49 00	Ref. Mon. 808	798.6
	91 34 32.44	181 49 00	T. P. 657	512.6
Ref. Mon. 810	48 06 07.57	261 08 40	Ref. Mon. 812	1,254.8
	91 33 52.64	261 08 40	T. P. 659	897.5
Ref. Mon. 811	48 06 39.82	303 22 10	Ref. Mon. 812	1,459.7
	91 33 51.64	303 22 10	T. P. 658	477.0
Ref. Mon. 812	48 06 13.82	81 09 20	Ref. Mon. 810	1,254.8
	91 32 52.71	81 09 20	T. P. 659	357.3
		123 23 00	Ref. Mon. 811	1,459.7
		123 23 00	T. P. 658	982.7
Ref. Mon. 813	48 05 43.58	79 30 50	Ref. Mon. 814	1,696.8
	91 33 21.95	79 30 50	T. P. 660	1,002.4
Ref. Mon. 814	48 05 33.58	259 29 50	Ref. Mon. 813	1,696.8
	91 34 42.58	259 29 50	T. P. 660	694.4
Ref. Mon. 815	48 03 57.13	251 53 30	Ref. Mon. 816	508.6
	91 34 46.51	251 53 30	T. P. 661	339.1
Ref. Mon. 816	48 04 02.25	4 42 00	Ref. Mon. 818	2,383.3
	91 34 23.17	4 42 00	T. P. 663	2,035.2
		71 53 50	Ref. Mon. 815	508.6
		71 53 50	T. P. 661	169.5
		358 01 40	Ref. Mon. 817	2,019.7
		358 01 40	T. P. 662	1,090.0
Ref. Mon. 817	48 02 56.90	178 01 40	Ref. Mon. 816	2,019.7
	91 34 19.81	178 01 40	T. P. 662	929.7
Ref. Mon. 818	48 02 45.34	184 41 50	Ref. Mon. 816	2,383.3
	91 34 32.59	184 41 50	T. P. 663	348.0
		289 58 30	Ref. Mon. 819	835.9
		289 58 30	T. P. 664	661.1
Ref. Mon. 819	48 02 36.10	109 59 00	Ref. Mon. 818	835.9
	91 33 54.67	109 59 00	T. P. 664	174.8
Ref. Mon. 820	48 03 01.40	151 49 10	Ref. Mon. 821	733.1
	91 32 19.27	151 49 10	T. P. 665	450.9
Ref. Mon. 821	48 03 22.32	331 49 00	Ref. Mon. 820	733.1
	91 32 35.99	331 49 00	T. P. 665	282.2
Ref. Mon. 822	48 04 19.37	345 50 50	Ref. Mon. 823	856.6
	91 29 21.87	345 50 50	T. P. 666	408.4
Ref. Mon. 823	48 03 52.48	165 51 00	Ref. Mon. 822	856.6
	91 29 11.76	165 51 00	T. P. 666	448.2
Ref. Mon. 824	48 03 47.87	154 08 00	Ref. Mon. 825	699.6
	91 27 43.10	154 08 00	T. P. 667	452.4
Ref. Mon. 825	48 04 08.25	334 07 40	Ref. Mon. 824	699.6
	91 27 57.84	334 07 40	T. P. 667	247.2
Ref. Mon. 826	48 04 13.59	0 37	Ref. Mon. 827	405.6
	91 26 59.52	0 37	T. P. 668	140.5
Ref. Mon. 827	48 04 00.46	180 37	Ref. Mon. 826	405.6
	91 26 59.73	180 37	T. P. 668	265.1
		247 30 00	Ref. Mon. 828	523.8
		247 30 00	T. P. 669	308.4
Ref. Mon. 828	48 04 06.95	67 30 20	Ref. Mon. 827	523.8
	91 26 36.35	67 30 20	T. P. 669	215.4
Ref. Mon. 829	48 03 48.61	72 13	Ref. Mon. 830	344.4
	91 26 41.51	72 13	T. P. 670	129.9
Ref. Mon. 830	48 03 45.21	252 13	Ref. Mon. 829	344.4
	91 26 57.35	252 13	T. P. 670	214.5
Ref. Mon. 831	48 03 10.95	296 07	Ref. Mon. 832	424.5
	91 26 20.72	296 07	T. P. 671	118.3
		337 19	T. P. 672	212.1
Ref. Mon. 832	48 03 04.90	116 07	Ref. Mon. 831	424.5
	91 26 02.31	116 07	T. P. 671	306.2
Ref. Mon. 833	48 03 02.31	230 09	T. P. 672	110.9
	91 26 20.88	249 26	T. P. 673	99.4
		262 48	T. P. 674	78.7
		273 27	T. P. 675	50.0
		285 04	Ref. Mon. 835	121.3
		294 23	T. P. 676	53.8
Ref. Mon. 834	48 02 59.01	200 27	Ref. Mon. 835	75.0
	91 26 16.49	224 27	T. P. 677	38.7
		286 02	T. P. 678	60.8
Ref. Mon. 835	48 03 01.29	20 27	Ref. Mon. 834	75.0
	91 26 15.23	97 48	T. P. 676	68.8
		105 05	Ref. Mon. 833	121.3
		113 00	T. P. 675	73.0
		136 40	T. P. 674	56.9
		160 04	T. P. 673	70.7
		339 41	T. P. 678	92.9
		358 49	T. P. 677	42.7
Ref. Mon. 836	48 02 54.31	247 19	Ref. Mon. 837	297.4
	91 25 50.43	247 19	T. P. 679	98.6
Ref. Mon. 837	48 02 58.02	67 19	Ref. Mon. 836	297.4
	91 25 37.18	67 19	T. P. 679	198.8
Ref. Mon. 838	48 03 01.83	293 51	Ref. Mon. 839	246.4
	91 25 42.05	293 51	T. P. 681	146.2
		293 51	T. P. 680	106.6
Ref. Mon. 839	48 02 58.60	113 51	Ref. Mon. 838	246.4
	91 25 31.16	113 51	T. P. 680	139.8
		113 51	T. P. 681	100.2
Ref. Mon. 840	48 03 01.38	104 47	T. P. 682	199.8
	91 25 18.10	160 53	Ref. Mon. 841	124.2
		160 53	T. P. 683	83.1
Ref. Mon. 841	48 03 05.18	66 28	T. P. 682	166.3
	91 25 20.07	340 53	Ref. Mon. 840	124.2
		340 53	T. P. 683	41.1
Ref. Mon. 842	48 03 21.83	14 37	Ref. Mon. 843	383.8
	91 24 45.30	14 37	T. P. 684	261.7
Ref. Mon. 843	48 03 09.81	194 37	Ref. Mon. 842	383.8
	91 24 49.98	194 37	T. P. 684	122.1
Ref. Mon. 844	48 03 21.86	199 41 10	Ref. Mon. 845	1,008.7
	91 23 29.08	199 41 10	T. P. 685	141.5
Ref. Mon. 845	48 03 52.61	19 41 20	Ref. Mon. 844	1,008.7
	91 23 12.67	19 41 20	T. P. 685	867.2
		256 19 20	Ref. Mon. 846	895.0
		256 19 20	T. P. 686	657.4
Ref. Mon. 846	48 03 59.46	76 19 50	Ref. Mon. 845	895.0
	91 22 30.66	76 19 50	T. P. 686	237.6
Ref. Mon. 847	48 04 08.12	170 23	Ref. Mon. 848	305.0
	91 22 13.74	170 23	T. P. 687	103.3
		294 14 50	Ref. Mon. 849	603.6
		294 14 50	T. P. 688	458.8
Ref. Mon. 848	48 04 17.86	350 23	Ref. Mon. 847	305.0
	91 22 16.20	350 23	T. P. 687	201.6
Ref. Mon. 849	48 04 00.09	114 15 10	Ref. Mon. 847	603.6
	91 21 47.15	114 15 10	T. P. 688	144.8
Ref. Mon. 850	48 04 16.23	71 48	T. P. 689	87.7
	91 21 08.55	157 49	Ref. Mon. 851	44.0
		157 49	T. P. 690	15.0
		223 38	T. P. 691	52.9
Ref. Mon. 851	48 04 17.55	44 22	T. P. 689	95.3
	91 21 09.36	272 39	T. P. 691	53.2
		337 49	Ref. Mon. 850	44.0
		337 49	T. P. 690	29.0
Ref. Mon. 852	48 04 17.15	251 54	Ref. Mon. 853	54.7
	91 21 05.21			
Ref. Mon. 853	48 04 17.70	71 54	Ref. Mon. 852	54.7
	91 21 02.70	175 12	T. P. 692	31.6

BOUNDARY REFERENCE MONUMENTS AND MARKED STATIONS—CURTAIN FALLS TO LAKE SUPERIOR—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 854	48 04 19.00	77 57	T. P. 692	42.6
	91 21 00.82	178 46	Ref. Mon. 855	35.8
		178 46	T. P. 693	14.4
		215 28	T. P. 694	16.3
		294 18	T. P. 695	51.7
Ref. Mon. 855	48 04 20.16	319 58	T. P. 695	74.5
	91 21 00.85	335 31	T. P. 694	24.7
		358 46	Ref. Mon. 854	35.8
		358 46	T. P. 693	21.4
Ref. Mon. 856	48 04 21.31	334 07	Ref. Mon. 857	73.4
	91 20 55.20	334 07	T. P. 696	36.8
Ref. Mon. 857	48 04 19.18	154 07	Ref. Mon. 856	73.4
	91 20 53.65	154 07	T. P. 696	36.6
Ref. Mon. 858	48 04 15.04	194 33	Ref. Mon. 859	488.4
	91 20 27.45	194 33	T. P. 697	324.1
		263 56	Ref. Mon. 860	434.1
		263 56	T. P. 698	351.2
Ref. Mon. 859	48 04 30.34	14 33	Ref. Mon. 858	488.4
	91 20 21.52	14 33	T. P. 697	164.4
Ref. Mon. 860	48 04 16.52	26 16 20	Ref. Mon. 861	567.2
	91 20 06.60	26 16 20	T. P. 699	181.0
		83 56	Ref. Mon. 858	434.1
		83 56	T. P. 698	82.9
Ref. Mon. 861	48 04 00.05	206 16 10	Ref. Mon. 860	567.2
	91 20 18.73	206 16 10	T. P. 699	386.2
Ref. Mon. 862	48 04 09.42	102 19	T. P. 700	166.9
	91 19 56.46	139 09	T. P. 701	109.8
		140 16	Ref. Mon. 863	135.7
		240 58	Ref. Mon. 867	337.0
		240 58	T. P. 703	101.3
Ref. Mon. 863	48 04 12.79	48 01	T. P. 700	102.7
	91 20 00.65	269 59	T. P. 702	121.2
		320 16	Ref. Mon. 862	135.7
		324 36	T. P. 701	25.7
Ref. Mon. 864	48 04 16.13	296 25	Ref. Mon. 865	328.8
	91 19 56.80	296 25	T. P. 704	265.2
Ref. Mon. 865	48 04 11.39	99 43	T. P. 702	256.8
	91 19 42.57	116 25	Ref. Mon. 864	328.8
		116 25	T. P. 704	63.6
		172 14	T. P. 705	95.6
		179 01	T. P. 706	131.6
Ref. Mon. 866	48 04 18.62	2 13	Ref. Mon. 867	120.7
	91 19 42.00	2 13	T. P. 707	71.1
Ref. Mon. 867	48 04 14.71	60 59	Ref. Mon. 862	337.0
	91 19 42.23	60 59	T. P. 703	235.7
		68 43	T. P. 705	21.5
		162 14	T. P. 706	30.5
		182 13	Ref. Mon. 866	120.7
		182 13	T. P. 707	49.6
Ref. Mon. 868	48 04 22.13	309 16	Ref. Mon. 869	132.4
	91 19 36.44	309 16	T. P. 708	76.0
Ref. Mon. 869	48 04 19.42	129 16	Ref. Mon. 868	132.4
	91 19 31.48	129 16	T. P. 708	56.4
		215 37	Ref. Mon. 870	243.6
		215 37	T. P. 709	135.0
Ref. Mon. 870	48 04 25.83	35 37	Ref. Mon. 869	243.6
	91 19 24.63	35 37	T. P. 709	108.6
Ref. Mon. 871	48 04 25.31	324 47	Ref. Mon. 872	111.7
	91 19 10.06	324 47	T. P. 710	48.4
Ref. Mon. 872	48 04 22.36	144 47	Ref. Mon. 871	111.7
	91 19 06.94	144 47	T. P. 710	63.3
		238 31	Ref. Mon. 874	207.4
		238 31	T. P. 711	64.8
Ref. Mon. 873	48 04 23.52	97 30	T. P. 712	126.8
	91 18 55.99	145 21	Ref. Mon. 874	87.9
		145 21	T. P. 713	46.7
		201 22	Ref. Mon. 875	111.0
		201 22	T. P. 714	56.3
		232 18	T. P. 715	86.1
Ref. Mon. 874	48 04 25.86	53 41	T. P. 712	94.1
	91 18 58.40	58 31	Ref. Mon. 872	207.4
		58 31	T. P. 711	142.5
		325 21	Ref. Mon. 873	87.9
		325 21	T. P. 713	41.1
Ref. Mon. 875	48 04 26.87	21 22	Ref. Mon. 873	111.0
	91 18 54.03	21 22	T. P. 714	54.7
		331 22	T. P. 715	57.8
Ref. Mon. 876	48 04 25.62	300 32	T. P. 717	115.9
	91 18 44.98	308 19	Ref. Mon. 877	121.1
		308 19	T. P. 716	81.5
Ref. Mon. 877	48 04 23.19	128 19	Ref. Mon. 876	121.1
	91 18 40.39	128 19	T. P. 716	39.6
		196 28	T. P. 717	16.9
		219 59	Ref. Mon. 879	79.3
		298 19	T. P. 718	39.7
		283 04	T. P. 719	90.3
Ref. Mon. 878	48 04 21.61	121 57	T. P. 718	56.4
	91 18 36.39	190 26	T. P. 719	28.7
		191 36	Ref. Mon. 880	134.0
Ref. Mon. 879	48 04 25.16	39 59	Ref. Mon. 877	79.3
	91 18 37.93			
Ref. Mon. 880	48 04 25.86	11 36	Ref. Mon. 878	134.0
	91 18 35.09			
Ref. Mon. 881	48 04 20.57	225 53	Ref. Mon. 883	170.0
	91 18 34.42			
Ref. Mon. 882	48 04 20.26	123 21	T. P. 720	117.6
	91 18 26.56	162 21	Ref. Mon. 883	134.4
		162 21	T. P. 721	81.4
Ref. Mon. 883	48 04 24.40	42 11	T. P. 720	85.6
	91 18 28.52	45 53	Ref. Mon. 881	170.0
		342 21	Ref. Mon. 882	134.4
		342 21	T. P. 721	53.0
Ref. Mon. 884	48 04 25.90	0 16	Ref. Mon. 885	159.9
	91 18 22.49	0 16	T. P. 723	98.6
		20 11	T. P. 722	109.9
Ref. Mon. 885	48 04 20.72	146 46	T. P. 722	67.8
	91 18 22.53	180 16	Ref. Mon. 884	159.9
		180 16	T. P. 723	61.3
Ref. Mon. 886	48 04 22.37	136 48	Ref. Mon. 887	414.6
	91 17 15.56	136 48	T. P. 724	213.7
Ref. Mon. 887	48 04 32.16	316 47	Ref. Mon. 886	414.6
	91 17 29.27	316 47	T. P. 724	200.8
Ref. Mon. 888	48 04 49.23	335 18	Ref. Mon. 889	354.9
	91 16 36.49	335 18	T. P. 725	177.5
Ref. Mon. 889	48 04 38.79	155 18	Ref. Mon. 888	354.9
	91 16 29.32	155 18	T. P. 725	177.5
Ref. Mon. 890	48 04 40.56	149 31	Ref. Mon. 891	356.0
	91 15 56.80	149 31	T. P. 726	129.9
Ref. Mon. 891	48 04 50.49	329 30	Ref. Mon. 890	356.0
	91 16 05.52	329 30	T. P. 726	226.0
Ref. Mon. 892	48 05 09.06	315 04	Ref. Mon. 893	480.0
	91 15 07.35	315 04	T. P. 727	259.2
Ref. Mon. 893	48 04 58.06	135 04	Ref. Mon. 892	480.0
	91 14 50.96	135 04	T. P. 727	220.8
Ref. Mon. 894	48 05 43.23	251 19 50	Ref. Mon. 895	865.4
	91 14 19.65	251 19 50	T. P. 728	315.5
Ref. Mon. 895	48 05 52.20	71 20 20	Ref. Mon. 894	865.4
	91 13 40.03	71 20 20	T. P. 728	549.8
		176 12	Ref. Mon. 896	368.2
		176 12	T. P. 729	166.9
Ref. Mon. 896	48 06 04.09	356 12	Ref. Mon. 895	368.2
	91 13 41.21	356 12	T. P. 729	201.3
Ref. Mon. 897	48 06 17.17	335 13	Ref. Mon. 898	441.6
	91 12 57.72	335 13	T. P. 730	220.8
Ref. Mon. 898	48 06 04.19	155 13	Ref. Mon. 897	441.6
	91 12 48.78	155 13	T. P. 730	220.8
Ref. Mon. 899	48 07 15.36	166 52 10	Ref. Mon. 900	782.1
	91 11 18.42	166 52 10	T. P. 731	488.9
Ref. Mon. 900	48 07 40.02	346 52 10	Ref. Mon. 899	782.1
	91 11 27.01	346 52 10	T. P. 731	293.2
Ref. Mon. 901	48 07 21.05	28 36	T. P. 733	30.5
	91 10 58.91	97 02	T. P. 732	116.3
		320 22	Ref. Mon. 902	84.6
		320 22	T. P. 734	30.5

BOUNDARY REFERENCE MONUMENTS AND MARKED STATIONS—CURTAIN FALLS TO LAKE SUPERIOR—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 902	48 07 18.94	119 15	T. P. 733	78.6
	91 10 56.30	140 22	Ref. Mon. 901	84.6
		140 22	T. P. 734	54.1
Ref. Mon. 903	48 07 22.80	129 21	Ref. Mon. 904	242.0
	91 10 48.01	129 21	T. P. 735	111.2
Ref. Mon. 904	48 07 27.77	38 29	Fall	277.5
	91 10 57.06	38 29	T. P. 732	247.0
		309 21	Ref. Mon. 903	242.0
		309 21	T. P. 735	130.8
Fall	48 07 20.74	218 29	Ref. Mon. 904	277.5
	91 11 05.41	218 29	T. P. 732	30.5
Ref. Mon. 905	48 07 38.50	341 06	Ref. Mon. 906	353.3
	91 10 38.54	341 06	T. P. 736	201.3
Ref. Mon. 906	48 07 27.67	161 06	Ref. Mon. 905	353.3
	91 10 33.00	161 06	T. P. 736	152.0
Ref. Mon. 907	48 08 23.09	117 37	Ref. Mon. 908	420.3
	91 09 13.30	117 37	T. P. 737	209.3
		223 24 00	Ref. Mon. 909	1,764.3
		226 23 10	Ref. Mon. 910	2,067.3
Ref. Mon. 908	48 08 29.40	297 36	Ref. Mon. 907	420.3
	91 09 31.32	297 36	T. P. 737	211.0
Ref. Mon. 909	48 09 04.59	43 24 40	Ref. Mon. 907	1,764.3
	91 08 14.66	356 18	T. P. 738	213.3
Ref. Mon. 910	48 09 09.25	37 11	T. P. 738	448.0
	91 08 00.89	46 24 00	Ref. Mon. 907	2,067.3
Ref. Mon. 911	48 09 04.83	178 12	T. P. 741	112.1
	91 08 24.96	189 50	Ref. Mon. 912	135.2
		199 34	T. P. 740	54.9
		245 05	T. P. 739	189.7
Ref. Mon. 912	48 09 09.14	3 17	T. P. 740	81.6
	91 08 23.85	9 50	Ref. Mon. 911	135.2
		51 32	T. P. 741	34.0
		131 42	Ref. Mon. 913	255.0
		147 28	T. P. 742	54.5
		289 40	T. P. 739	158.2
Ref. Mon. 913	48 09 14.64	181 30	Ref. Mon. 915	169.6
	91 08 33.06	181 30	T. P. 743	72.5
		307 31	T. P. 742	203.0
		311 42	Ref. Mon. 912	255.0
Ref. Mon. 914	48 09 20.00	147 29	Ref. Mon. 917	78.2
	91 08 18.76	147 29	T. P. 744	38.8
Ref. Mon. 915	48 09 20.13	1 30	Ref. Mon. 913	169.6
	91 08 32.84	1 30	T. P. 743	97.2
Ref. Mon. 916	48 09 22.05	116 09	Ref. Mon. 919	235.6
	91 08 01.88	116 09	T. P. 745	151.0
		213 59	Ref. Mon. 921	363.0
		217 09	T. P. 746	177.3
Ref. Mon. 917	48 09 22.14	327 29	Ref. Mon. 914	78.2
	91 08 20.80	327 29	T. P. 744	39.4
Ref. Mon. 918	48 09 35.87	176 02	Ref. Mon. 923	178.8
	91 07 10.79	176 02	T. P. 747	92.2
		207 32	T. P. 748	280.8
Ref. Mon. 919	48 09 25.41	296 09	Ref. Mon. 916	235.6
	91 08 12.11	296 09	T. P. 745	84.7
Ref. Mon. 920	48 09 57.33	105 15	Ref. Mon. 925	350.6
	91 06 39.28	105 15	T. P. 749	286.3
Ref. Mon. 921	48 09 31.80	30 58	T. P. 746	186.3
	91 07 52.06	33 59	Ref. Mon. 916	363.0
Ref. Mon. 922	48 10 05.20	149 52	Ref. Mon. 927	176.5
	91 06 29.29	149 52	T. P. 750	89.2
Ref. Mon. 923	48 09 41.65	243 36	T. P. 748	158.7
	91 07 11.39	356 02	Ref. Mon. 918	178.8
		356 02	T. P. 747	86.6
Ref. Mon. 924	48 10 17.35	135 39	Ref. Mon. 929	150.7
	91 05 48.15	135 39	T. P. 751	34.5
Ref. Mon. 925	48 10 00.31	285 14	Ref. Mon. 920	350.6
	91 06 55.65	285 14	T. P. 749	64.3
Ref. Mon. 926	48 10 22.24	126 47	Ref. Mon. 931	333.5
	91 05 24.03	126 47	T. P. 752	171.0
		194 14 20	T. P. 753	639.1
Ref. Mon. 927	48 10 10.15	329 52	Ref. Mon. 922	176.5
	91 06 33.58	329 52	T. P. 750	87.3
Ref. Mon. 928	48 10 46.94	135 36	Ref. Mon. 933	412.6
	91 04 48.31	135 36	T. P. 754	242.0
		147 25	T. P. 756	60.0
		148 35	T. P. 755	163.6
		229 15	T. P. 757	50.0
		274 38 40	Ref. Mon. 930	570.3
		274 38 40	T. P. 759	320.7
		274 38 40	T. P. 758	100.0
Ref. Mon. 929	48 10 20.84	315 39	Ref. Mon. 924	150.7
	91 05 53.24	315 39	T. P. 751	116.2
Ref. Mon. 930	48 10 45.44	94 39 00	Ref. Mon. 928	570.3
	91 04 20.80	94 39 00	T. P. 758	470.3
		94 39 00	T. P. 759	249.6
Ref. Mon. 931	48 10 28.71	225 18 30	T. P. 753	596.8
	91 05 36.96	306 47	Ref. Mon. 926	333.5
		306 47	T. P. 752	162.5
Ref. Mon. 932	48 10 50.42	149 37	Ref. Mon. 935	472.9
	91 03 52.69	149 37	T. P. 760	108.4
Ref. Mon. 933	48 10 56.48	307 20	T. P. 755	255.8
	91 05 02.28	308 45	T. P. 757	418.7
		313 37	T. P. 756	354.2
		315 36	Ref. Mon. 928	412.6
		315 36	T. P. 754	170.6
Ref. Mon. 934	48 11 00.35	151 24 00	Ref. Mon. 937	529.9
	91 03 39.18	151 24 00	T. P. 761	279.7
		211 56 00	Ref. Mon. 939	662.3
		211 56 00	T. P. 763	489.7
Ref. Mon. 935	48 11 03.63	329 37	Ref. Mon. 932	472.9
	91 04 04.27	329 37	T. P. 760	364.4
Ref. Mon. 936	48 11 14.22	54 34	T. P. 762	353.6
	91 03 18.83	152 20	Ref. Mon. 939	150.9
		152 20	T. P. 764	113.1
Ref. Mon. 937	48 11 15.42	331 23 50	Ref. Mon. 934	529.9
	91 03 51.46	331 23 50	T. P. 761	250.2
Ref. Mon. 938	48 11 17.40	96 25	Ref. Mon. 939	318.1
	91 03 06.92	96 25	T. P. 765	254.0
Ref. Mon. 939	48 11 18.55	31 56 20	Ref. Mon. 934	662.3
	91 03 22.22	31 56 20	T. P. 763	172.5
		32 46	T. P. 762	402.8
		276 24	Ref. Mon. 938	318.1
		276 24	T. P. 765	64.1
		332 20	Ref. Mon. 936	150.9
		332 20	T. P. 764	37.8
Ref. Mon. 940	48 11 19.78	220 39	Ref. Mon. 941	125.9
	91 02 50.11	220 39	T. P. 769	66.0
		238 06	T. P. 770	154.6
Ref. Mon. 941	48 11 22.88	40 39	Ref. Mon. 940	125.9
	91 02 46.14	40 39	T. P. 769	59.9
		285 39	T. P. 770	51.1
Ref. Mon. 942	48 11 21.14	205 59	Ref. Mon. 943	113.4
	91 02 37.20			
Ref. Mon. 943	48 11 24.45	25 59	Ref. Mon. 942	113.4
	91 02 34.80			
Ref. Mon. 944	48 11 21.77	162 42	T. P. 771	99.1
	91 02 09.19	197 58	Ref. Mon. 945	89.6
		200 24	T. P. 772	65.1
		205 02	T. P. 773	71.6
		216 01	T. P. 774	71.6
		271 43	Ref. Mon. 947	360.1
		271 43	T. P. 775	95.8
Ref. Mon. 945	48 11 24.53	11 33	T. P. 772	24.7
	91 02 07.85	17 58	Ref. Mon. 944	89.6
		16 45	Cartoon	21.0
		99 21	T. P. 771	57.9
		331 59	T. P. 774	30.9
		352 29	T. P. 773	20.5
Cartoon	48 11 23.88	196 45	Ref. Mon. 945	21.0
	91 02 08.15	271 03	T. P. 773	8.7
		289 03	T. P. 774	21.8
		344 38	T. P. 772	4.2
Ref. Mon. 946	48 11 14.34	172 36	Ref. Mon. 947	220.4
	91 01 50.39	172 36	T. P. 776	180.8

BOUNDARY REFERENCE MONUMENTS AND MARKED STATIONS—CURTAIN FALLS TO LAKE SUPERIOR—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 947	48 11 21.42	91 43	Ref. Mon. 944	360.1
	91 01 51.76	91 43	T. P. 775	264.3
		352 36	Ref. Mon. 946	220.4
		352 36	T. P. 776	39.6
Ref. Mon. 948	48 11 22.70	170 23	Ref. Mon. 949	232.7
	91 01 25.67	189 02	T. P. 777	101.9
Ref. Mon. 949	48 11 30.12	252 16	Ref. Mon. 950	193.0
	91 01 27.55	252 16	T. P. 778	109.1
		336 55	T. P. 777	140.0
		350 23	Ref. Mon. 948	232.7
Ref. Mon. 950	48 11 32.02	72 16	Ref. Mon. 949	193.0
	91 01 18.65	72 16	T. P. 778	83.8
		116 46	Ref. Mon. 951	116.2
		116 46	T. P. 779	59.5
		203 30	Ref. Mon. 953	205.4
		203 30	T. P. 781	123.4
		233 36	Ref. Mon. 952	228.6
		233 36	T. P. 782	170.2
Ref. Mon. 951	48 11 33.72	253 51	Ref. Mon. 952	299.7
	91 01 23.68	253 51	T. P. 780	97.6
		296 46	Ref. Mon. 950	116.2
		296 46	T. P. 779	56.7
Ref. Mon. 952	48 11 36.42	53 36	Ref. Mon. 950	228.6
	91 01 09.74	53 36	T. P. 782	58.4
		73 51	Ref. Mon. 951	299.7
		73 51	T. P. 780	202.0
Ref. Mon. 953	48 11 38.12	23 30	Ref. Mon. 950	205.4
	91 01 14.69	23 30	T. P. 781	82.0
		247 53 30	Ref. Mon. 954	533.4
		247 53 30	T. P. 783	88.0
Ref. Mon. 954	48 11 44.62	67 53 40	Ref. Mon. 953	533.4
	91 00 50.76	67 53 40	T. P. 783	445.4
		130 39	Ref. Mon. 955	193.3
		130 39	T. P. 784	96.6
Ref. Mon. 955	48 11 48.70	310 39	Ref. Mon. 954	193.3
	91 00 57.87	310 39	T. P. 784	96.7
Ref. Mon. 956	48 11 51.36	171 17	Ref. Mon. 957	372.7
	91 00 43.07	171 17	T. P. 785	109.1
Ref. Mon. 957	48 12 03.29	351 17	Ref. Mon. 956	372.7
	91 00 45.81	351 17	T. P. 785	263.6
Ref. Mon. 958	48 11 51.51	209 27	Ref. Mon. 960	482.4
	91 00 19.48	209 27	T. P. 786	408.8
Ref. Mon. 959	48 12 07.33	228 03	T. P. 787	183.0
	91 00 20.96	284 21	Ref. Mon. 960	276.4
Ref. Mon. 960	48 12 05.12	29 27	Ref. Mon. 958	482.4
	91 00 07.99	29 27	T. P. 786	73.6
		104 21	Ref. Mon. 959	276.4
		145 21	T. P. 787	231.8
Ref. Mon. 961	48 13 42.32	358 08 40	Ref. Mon. 962	1,728.8
	90 58 38.26	358 08 40	T. P. 788	973.9
Ref. Mon. 962	48 12 46.38	178 08 40	Ref. Mon. 961	1,728.8
	90 58 35.55	178 08 40	T. P. 788	754.9
Ref. Mon. 963	48 13 53.22	340 12	Ref. Mon. 964	300.4
	90 55 37.68	340 12	T. P. 789	182.7
Ref. Mon. 964	48 13 44.07	160 12	Ref. Mon. 963	300.4
	90 55 32.75	160 12	T. P. 789	117.7
Ref. Mon. 965	48 13 53.60	23 29	T. P. 791	48.8
	90 55 01.01	51 45	T. P. 790	129.5
		297 45	Ref. Mon. 966	345.1
		297 45	T. P. 792	165.2
Ref. Mon. 966	48 13 48.40	101 11	T. P. 790	415.0
	90 54 46.21	109 39	T. P. 791	344.9
		117 45	Ref. Mon. 965	345.1
		117 45	T. P. 792	179.9
Ref. Mon. 967	48 14 06.35	246 36 50	Ref. Mon. 970	2,394.3
	90 54 55.23			
Ref. Mon. 968	48 14 09.11	161 58 00	Ref. Mon. 969	1,852.1
	90 54 21.23	161 58 00	T. P. 793	203.2
Ref. Mon. 969	48 15 06.13	341 57 40	Ref. Mon. 968	1,852.1
	90 54 49.03	341 57 40	T. P. 793	1,648.9
Ref. Mon. 970	48 14 37.11	66 38 10	Ref. Mon. 967	2,394.3
	90 53 08.72	181 42 10	Ref. Mon. 971	1,152.3
		181 42 10	T. P. 794	269.9
Ref. Mon. 971	48 15 14.40	1 42 10	Ref. Mon. 970	1,152.3
	90 53 07.06	1 42 10	T. P. 794	882.4
Ref. Mon. 972	48 14 25.15	247 06	Ref. Mon. 973	239.2
	90 52 57.00	247 06	T. P. 795	87.6
Ref. Mon. 973	48 14 28.16	67 06	Ref. Mon. 972	239.2
	90 52 46.32	67 06	T. P. 795	151.6
Ref. Mon. 974	48 14 12.89	242 03	Ref. Mon. 975	486.7
	90 52 40.50	242 03	T. P. 796	246.8
Ref. Mon. 975	48 14 20.27	62 03	Ref. Mon. 974	486.7
	90 52 19.66	62 03	T. P. 796	239.9
Ref. Mon. 976	48 14 12.95	179 58	Ref. Mon. 977	271.0
	90 52 00.58	179 58	T. P. 797	156.1
Ref. Mon. 977	48 14 21.72	359 58	Ref. Mon. 976	271.0
	90 52 00.59	359 58	T. P. 797	114.9
Ref. Mon. 978	48 14 33.91	132 50 10	Ref. Mon. 979	505.6
	90 50 40.26	132 50 10	T. P. 798	309.1
		206 29	Ref. Mon. 981	160.9
		206 29	T. P. 799	130.9
Ref. Mon. 979	48 14 45.04	312 50 00	Ref. Mon. 978	505.6
	90 50 58.23	312 50 00	T. P. 798	196.5
Ref. Mon. 980	48 14 22.15	159 42	T. P. 800	217.0
	90 50 31.20	167 12 50	Ref. Mon. 981	520.3
		264 19	Ref. Mon. 983	350.9
		264 19	T. P. 801	209.9
Ref. Mon. 981	48 14 38.57	26 29	Ref. Mon. 978	160.9
	90 50 36.78	26 29	T. P. 799	30.0
		347 12 50	Ref. Mon. 980	520.3
		352 32	T. P. 800	306.4
Ref. Mon. 982	48 13 57.20	298 45	Ref. Mon. 985	240.6
	90 50 26.30	298 45	T. P. 803	193.7
Ref. Mon. 983	48 14 23.27	2 18 10	Ref. Mon. 985	921.5
	90 50 14.28	2 18 10	T. P. 802	550.9
		84 20	Ref. Mon. 980	350.9
		84 20	T. P. 801	141.0
Ref. Mon. 984	48 13 42.93	198 44	T. P. 804	238.7
	90 50 24.34	219 30	T. P. 805	97.7
		221 53	T. P. 806	50.0
		240 58	T. P. 807	39.6
		260 28	Ref. Mon. 987	60.7
		308 58	T. P. 808	37.5
		336 28	T. P. 809	100.2
Ref. Mon. 985	48 13 53.46	118 45	Ref. Mon. 982	240.6
	90 50 16.07	118 45	T. P. 803	46.9
		182 18 10	Ref. Mon. 983	921.5
		182 18 10	T. P. 802	370.6
Ref. Mon. 986	48 13 37.45	237 01	Ref. Mon. 989	126.4
	90 50 22.36			
Ref. Mon. 987	48 13 43.25	11 04	T. P. 809	103.8
	90 50 21.44	42 27	T. P. 808	45.6
		80 29	Ref. Mon. 984	60.7
		109 59	T. P. 807	26.9
		135 42	T. P. 806	38.0
		181 58	T. P. 805	65.4
		184 28	T. P. 804	216.7
Ref. Mon. 988	48 13 35.43	248 35	Ref. Mon. 991	75.7
	90 50 16.89	248 35	T. P. 810	43.7
Ref. Mon. 989	48 13 39.68	57 01	Ref. Mon. 986	126.4
	90 50 17.22			
Ref. Mon. 990	48 13 30.16	252 59	Ref. Mon. 993	75.4
	90 50 16.09	252 59	T. P. 811	51.5
Ref. Mon. 991	48 13 36.32	68 35	Ref. Mon. 988	75.7
	90 50 13.48	68 35	T. P. 810	32.0
Ref. Mon. 992	48 13 17.45	304 30	Ref. Mon. 995	133.0
	90 50 16.19			
Ref. Mon. 993	48 13 30.87	72 59	Ref. Mon. 990	75.4
	90 50 12.60	72 59	T. P. 811	23.9

BOUNDARY REFERENCE MONUMENTS AND MARKED STATIONS—CURTAIN FALLS TO LAKE SUPERIOR—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 994	48 13 09.15	180 46	T. P. 812	120.8
	90 50 12.75	260 06	Ref. Mon. 997	97.0
		260 06	T. P. 813	48.5
		301 50	T. P. 814	64.1
Ref. Mon. 995	48 13 15.02	124 30	Ref. Mon. 992	133.0
	90 50 10.88			
Ref. Mon. 996	48 13 07.20	267 45	Ref. Mon. 999	74.2
	90 50 12.12			
Ref. Mon. 997	48 13 09.69	39 12	T. P. 814	65.1
	90 50 08.12	80 06	Ref. Mon. 994	97.0
		80 06	T. P. 813	48.5
		137 55	T. P. 812	140.2
Ref. Mon. 998	48 13 03.42	199 24	T. P. 815	77.7
	90 50 12.25	209 42	T. P. 816	52.6
		259 06	Ref. Mon. 1001	77.9
		259 06	T. P. 817	32.2
Ref. Mon. 999	48 13 07.29	87 45	Ref. Mon. 996	74.2
	90 50 08.53			
Ref. Mon. 1000	48 12 07.64	289 05	Ref. Mon. 1003	167.0
	90 50 08.30	289 05	T. P. 818	71.6
Ref. Mon. 1001	48 13 03.90	79 06	Ref. Mon. 998	77.9
	90 50 08.55	79 06	T. P. 817	45.7
		121 29	T. P. 816	59.2
		139 06	T. P. 815	77.4
Ref. Mon. 1002	48 11 12.72	283 24	Ref. Mon. 1005	196.1
	90 50 07.63	283 24	T. P. 819	103.8
Ref. Mon. 1003	48 12 05.88	109 06	Ref. Mon. 1000	167.0
	90 50 00.66	109 06	T. P. 818	95.4
Ref. Mon. 1004	48 10 36.54	257 44	Ref. Mon. 1007	347.3
	90 50 18.65	257 44	T. P. 820	168.9
Ref. Mon. 1005	48 11 11.25	103 25	Ref. Mon. 1002	196.1
	90 49 58.40	103 25	T. P. 819	92.3
Ref. Mon. 1006	48 10 17.66	209 39	Ref. Mon. 1009	457.9
	90 50 03.04	209 39	T. P. 821	261.7
		224 09 00	T. P. 822	869.6
Ref. Mon. 1007	48 10 38.93	77 44	Ref. Mon. 1004	347.3
	90 50 02.22	77 44	T. P. 820	178.4
Ref. Mon. 1008	48 10 38.72	71 52	T. P. 823	167.6
	90 49 20.83	84 20	T. P. 822	267.5
		142 01	Ref. Mon. 1011	388.3
		142 01	T. P. 824	107.0
Ref. Mon. 1009	48 10 30.55	29 39	Ref. Mon. 1006	457.9
	90 49 52.08	29 39	T. P. 821	196.2
Ref. Mon. 1010	48 10 49.28	6 38	T. P. 823	380.9
	90 49 26.41	56 03	Ref. Mon. 1013	30.0
		56 03	T. P. 826	24.2
		350 49	T. P. 825	71.6
Ref. Mon. 1011	48 10 48.63	190 10	Ref. Mon. 1012	345.9
	90 49 32.40	190 10	T. P. 827	165.7
		322 01	Ref. Mon. 1008	388.3
		322 01	T. P. 824	281.4
Ref. Mon. 1012	48 10 59.65	10 10	Ref. Mon. 1011	345.9
	90 49 29.44	10 10	T. P. 827	180.2
		129 23	Ref. Mon. 1015	230.8
		129 23	T. P. 828	78.8
		220 46	Ref. Mon. 1017	143.7
		220 46	T. P. 829	77.1
Ref. Mon. 1013	48 10 48.74	236 03	Ref. Mon. 1010	30.0
	90 49 27.61	236 03	T. P. 826	5.7
		326 05	T. P. 825	65.0
Ref. Mon. 1014	48 10 54.22	202 59	Ref. Mon. 1021	249.9
	90 49 11.25	202 59	T. P. 831	125.0
		300 45	Ref. Mon. 1023	220.0
		300 45	T. P. 832	95.9
Ref. Mon. 1015	48 11 04.39	309 23	Ref. Mon. 1012	230.8
	90 49 38.08	309 23	T. P. 828	152.0
Ref. Mon. 1016	48 10 43.18	185 29	Ref. Mon. 1023	229.7
	90 49 03.16	185 29	T. P. 833	95.3
Ref. Mon. 1017	48 11 03.18	40 46	Ref. Mon. 1012	143.7
	90 49 24.90	40 46	T. P. 829	66.6
Ref. Mon. 1018	48 10 45.51	184 12	Ref. Mon. 1025	55.2
	90 48 45.28	184 12	T. P. 834	30.8
Ref. Mon. 1019	48 11 06.41	301 26	Ref. Mon. 1021	280.6
	90 49 18.12	301 26	T. P. 830	68.7
Ref. Mon. 1020	48 10 46.65	162 58	Ref. Mon. 1027	30.0
	90 48 38.85	162 58	T. P. 835	20.8
Ref. Mon. 1021	48 11 01.68	22 59	Ref. Mon. 1014	249.9
	90 49 06.53	22 59	T. P. 831	125.0
		121 26	Ref. Mon. 1019	280.6
		121 26	T. P. 830	211.9
Ref. Mon. 1022	48 10 46.49	237 13	Ref. Mon. 1029	78.5
	90 48 36.91	237 13	T. P. 836	45.0
Ref. Mon. 1023	48 10 50.58	5 29	Ref. Mon. 1016	229.7
	90 49 02.10	5 29	T. P. 833	134.4
		120 45	Ref. Mon. 1014	220.0
		120 45	T. P. 832	124.1
Ref. Mon. 1024	48 10 29.90	187 14 20	Ref. Mon. 1031	674.7
	90 48 16.33	187 14 20	T. P. 837	331.6
		288 49	Ref. Mon. 1033	175.9
		333 30	T. P. 839	379.6
		334 00	T. P. 841	456.8
		334 20	T. P. 838	285.2
		334 43	T. P. 840	421.9
		334 48 00	T. P. 842	509.3
		334 55 50	Ref. Mon. 1035	558.0
Ref. Mon. 1025	48 10 47.30	4 12	Ref. Mon. 1018	55.2
	90 48 45.08	4 12	T. P. 834	24.4
Ref. Mon. 1026	48 10 11.32	237 19	Ref. Mon. 1035	126.6
	90 48 10.04	237 19	T. P. 843	106.0
Ref. Mon. 1027	48 10 47.58	342 58	Ref. Mon. 1020	30.0
	90 48 39.28	342 58	T. P. 835	9.1
Ref. Mon. 1028	48 10 03.30	246 28	Ref. Mon. 1037	146.0
	90 48 09.36	246 28	T. P. 844	65.9
Ref. Mon. 1029	48 10 47.86	57 13	Ref. Mon. 1022	78.5
	90 48 33.71	57 13	T. P. 836	33.6
Ref. Mon. 1030	48 09 51.15	273 23	Ref. Mon. 1039	156.4
	90 48 05.21	273 23	T. P. 845	30.8
		321 38	T. P. 847	266.5
		329 21	Ref. Mon. 1032	417.0
		329 21	T. P. 846	119.0
Ref. Mon. 1031	48 10 51.57	7 14 20	Ref. Mon. 1024	674.7
	90 48 12.22	7 14 20	T. P. 837	343.1
Ref. Mon. 1032	48 09 39.53	149 21	Ref. Mon. 1030	417.0
	90 47 54.92	149 21	T. P. 846	298.1
		162 31	T. P. 847	157.1
		178 52	T. P. 848	150.8
		183 20	T. P. 849	131.3
		230 07	T. P. 850	113.2
		235 47	Ref. Mon. 1041	199.7
		264 25	Ref. Mon. 1043	214.0
		264 25	T. P. 851	75.7
		286 55	T. P. 852	84.5
Ref. Mon. 1033	48 10 28.06	108 49	Ref. Mon. 1024	175.9
	90 48 08.27			
Ref. Mon. 1034	48 09 32.53	192 11	Ref. Mon. 1043	242.7
	90 47 47.09	192 11	T. P. 853	32.4
		229 59	T. P. 855	196.7
		236 55	Ref. Mon. 1036	257.4
		236 55	T. P. 854	60.8
Ref. Mon. 1035	48 10 13.53	57 19	Ref. Mon. 1026	126.6
	90 48 04.89	57 19	T. P. 843	20.5
		154 56 00	Ref. Mon. 1024	558.0
		155 33	T. P. 838	272.9
		155 35	T. P. 840	136.2
		156 18	T. P. 842	48.7
		157 59	T. P. 839	178.8
		159 08	T. P. 841	101.7
Ref. Mon. 1036	48 09 37.08	56 55	Ref. Mon. 1034	257.4
	90 47 36.66	56 55	T. P. 854	196.6
		77 51	T. P. 855	66.5
		138 00	T. P. 856	59.5
		165 18	Ref. Mon. 1045	108.7
		165 18	T. P. 857	85.1
		179 05	T. P. 858	103.2
		196 30	T. P. 859	140.4

BOUNDARY REFERENCE MONUMENTS AND MARKED STATIONS—CURTAIN FALLS TO LAKE SUPERIOR—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 1037	48 10 05.19	66 28	Ref. Mon. 1028	146.0
	90 48 02.88	66 28	T. P. 844	80.1
Ref. Mon. 1038	48 09 33.70	115 52	Ref. Mon. 1045	479.8
	90 47 17.10	115 52	T. P. 860	178.3
Ref. Mon. 1039	48 09 50.85	93 23	Ref. Mon. 1030	156.4
	90 47 57.66	93 23	T. P. 845	125.6
Ref. Mon. 1040	48 09 37.06	114 39	Ref. Mon. 1047	267.1
	90 47 11.30	207 54	Ref. Mon. 1049	466.0
		207 54	T. P. 861	101.7
Ref. Mon. 1041	48 09 43.17	55 47	Ref. Mon. 1032	199.7
	90 47 46.93	63 06	T. P. 850	87.7
		96 47	T. P. 849	158.6
		102 54	T. P. 848	172.5
Ref. Mon. 1042	48 09 46.04	168 06	Ref. Mon. 1049	137.1
	90 46 59.38			
Ref. Mon. 1043	48 09 40.21	12 11	Ref. Mon. 1034	242.7
	90 47 44.62	12 11	T. P. 853	210.3
		71 03	T. P. 852	139.8
		84 25	Ref. Mon. 1032	214.0
		84 25	T. P. 851	138.4
Ref. Mon. 1044	48 09 47.82	173 59	Ref. Mon. 1051	209.0
	90 46 51.75	173 59	T. P. 865	154.0
Ref. Mon. 1045	48 09 40.48	11 22	T. P. 856	62.1
	90 47 37.99	246 22	T. P. 859	73.6
		274 22	T. P. 858	26.0
		295 52	Ref. Mon. 1038	479.8
		295 52	T. P. 860	301.5
		345 18	Ref. Mon. 1036	108.7
		345 18	T. P. 857	23.6
Ref. Mon. 1046	48 09 50.68	144 37	Ref. Mon. 1053	141.1
	90 46 43.93	148 44	T. P. 866	56.6
		186 59	T. P. 867	30.3
		257 52	T. P. 868	47.8
		280 29	Ref. Mon. 1055	232.5
		280 29	T. P. 869	78.9
		317 57	T. P. 870	311.3
Ref. Mon. 1047	48 09 40.66	294 39	Ref. Mon. 1040	267.1
	90 47 23.05			
Ref. Mon. 1048	48 09 37.65	11 01	T. P. 872	29.3
	90 46 35.10	207 26	T. P. 871	26.0
		265 46	Ref. Mon. 1057	104.1
Ref. Mon. 1049	48 09 50.39	27 54	Ref. Mon. 1040	466.0
	90 47 00.75	27 54	T. P. 861	364.2
		247 41	T. P. 863	100.9
		291 53	T. P. 862	15.9
		348 06	Ref. Mon. 1042	137.1
Ref. Mon. 1050	48 09 23.95	277 55	Ref. Mon. 1059	332.4
	90 46 42.79	277 55	T. P. 873	78.7
Ref. Mon. 1051	48 09 54.55	30 29	T. P. 864	69.0
	90 46 52.81	353 59	Ref. Mon. 1044	209.0
		353 59	T. P. 865	55.0
Ref. Mon. 1052	48 09 12.07	1 04	T. P. 875	301.4
	90 46 43.78	22 46	Ref. Mon. 1054	277.0
		303 36	Ref. Mon. 1061	237.2
		303 36	T. P. 874	46.9
Ref. Mon. 1053	48 09 54.40	62 37	T. P. 862	282.7
	90 46 47.88	63 34	T. P. 863	192.6
		68 04	T. P. 864	147.5
		309 17	T. P. 868	165.9
		314 51	T. P. 867	120.5
		321 52	T. P. 866	84.8
		324 37	Ref. Mon. 1046	141.1
Ref. Mon. 1054	48 09 03.80	202 45	Ref. Mon. 1052	277.0
	90 46 48.96	294 19	T. P. 875	111.5
Ref. Mon. 1055	48 09 49.31	6 04 00	Cuttle	561.6
	90 46 32.87	6 04 00	T. P. 870	189.9
		100 30	Ref. Mon. 1046	232.5
		100 30	T. P. 869	153.6
Cuttle	48 09 31.23	186 04 00	Ref. Mon. 1055	561.6
	90 46 35.74	186 04 00	T. P. 870	371.6
Ref. Mon. 1056	48 08 55.28	287 56	Ref. Mon. 1063	405.8
	90 46 56.71			
Ref. Mon. 1057	48 09 37.90	71 34	T. P. 872	115.4
	90 46 30.07	85 46	Ref. Mon. 1048	104.1
		99 30	T. P. 871	93.2
Ref. Mon. 1058	48 08 48.57	291 40	T. P. 881	112.4
	90 47 04.48	303 47	T. P. 882	64.4
		315 31	Ref. Mon. 1067	122.2
		315 31	T. P. 883	54.5
		334 55	T. P. 884	68.0
Ref. Mon. 1059	48 09 22.47	97 55	Ref. Mon. 1050	332.4
	90 46 26.86	97 55	T. P. 873	253.7
Ref. Mon. 1060	48 08 42.59	18 28	Ref. Mon. 1069	487.1
	90 47 19.05	18 28	T. P. 885	140.3
Ref. Mon. 1061	48 09 07.82	123 36	Ref. Mon. 1052	237.2
	90 46 34.22	123 36	T. P. 874	190.3
Ref. Mon. 1062	48 08 14.04	225 01	T. P. 887	354.8
	90 48 00.07	280 18	Ref. Mon. 1073	319.1
		280 18	T. P. 888	143.8
Ref. Mon. 1063	48 08 51.23	14 25	Ref. Mon. 1065	389.7
	90 46 38.04	55 57	T. P. 879	313.4
		61 46	T. P. 878	177.1
		63 58	T. P. 880	366.2
		69 33	T. P. 877	118.0
		107 57	Ref. Mon. 1056	405.8
		158 03	T. P. 876	100.1
Ref. Mon. 1064	48 08 06.63	202 30	T. P. 889	52.0
	90 47 43.43	225 50	Ref. Mon. 1075	93.9
		225 50	T. P. 890	62.2
		243 22	T. P. 892	119.4
		254 52	T. P. 891	93.1
Ref. Mon. 1065	48 08 39.01	133 03	T. P. 880	317.5
	90 46 42.73	141 10	T. P. 879	259.3
		168 39	T. P. 878	299.5
		177 41	T. P. 877	336.5
		187 14	T. P. 876	474.1
		194 25	Ref. Mon. 1063	389.7
Ref. Mon. 1066	48 08 10.51	102 13	T. P. 898	44.2
	90 47 19.31	183 26	T. P. 899	24.3
		205 53	Ref. Mon. 1077	50.9
		252 50	T. P. 900	25.1
		283 14	T. P. 901	87.0
Ref. Mon. 1067	48 08 45.75	114 16	T. P. 884	62.3
	90 47 00.34	135 31	Ref. Mon. 1058	122.2
		135 31	T. P. 883	67.7
		148 01	T. P. 882	60.6
		202 23	T. P. 881	49.4
Ref. Mon. 1068	48 08 06.48	145 37	T. P. 902	83.5
	90 47 10.46	177 16	T. P. 903	55.7
		209 24	Ref. Mon. 1079	138.1
		209 24	T. P. 904	41.0
		233 31	T. P. 905	42.2
Ref. Mon. 1069	48 08 27.63	68 50	Ref. Mon. 1071	193.8
	90 47 26.52	111 10	T. P. 886	114.7
		198 28	Ref. Mon. 1060	487.1
		198 28	T. P. 885	346.8
Ref. Mon. 1070	48 08 05.36	164 05	Ref. Mon. 1079	161.2
	90 47 05.04	164 05	T. P. 906	73.2
		227 45	Ref. Mon. 1081	300.5
		227 45	T. P. 907	212.5
Ref. Mon. 1071	48 08 25.36	213 31	T. P. 886	133.6
	90 47 35.26	248 50	Ref. Mon. 1069	193.8
Ref. Mon. 1072	48 08 01.50	1 27	Ref. Mon. 1085	190.7
	90 46 59.96	1 27	T. P. 911	109.8
		37 14	Ref. Mon. 1087	158.5
		37 14	T. P. 912	92.4
		200 05	Ref. Mon. 1081	342.2
		200 05	T. P. 908	263.2
		257 53	Ref. Mon. 1083	259.8
		257 53	T. P. 910	53.3
Ref. Mon. 1073	48 08 12.19	100 18	Ref. Mon. 1062	319.1
	90 47 44.88	100 18	T. P. 888	175.3
		168 26	T. P. 887	314.3
Ref. Mon. 1074	48 08 02.93	351 01	Ref. Mon. 1087	172.6
	90 47 05.90	351 01	T. P. 913	90.6
Ref. Mon. 1075	48 08 08.75	45 50	Ref. Mon. 1064	93.9
	90 47 40.17	45 50	T. P. 890	31.7
		69 55	T. P. 889	50.5
		286 48	T. P. 892	41.1
		331 18	T. P. 891	46.9
Ref. Mon. 1076	48 07 59.37	268 47	T. P. 914	143.4
	90 47 17.97	272 43	T. P. 915	109.1
		318 13	Ref. Mon. 1089	173.7
		318 13	T. P. 916	51.0

BOUNDARY REFERENCE MONUMENTS AND MARKED STATIONS—CURTAIN FALLS TO LAKE SUPERIOR—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 1077	48 08 11.99	25 53	Ref. Mon. 1066	50.9
	90 47 18.24	43 57	T. P. 899	29.9
		60 55	T. P. 898	74.9
		316 26	T. P. 901	90.7
		357 22	T. P. 900	38.4
Ref. Mon. 1078	48 07 52.34	0 51	T. P. 917	105.6
	90 47 22.76	357 18	Ref. Mon. 1080	250.5
Ref. Mon. 1079	48 08 10.38	19 35	T. P. 905	101.1
	90 47 07.18	29 24	Ref. Mon. 1068	138.1
		29 24	T. P. 904	97.1
		47 26	T. P. 903	95.6
		65 56	T. P. 902	125.9
		344 05	Ref. Mon. 1070	161.2
		344 05	T. P. 906	88.0
Ref. Mon. 1080	48 07 44.24	174 44	T. P. 917	145.3
	90 47 22.19	177 18	Ref. Mon. 1078	250.5
		271 30	Ref. Mon. 1091	245.4
		271 30	T. P. 918	94.5
Ref. Mon. 1081	48 08 11.90	20 05	Ref. Mon. 1072	342.2
	90 46 54.28	20 05	T. P. 908	79.0
		47 45	Ref. Mon. 1070	300.5
		47 45	T. P. 907	88.0
		356 46	T. P. 909	146.0
Ref. Mon. 1082	48 07 40.27	223 26	Ref. Mon. 1091	160.0
	90 47 15.65	223 26	T. P. 919	60.4
		271 43	T. P. 922	157.8
		274 34	Ref. Mon. 1084	166.8
		274 34	T. P. 920	56.1
		277 14	T. P. 921	107.2
Ref. Mon. 1083	48 08 03.26	77 53	Ref. Mon. 1072	259.8
	90 46 47.68	77 53	T. P. 910	206.5
		133 21	T. P. 909	176.3
Ref. Mon. 1084	48 07 39.84	89 47	T. P. 921	59.9
	90 47 07.61	94 34	Ref. Mon. 1082	166.8
		94 34	T. P. 920	110.7
		134 57	T. P. 922	12.1
		200 09	T. P. 923	33.1
		258 29	Ref. Mon. 1093	64.3
		258 29	T. P. 925	28.3
Ref. Mon. 1085	48 07 55.32	181 27	Ref. Mon. 1072	190.7
	90 47 00.20	181 27	T. P. 911	80.9
Ref. Mon. 1086	48 07 38.77	156 43	T. P. 926	28.4
	90 47 05.73	170 24	T. P. 924	56.1
		207 45	Ref. Mon. 1093	51.8
		207 45	T. P. 927	24.3
Ref. Mon. 1087	48 07 57.41	171 01	Ref. Mon. 1074	172.6
	90 47 04.60	171 01	T. P. 913	82.0
		217 14	Ref. Mon. 1072	158.5
		217 14	T. P. 912	66.0
Ref. Mon. 1088	48 07 39.48	110 03	Ref. Mon. 1093	70.0
	90 47 01.38	110 03	T. P. 928	56.3
Ref. Mon. 1089	48 07 55.18	138 13	Ref. Mon. 1076	173.7
	90 47 12.38	138 13	T. P. 916	122.6
		176 54	T. P. 915	124.5
		191 48	T. P. 914	135.4
Ref. Mon. 1090	48 07 39.84	5 02	T. P. 933	89.4
	90 46 59.74	137 11	Ref. Mon. 1095	108.8
		137 11	T. P. 929	80.5
		146 21	T. P. 930	66.1
		150 48	T. P. 931	35.7
		259 19	T. P. 932	47.4
		331 06	T. P. 934	236.3
Ref. Mon. 1091	48 07 44.03	43 26	Ref. Mon. 1082	160.0
	90 47 10.33	43 26	T. P. 919	99.6
		91 30	Ref. Mon. 1080	245.4
		91 30	T. P. 918	150.9
Ref. Mon. 1092	48 07 35.98	300 03	Ref. Mon. 1094	343.9
	90 47 03.73			
Ref. Mon. 1093	48 07 40.25	27 45	Ref. Mon. 1086	51.8
	90 47 04.56	27 45	T. P. 927	27.5
		60 47	T. P. 926	40.5
		78 29	Ref. Mon. 1084	64.3
		78 29	T. P. 925	36.0
		105 45	T. P. 924	34.8
		109 30	T. P. 923	54.7
		290 03	Ref. Mon. 1088	70.0
		290 03	T. P. 928	13.7
Ref. Mon. 1094	48 07 30.40	120 03	Ref. Mon. 1092	343.9
	90 46 49.34	130 00	T. P. 934	131.6
		132 14	T. P. 933	301.0
		213 57	Ref. Mon. 1097	218.9
		213 57	T. P. 935	42.9
Ref. Mon. 1095	48 07 42.42	300 32	T. P. 932	140.1
	90 47 03.31	303 36	T. P. 930	44.8
		310 45	T. P. 931	74.7
		317 11	Ref. Mon. 1090	108.8
		317 11	T. P. 929	28.3
Ref. Mon. 1096	48 07 19.25	226 01	Ref. Mon. 1099	145.7
	90 46 35.80	226 01	T. P. 937	79.6
Ref. Mon. 1097	48 07 36.28	33 57	Ref. Mon. 1094	218.9
	90 46 43.43	33 57	T. P. 935	176.0
		328 17	Ref. Mon. 1099	499.4
		328 17	T. P. 936	345.1
Ref. Mon. 1098	48 07 06.98	183 59	T. P. 938	176.8
	90 46 27.51	206 04	T. P. 939	61.3
		234 04	Ref. Mon. 1101	73.9
		234 04	T. P. 940	27.2
Ref. Mon. 1099	48 07 22.53	46 01	Ref. Mon. 1096	145.7
	90 46 30.73	46 01	T. P. 937	66.2
		148 17	Ref. Mon. 1097	499.4
		148 17	T. P. 936	154.3
Ref. Mon. 1100	48 07 02.99	195 49	Ref. Mon. 1103	58.0
	90 46 21.42	195 49	T. P. 941	25.8
Ref. Mon. 1101	48 07 08.39	54 04	Ref. Mon. 1098	73.9
	90 46 24.62	54 04	T. P. 940	46.7
		109 34	T. P. 939	34.9
		160 18	T. P. 938	141.2
Ref. Mon. 1102	48 06 59.15	150 19	T. P. 942	63.4
	90 46 11.60	186 33	Ref. Mon. 1105	59.6
		186 33	T. P. 943	36.3
		252 22	Ref. Mon. 1107	229.7
		252 22	T. P. 944	97.3
Ref. Mon. 1103	48 07 04.79	15 49	Ref. Mon. 1100	58.0
	90 46 20.56	15 49	T. P. 941	32.2
Ref. Mon. 1104	48 06 51.32	248 34	Ref. Mon. 1109	123.6
	90 46 03.66	248 34	T. P. 945	86.7
Ref. Mon. 1105	48 07 01.07	6 33	Ref. Mon. 1102	59.6
	90 46 11.27	6 33	T. P. 943	23.3
		83 42	T. P. 942	38.4
Ref. Mon. 1106	48 06 38.59	271 17	Ref. Mon. 1111	205.8
	90 46 06.24	271 17	T. P. 946	102.9
Ref. Mon. 1107	48 07 01.40	72 23	Ref. Mon. 1102	229.7
	90 46 01.01	72 23	T. P. 944	132.4
Ref. Mon. 1108	48 06 05.47	305 16	Ref. Mon. 1113	387.7
	90 45 51.15	305 16	T. P. 947	275.9
Ref. Mon. 1109	48 06 52.78	68 34	Ref. Mon. 1104	123.6
	90 45 58.10	68 34	T. P. 945	36.9
Ref. Mon. 1110	48 05 54.27	251 20	Ref. Mon. 1115	42.8
	90 45 42.01	251 20	T. P. 948	29.3
Ref. Mon. 1111	48 06 38.45	91 17	Ref. Mon. 1106	205.8
	90 45 56.30	91 17	T. P. 946	102.9
Ref. Mon. 1112	48 05 04.35	190 23 10	Ref. Mon. 1117	1,515.6
	90 45 11.75	190 23 10	T. P. 949	741.1
Ref. Mon. 1113	48 05 58.22	125 16	Ref. Mon. 1108	387.7
	90 45 35.86	125 16	T. P. 947	111.8
Ref. Mon. 1114	48 05 29.18	120 40 30	Ref. Mon. 1117	1,419.4
	90 43 59.54	120 40 30	T. P. 950	705.5
Ref. Mon. 1115	48 05 54.72	71 20	Ref. Mon. 1110	42.8
	90 45 40.05	71 20	T. P. 948	13.5
Ref. Mon. 1116	48 05 30.79	168 22 10	Ref. Mon. 1119	954.0
	90 42 05.40	168 22 10	T. P. 951	482.8
Ref. Mon. 1117	48 05 52.62	10 23 20	Ref. Mon. 1112	1,515.6
	90 44 58.54	10 23 20	T. P. 949	774.5
		300 39 50	Ref. Mon. 1114	1,419.4
		300 39 50	T. P. 950	713.9
Ref. Mon. 1118	48 05 35.22	188 18 10	Ref. Mon. 1121	1,695.4
	90 41 16.04	188 18 10	T. P. 952	834.0

BOUNDARY REFERENCE MONUMENTS AND MARKED STATIONS—CURTAIN FALLS TO LAKE SUPERIOR—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 1119	48 06 01.04	348 22 10	Ref. Mon. 1116	954.0
	90 42 14.70	348 22 10	T. P. 951	471.3
Ref. Mon. 1120	48 05 52.38	180 13 50	Ref. Mon. 1123	1,310.1
	90 38 29.14	180 13 50	T. P. 953	638.5
Ref. Mon. 1121	48 06 29.54	8 18 10	Ref. Mon. 1118	1,695.4
	90 41 04.20	8 18 10	T. P. 952	861.4
Ref. Mon. 1122	48 06 34.95	150 06 40	Ref. Mon. 1125	761.2
	90 37 30.32	150 06 40	T. P. 954	278.6
Ref. Mon. 1123	48 06 34.80	0 13 50	Ref. Mon. 1120	1,310.1
	90 38 28.88	0 13 50	T. P. 953	671.6
Ref. Mon. 1124	48 06 41.65	189 08	T. P. 955	38.4
	90 37 13.10	252 58	Ref. Mon. 1126	239.1
		252 58	T. P. 957	91.2
		252 58	T. P. 956	28.7
Ref. Mon. 1125	48 06 56.31	330 06 30	Ref. Mon. 1122	761.2
	90 37 48.66	330 06 30	T. P. 954	482.6
Ref. Mon. 1126	48 06 43.92	72 58	Ref. Mon. 1124	239.1
	90 37 02.04	72 58	T. P. 956	210.4
		72 58	T. P. 957	147.9
		104 33	Ref. Mon. 1127	131.1
		104 33	T. P. 958	64.4
		140 58	Ref. Mon. 1129	132.7
		140 58	T. P. 959	35.4
Ref. Mon. 1127	48 06 44.98	55 45	T. P. 955	115.6
	90 37 08.18	284 32	Ref. Mon. 1126	131.1
		284 32	T. P. 958	66.7
Ref. Mon. 1128	48 06 44.15	91 13	T. P. 960	122.9
	90 36 51.57	141 14	Ref. Mon. 1131	143.4
		141 14	T. P. 961	77.4
Ref. Mon. 1129	48 06 47.25	320 58	Ref. Mon. 1126	132.7
	90 37 06.08	320 58	T. P. 959	97.3
Ref. Mon. 1130	48 06 47.63	91 05	Ref. Mon. 1131	234.9
	90 36 44.55	91 05	T. P. 962	72.9
		135 18	Ref. Mon. 1133	56.3
		135 18	T. P. 963	23.0
Ref. Mon. 1131	48 06 47.77	16 51	T. P. 960	114.1
	90 36 55.91	271 05	Ref. Mon. 1130	234.9
		271 05	T. P. 962	162.0
		321 14	Ref. Mon. 1128	143.4
		321 14	T. P. 961	66.0
Ref. Mon. 1132	48 06 54.86	190 32	Ref. Mon. 1135	140.9
	90 36 22.40	190 32	T. P. 964	80.3
Ref. Mon. 1133	48 06 48.92	315 18	Ref. Mon. 1130	56.3
	90 36 46.47	315 18	T. P. 963	33.3
Ref. Mon. 1134	48 06 58.36	193 26	Ref. Mon. 1137	343.7
	90 35 29.99	193 26	T. P. 965	154.1
Ref. Mon. 1135	48 06 59.34	10 32	Ref. Mon. 1132	140.9
	90 36 21.15	10 32	T. P. 964	60.6
Ref. Mon. 1136	48 07 12.46	78 01	Ref. Mon. 1139	267.4
	90 35 12.89	78 01	T. P. 970	250.2
		190 53	Ref. Mon. 1141	298.6
		190 53	T. P. 971	95.8
Ref. Mon. 1137	48 07 09.19	13 26	Ref. Mon. 1134	343.7
	90 35 26.13	13 26	T. P. 965	189.6
		207 54	T. P. 969	32.4
		231 01	T. P. 968	17.3
		242 27	T. P. 967	12.1
		321 57	T. P. 966	5.1
Ref. Mon. 1138	48 07 16.90	158 52	Ref. Mon. 1141	167.1
	90 35 07.25	158 52	T. P. 972	86.5
Ref. Mon. 1139	48 07 10.66	2 25	T. P. 967	39.8
	90 35 25.54	10 36	T. P. 966	50.2
		258 01	Ref. Mon. 1136	267.4
		258 01	T. P. 970	17.2
		350 32	T. P. 969	16.9
		358 17	T. P. 968	34.5
Ref. Mon. 1140	48 07 23.05	166 21	Ref. Mon. 1143	137.8
	90 34 54.16	166 21	T. P. 973	75.6
Ref. Mon. 1141	48 07 21.95	10 53	Ref. Mon. 1136	298.6
	90 35 10.16	10 53	T. P. 971	202.8
		338 52	Ref. Mon. 1138	167.1
		338 52	T. P. 972	80.6
Ref. Mon. 1142	48 07 15.39	219 22	Ref. Mon. 1147	86.2
	90 34 38.11	219 22	T. P. 975	45.9
Ref. Mon. 1143	48 07 27.39	346 21	Ref. Mon. 1140	137.8
	90 34 55.73	346 21	T. P. 973	62.2
Ref. Mon. 1144	48 07 13.96	237 46	Ref. Mon. 1149	149.8
	90 34 34.02	237 46	T. P. 976	40.4
Ref. Mon. 1145	48 07 30.17	319 09 00	Ref. Mon. 1147	515.3
	90 34 51.76	319 09 00	T. P. 974	167.1
Ref. Mon. 1146	48 07 14.00	166 45	Ref. Mon. 1149	80.7
	90 34 27.00			
Ref. Mon. 1147	48 07 17.55	39 22	Ref. Mon. 1142	86.2
	90 34 35.47	39 22	T. P. 975	40.3
		139 09 10	Ref. Mon. 1145	515.3
		139 09 10	T. P. 974	348.2
Ref. Mon. 1148	48 07 14.72	170 16	Ref. Mon. 1151	105.9
	90 34 16.37	170 16	T. P. 977	51.0
		218 36	Ref. Mon. 1153	204.7
Ref. Mon. 1149	48 07 16.54	57 46	Ref. Mon. 1144	149.8
	90 34 27.90	57 46	T. P. 976	109.4
		346 45	Ref. Mon. 1146	80.7
Ref. Mon. 1150	48 07 16.84	103 29	Ref. Mon. 1151	166.5
	90 34 09.40			
Ref. Mon. 1151	48 07 18.10	283 29	Ref. Mon. 1150	166.5
	90 34 17.23	350 16	Ref. Mon. 1148	105.9
		350 16	T. P. 977	54.9
Ref. Mon. 1152	48 07 17.37	170 58	Ref. Mon. 1155	195.3
	90 33 54.24	170 58	T. P. 978	123.5
Ref. Mon. 1153	48 07 19.90	38 36	Ref. Mon. 1148	204.7
	90 34 10.19			
Ref. Mon. 1154	48 07 13.86	247 42 50	Ref. Mon. 1157	875.4
	90 33 49.78	247 42 50	T. P. 979	388.5
Ref. Mon. 1155	48 07 23.62	350 58	Ref. Mon. 1152	195.3
	90 33 55.72	350 58	T. P. 978	71.8
Ref. Mon. 1156	48 06 23.76	260 07 30	Ref. Mon. 1159	1,043.2
	90 34 21.26	260 07 30	T. P. 981	222.1
Ref. Mon. 1157	48 07 24.60	14 18 40	Ref. Mon. 1159	1,754.8
	90 33 10.61	14 18 40	T. P. 980	741.9
		67 43 10	Ref. Mon. 1154	875.4
		67 43 10	T. P. 979	486.9
Ref. Mon. 1158	48 05 34.27	161 46 20	Ref. Mon. 1161	762.6
	90 33 18.12	161 46 20	T. P. 985	373.2
Ref. Mon. 1159	48 06 29.55	80 08 10	Ref. Mon. 1156	1,043.2
	90 33 31.58	80 08 10	T. P. 981	821.1
		194 18 20	Ref. Mon. 1157	1,754.8
		194 18 20	T. P. 980	1,012.9
Ref. Mon. 1160	48 05 38.63	215 56 20	Ref. Mon. 1165	1,189.7
	90 31 36.92			
Ref. Mon. 1161	48 05 57.73	341 46 10	Ref. Mon. 1158	762.6
	90 33 29.64	341 46 10	T. P. 985	389.4
Ref. Mon. 1162	48 05 46.03	125 40 10	Ref. Mon. 1163	1,231.2
	90 30 58.04	171 46 20	Ref. Mon. 1165	742.4
		171 46 20	T. P. 986	371.2
Ref. Mon. 1163	48 06 09.27	305 39 40	Ref. Mon. 1162	1,231.2
	90 31 46.38			
Ref. Mon. 1164	48 05 50.99	80 52	T. P. 987	67.4
	90 30 33.56	152 17	Ref. Mon. 1167	55.7
		152 17	T. P. 988	27.8
Ref. Mon. 1165	48 06 09.82	35 56 40	Ref. Mon. 1160	1,189.7
	90 31 03.17	351 46 10	Ref. Mon. 1162	742.4
		351 46 10	T. P. 986	371.2
Ref. Mon. 1166	48 05 55.70	141 27	Ref. Mon. 1169	72.3
	90 30 26.05	148 16	T. P. 989	53.0
Ref. Mon. 1167	48 05 52.58	34 05	T. P. 987	72.5
	90 30 34.82	332 17	Ref. Mon. 1164	55.7
		332 17	T. P. 988	27.9
Ref. Mon. 1168	48 05 57.70	171 29	T. P. 1007	15.5
	90 30 09.80	219 51	Ref. Mon. 1171	51.3
		231 09	T. P. 1008	20.9
		289 41	T. P. 1009	37.2

BOUNDARY REFERENCE MONUMENTS AND MARKED STATIONS—CURTAIN FALLS TO LAKE SUPERIOR—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 1169	48 05 57.54	303 47	T. P. 989	20.7
	90 30 28.23	321 27	Ref. Mon. 1166	72.3
Ref. Mon. 1170	48 05 51.67	202 11	Ref. Mon. 1172	237.8
	90 29 47.86	202 11	T. P. 1010	122.9
Ref. Mon. 1171	48 05 58.97	32 18	T. P. 1008	31.2
	90 30 08.21	39 51	Ref. Mon. 1168	51.3
		55 38	T. P. 1007	42.6
		357 42	T. P. 1009	52.0
Ref. Mon. 1172	48 05 58.80	22 11	Ref. Mon. 1170	237.8
	90 29 43.52	22 11	T. P. 1010	114.9
		33 20	T. P. 1011	11.0
		123 50	Ref. Mon. 1173	17.5
		123 50	T. P. 1012	7.8
Ref. Mon. 1173	48 05 59.11	303 50	Ref. Mon. 1172	17.5
	90 29 44.22	303 50	T. P. 1012	9.7
		335 47	T. P. 1011	20.7
Ref. Mon. 1174	48 05 57.00	179 10	Ref. Mon. 1177	444.1
	90 29 36.42	179 10	T. P. 1013	256.1
Ref. Mon. 1175	48 06 03.44	219 15	Ref. Mon. 1177	316.5
	90 29 46.41			
Ref. Mon. 1176	48 05 54.73	180 54	Ref. Mon. 1179	242.8
	90 29 26.42	227 22	Ref. Mon. 1181	197.5
		227 22	T. P. 1014	93.5
Ref. Mon. 1177	48 06 11.38	39 15	Ref. Mon. 1175	316.5
	90 29 36.73	359 10	Ref. Mon. 1174	444.1
		359 10	T. P. 1013	188.0
Ref. Mon. 1178	48 05 55.15	111 59	Ref. Mon. 1181	322.6
	90 29 04.94	111 59	T. P. 1015	151.8
		207 47	Ref. Mon. 1183	492.7
		207 47	T. P. 1016	194.9
Ref. Mon. 1179	48 06 02.59	0 54	Ref. Mon. 1176	242.8
	90 29 26.23			
Ref. Mon. 1180	48 06 06.18	114 50	Ref. Mon. 1183	226.4
	90 28 43.91	114 50	T. P. 1017	102.7
Ref. Mon. 1181	48 05 59.06	47 22	Ref. Mon. 1176	197.5
	90 29 19.39	47 22	T. P. 1014	104.0
		291 59	Ref. Mon. 1178	322.6
		291 59	T. P. 1015	170.8
Ref. Mon. 1182	48 06 15.05	145 15	Ref. Mon. 1185	275.7
	90 28 34.65	145 15	T. P. 1018	159.1
Ref. Mon. 1183	48 06 09.26	27 47	Ref. Mon. 1178	492.7
	90 28 53.84	27 47	T. P. 1016	297.8
		294 50	Ref. Mon. 1180	226.4
		294 50	T. P. 1017	123.7
Ref. Mon. 1184	48 06 17.44	171 26	Ref. Mon. 1187	283.5
	90 28 15.14	171 26	T. P. 1019	132.8
Ref. Mon. 1185	48 06 22.38	325 15	Ref. Mon. 1182	275.7
	90 28 42.25	325 15	T. P. 1018	116.6
Ref. Mon. 1186	48 06 27.63	186 02	Ref. Mon. 1189	239.6
	90 28 02.92	186 02	T. P. 1020	132.1
		236 32	Ref. Mon. 1191	318.7
		236 32	T. P. 1021	202.9
Ref. Mon. 1187	48 06 26.52	351 26	Ref. Mon. 1184	283.5
	90 28 17.18	351 26	T. P. 1019	150.7
Ref. Mon. 1188	48 06 21.68	215 55	Ref. Mon. 1193	170.0
	90 27 45.13	215 55	T. P. 1022	81.8
Ref. Mon. 1189	48 06 35.34	6 02	Ref. Mon. 1186	239.6
	90 28 01.70	6 02	T. P. 1020	107.5
Ref. Mon. 1190	48 06 13.92	191 19	Ref. Mon. 1195	285.8
	90 27 09.24	191 19	T. P. 1023	148.8
		274 55 30	Ref. Mon. 1197	621.4
		274 55 30	T. P. 1024	390.7
Ref. Mon. 1191	48 06 33.32	56 32	Ref. Mon. 1186	318.7
	90 27 50.07	56 32	T. P. 1021	115.9
Ref. Mon. 1192	48 05 55.45	211 24 20	Ref. Mon. 1199	513.3
	90 26 42.29	211 24 20	T. P. 1025	260.4
Ref. Mon. 1193	48 06 26.14	35 56	Ref. Mon. 1188	170.0
	90 27 40.31	35 56	T. P. 1022	88.2
Ref. Mon. 1194	48 05 40.96	151 36 10	Ref. Mon. 1199	1,006.9
	90 26 06.22	151 36 10	T. P. 1026	515.7
Ref. Mon. 1195	48 06 23.00	11 19	Ref. Mon. 1190	285.8
	90 27 06.53	11 19	T. P. 1023	137.0
Ref. Mon. 1196	48 06 04.05	200 27 30	Ref. Mon. 1203	732.6
	90 24 46.14	200 27 30	T. P. 1027	479.3
Ref. Mon. 1197	48 06 12.20	94 55 50	Ref. Mon. 1190	621.4
	90 26 39.31	94 55 50	T. P. 1024	230.7
Ref. Mon. 1198	48 06 07.91	219 56 40	Ref. Mon. 1205	870.1
	90 24 24.56	219 56 40	T. P. 1028	436.6
Ref. Mon. 1199	48 06 09.63	31 24 30	Ref. Mon. 1192	513.3
	90 26 29.36	31 24 30	T. P. 1025	252.9
		331 35 50	Ref. Mon. 1194	1,006.9
		331 35 50	T. P. 1026	491.2
Ref. Mon. 1200	48 06 07.59	226 37	Ref. Mon. 1207	76.1
	90 23 54.77	226 37	T. P. 1029	55.7
Ref. Mon. 1201	48 06 17.61	259 04 20	Ref. Mon. 1203	1,575.0
	90 25 48.51			
Ref. Mon. 1202	48 05 34.29	161 01	T. P. 1091	29.1
	90 22 54.34	198 03	Ref. Mon. 1209	32.1
		260 18	T. P. 1092	56.2
Ref. Mon. 1203	48 06 26.27	20 27 40	Ref. Mon. 1196	732.6
	90 24 33.76	20 27 40	T. P. 1027	253.3
		79 05 00	Ref. Mon. 1201	1,575.0
Ref. Mon. 1204	48 05 37.63	188 27	Ref. Mon. 1211	79.5
	90 22 09.12	215 59	T. P. 1138	86.4
		220 04	T. P. 1136	40.3
		222 03	T. P. 1137	71.4
Ref. Mon. 1205	48 06 29.51	39 57 00	Ref. Mon. 1198	870.1
	90 23 57.56	39 57 00	T. P. 1028	433.5
Ref. Mon. 1206	48 05 29.67	213 49 30	Ref. Mon. 1217	573.1
	90 21 43.74	213 49 30	T. P. 1140	453.6
		227 38 50	Ref. Mon. 1215	586.3
		227 38 50	T. P. 1141	488.9
Ref. Mon. 1207	48 06 09.28	46 37	Ref. Mon. 1200	76.1
	90 23 52.10	46 37	T. P. 1029	20.4
Ref. Mon. 1208	48 05 41.15	105 23	Ref. Mon. 1217	458.1
	90 21 06.97	105 23	T. P. 1142	137.9
		203 43	Ref. Mon. 1219	33.0
		203 43	T. P. 1143	15.2
Ref. Mon. 1209	48 05 35.28	18 03	Ref. Mon. 1202	32.1
	90 22 53.86	81 17	T. P. 1091	19.6
		294 47	T. P. 1092	50.1
Ref. Mon. 1210	48 05 36.81	231 38	Ref. Mon. 1221	310.5
	90 20 48.75	231 38	T. P. 1144	93.8
		240 22	Ref. Mon. 1212	339.0
		243 10	T. P. 1146	258.1
		243 12	T. P. 1147	282.4
		244 14	T. P. 1145	220.4
Ref. Mon. 1211	48 05 40.18	8 27	Ref. Mon. 1204	79.5
	90 22 08.56	251 15	Ref. Mon. 1213	301.7
		254 28	T. P. 1139	131.4
		282 32	T. P. 1138	40.0
		305 15	T. P. 1137	44.3
		343 23	T. P. 1136	49.9
Ref. Mon. 1212	48 05 42.24	46 36	T. P. 1147	58.7
	90 20 34.51	51 32	T. P. 1146	83.2
		53 16	T. P. 1145	120.1
		60 22	Ref. Mon. 1210	339.0
		73 16	T. P. 1148	38.0
		93 10	T. P. 1149	26.3
Ref. Mon. 1213	48 05 43.32	68 49	T. P. 1139	170.5
	90 21 54.76	71 15	Ref. Mon. 1211	301.7
Ref. Mon. 1214	48 05 45.72	107 57	Ref. Mon. 1223	280.8
	90 20 12.88	107 57	T. P. 1151	83.7
Ref. Mon. 1215	48 05 42.46	47 39 10	Ref. Mon. 1206	586.3
	90 21 22.80	47 39 10	T. P. 1141	97.4
Ref. Mon. 1216	48 05 51.56	123 47	Ref. Mon. 1225	39.1
	90 20 14.53	123 47	T. P. 1152	16.2

BOUNDARY REFERENCE MONUMENTS AND MARKED STATIONS—CURTAIN FALLS TO LAKE SUPERIOR—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 1217	48 05 45.08	33 49 40	Ref. Mon. 1206	573.1
	90 21 28.32	33 49 40	T. P. 1140	119.6
		285 23	Ref. Mon. 1208	458.1
		285 23	T. P. 1142	320.2
Ref. Mon. 1218	48 05 56.96	129 07	Ref. Mon. 1227	187.3
	90 20 09.14	129 07	T. P. 1153	93.7
Ref. Mon. 1219	48 05 42.13	23 43	Ref. Mon. 1208	33.0
	90 21 06.33	23 43	T. P. 1143	17.8
Ref. Mon. 1220	48 05 58.72	158 22	Ref. Mon. 1229	401.8
	90 19 42.02	158 22	T. P. 1154	329.0
		229 43 10	Ref. Mon. 1231	699.9
		229 43 10	T. P. 1156	583.6
Ref. Mon. 1221	48 05 43.05	51 38	Ref. Mon. 1210	310.5
	90 20 36.98	51 38	T. P. 1144	216.7
		233 53	Ref. Mon. 1223	286.7
		233 53	T. P. 1150	62.2
		313 28	T. P. 1149	34.3
		337 37	T. P. 1148	38.9
Ref. Mon. 1222	48 06 12.38	168 46	Ref. Mon. 1233	95.5
	90 19 01.79	168 46	T. P. 1157	47.8
		231 17	T. P. 1158	319.8
Ref. Mon. 1223	48 05 48.52	53 53	Ref. Mon. 1221	286.7
	90 20 25.79	53 53	T. P. 1150	224.4
		287 57	Ref. Mon. 1214	280.8
		287 57	T. P. 1151	197.0
Ref. Mon. 1224	48 05 51.08	135 37 00	Ref. Mon. 1239	792.8
	90 17 25.56	135 37 00	T. P. 1164	246.3
		207 28	Ref. Mon. 1241	392.2
		207 28	T. P. 1165	206.9
Ref. Mon. 1225	48 05 52.26	303 47	Ref. Mon. 1216	39.1
	90 20 16.10	303 47	T. P. 1152	22.9
Ref. Mon. 1226	48 06 04.40	156 49	Ref. Mon. 1243	456.5
	90 16 23.22	156 49	T. P. 1166	249.3
Ref. Mon. 1227	48 06 00.79	309 07	Ref. Mon. 1218	187.3
	90 20 16.17	309 07	T. P. 1153	93.6
Ref. Mon. 1228	48 06 02.85	196 58 40	Ref. Mon. 1245	645.2
	90 15 56.14	196 58 40	T. P. 1167	314.4
Ref. Mon. 1229	48 06 10.82	270 17	T. P. 1155	343.7
	90 19 49.18	338 22	Ref. Mon. 1220	401.8
		338 22	T. P. 1154	72.8
Ref. Mon. 1230	48 06 01.13	155 15 10	Ref. Mon. 1245	738.2
	90 15 32.10	155 15 10	T. P. 1168	307.8
		239 42 20	Ref. Mon. 1247	2,655.5
		239 42 20	T. P. 1169	447.6
Ref. Mon. 1231	48 06 13.38	49 43 30	Ref. Mon. 1220	699.9
	90 19 16.21	49 43 30	T. P. 1156	116.3
		76 35	T. P. 1155	347.8
Ref. Mon. 1232	48 06 07.04	217 25 00	Ref. Mon. 1247	1,456.2
	90 14 24.03	217 25 00	T. P. 1170	752.6
Ref. Mon. 1233	48 06 15.41	348 46	Ref. Mon. 1222	95.5
	90 19 02.69	348 46	T. P. 1157	47.8
Ref. Mon. 1234	48 06 16.25	153 13 20	Ref. Mon. 1247	976.8
	90 13 19.98	153 13 20	T. P. 1171	473.1
		241 54 40	Ref. Mon. 1249	936.5
		241 54 40	T. P. 1172	491.2
Ref. Mon. 1235	48 06 22.07	278 06 10	Ref. Mon. 1237	784.4
	90 18 53.43	278 06 10	T. P. 1160	687.8
		278 06 10	T. P. 1159	367.7
		322 24	T. P. 1158	125.2
Ref. Mon. 1236	48 06 15.52	170 05	Ref. Mon. 1249	470.2
	90 12 36.13	170 05	T. P. 1173	238.6
Ref. Mon. 1237	48 06 18.49	98 06 40	Ref. Mon. 1235	784.4
	90 18 15.89	98 06 40	T. P. 1159	416.7
		98 06 40	T. P. 1160	96.6
Ref. Mon. 1238	48 06 25.47	152 34	Ref. Mon. 1251	353.9
	90 11 38.07	152 34	T. P. 1174	166.1
Ref. Mon. 1239	48 06 09.43	315 36 40	Ref. Mon. 1224	792.8
	90 17 52.36	315 36 40	T. P. 1164	546.5
Ref. Mon. 1240	48 06 27.72	127 11	Ref. Mon. 1253	185.6
	90 11 15.92	127 11	T. P. 1175	72.4
Ref. Mon. 1241	48 06 02.35	27 28	Ref. Mon. 1224	392.2
	90 17 16.81	27 28	T. P. 1165	185.4
Ref. Mon. 1242	48 06 26.93	173 01 00	Ref. Mon. 1257	507.8
	90 09 49.54	173 01 00	T. P. 1177	255.4
Ref. Mon. 1243	48 06 17.99	336 49	Ref. Mon. 1226	456.5
	90 16 31.91	336 49	T. P. 1166	207.2
Ref. Mon. 1244	48 06 30.36	220 38	Ref. Mon. 1259	425.8
	90 09 12.01	220 38	T. P. 1178	291.9
Ref. Mon. 1245	48 06 22.83	16 58 40	Ref. Mon. 1228	645.2
	90 15 47.04	16 58 40	T. P. 1167	330.8
		335 15 00	Ref. Mon. 1230	738.2
		335 15 00	T. P. 1168	430.4
Ref. Mon. 1246	48 06 40.00	80 20	T. P. 1179	20.6
	90 08 48.59	157 09	Ref. Mon. 1261	17.5
		157 09	T. P. 1180	3.9
		250 47	T. P. 1181	20.8
Ref. Mon. 1247	48 06 44.48	37 25 30	Ref. Mon. 1232	1,456.2
	90 13 41.25	37 25 30	T. P. 1170	703.6
		59 43 50	Ref. Mon. 1230	2,655.5
		59 43 50	T. P. 1169	2,207.9
		333 13 10	Ref. Mon. 1234	976.8
		333 13 10	T. P. 1171	503.7
Ref. Mon. 1248	48 06 45.23	81 19	T. P. 1195	9.0
	90 08 35.95	171 25	Ref. Mon. 1263	9.8
		247 08	T. P. 1196	9.4
		268 34	Ref. Mon. 1265	362.3
		268 34	T. P. 1198	192.4
		268 34	T. P. 1197	49.6
Ref. Mon. 1249	48 06 30.52	61 55 10	Ref. Mon. 1234	936.5
	90 12 40.04	61 55 10	T. P. 1172	445.2
		350 05	Ref. Mon. 1236	470.2
		350 05	T. P. 1173	231.6
Ref. Mon. 1250	48 06 43.39	207 32	Ref. Mon. 1265	74.0
	90 08 20.09	207 32	T. P. 1199	34.2
		234 21	T. P. 1200	47.9
Ref. Mon. 1251	48 06 35.64	332 34	Ref. Mon. 1238	353.9
	90 11 45.95	332 34	T. P. 1174	187.7
Ref. Mon. 1252	48 06 43.47	183 30	Ref. Mon. 1267	38.4
	90 08 08.14	195 37	T. P. 1210	14.4
Ref. Mon. 1253	48 06 31.35	307 11	Ref. Mon. 1240	185.6
	90 11 23.07	307 11	T. P. 1175	113.2
Ref. Mon. 1254	48 06 37.48	146 02	Ref. Mon. 1269	279.6
	90 07 52.17	146 02	T. P. 1211	175.2
		206 31	Ref. Mon. 1271	60.9
		206 31	T. P. 1212	27.7
Ref. Mon. 1255	48 06 45.66	273 09 50	Ref. Mon. 1257	1,347.8
	90 10 57.58	273 09 50	T. P. 1176	467.3
Ref. Mon. 1256	48 06 25.43	239 56	T. P. 1257	8.8
	90 07 24.32	260 50	Ref. Mon. 1273	19.9
		304 04	T. P. 1258	11.6
Ref. Mon. 1257	48 06 43.25	93 10 40	Ref. Mon. 1255	1,347.8
	90 09 52.52	93 10 40	T. P. 1176	880.6
		353 00 50	Ref. Mon. 1242	507.8
		353 00 50	T. P. 1177	252.4
Ref. Mon. 1258	48 06 10.27	158 01 20	Ref. Mon. 1273	508.5
	90 07 14.18	158 01 20	T. P. 1259	347.7
		246 41 50	Ref. Mon. 1275	783.0
		246 41 50	T. P. 1260	381.8
Ref. Mon. 1259	48 06 40.82	40 38	Ref. Mon. 1244	425.8
	90 08 58.61	40 38	T. P. 1178	133.9
Ref. Mon. 1260	48 06 09.55	230 23 00	Ref. Mon. 1277	655.8
	90 05 42.42	230 23 00	T. P. 1261	347.9
		275 36 30	Ref. Mon. 1279	2,313.0
		275 36 30	T. P. 1262	1,578.6
Ref. Mon. 1261	48 06 40.52	34 33	T. P. 1179	23.8
	90 08 48.92	289 21	T. P. 1181	28.0
		337 09	Ref. Mon. 1246	17.5
		337 09	T. P. 1180	13.6
Ref. Mon. 1262	48 05 46.98	214 02 40	Ref. Mon. 1279	568.0
	90 04 06.53	214 02 40	T. P. 1263	284.0
Ref. Mon. 1263	48 06 45.54	33 49	T. P. 1195	13.3
	90 08 36.02	300 59	T. P. 1196	11.8
		351 25	Ref. Mon. 1248	9.8

BOUNDARY REFERENCE MONUMENTS AND MARKED STATIONS—CURTAIN FALLS TO LAKE SUPERIOR—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 1264	48 05 31.66	132 39 10	Ref. Mon. 1279	1,393.0
	90 03 01.64	132 39 10	T. P. 1264	701.5
		203 59	Ref. Mon. 1281	185.9
		203 59	T. P. 1265	51.3
Ref. Mon. 1265	48 06 45.52	27 32	Ref. Mon. 1250	74.0
	90 08 18.44	27 32	T. P. 1199	39.8
		88 34	Ref. Mon. 1248	362.3
		88 34	T. P. 1197	312.7
		88 34	T. P. 1198	169.9
		352 54	T. P. 1200	38.0
Ref. Mon. 1266	48 05 20.10	146 01	T. P. 1283	202.7
	90 02 29.97	150 16	T. P. 1284	146.8
		158 28	Ref. Mon. 1283	209.0
		158 28	T. P. 1285	131.2
		208 30	Ref. Mon. 1285	472.5
		208 30	T. P. 1286	58.1
		238 51	T. P. 1287	232.9
Ref. Mon. 1267	48 06 44.71	3 30	Ref. Mon. 1252	38.4
	90 08 08.02	356 22	T. P. 1210	24.5
Ref. Mon. 1268	48 05 13.34	171 30 20	Ref. Mon. 1285	631.0
	90 02 14.57	171 30 20	T. P. 1288	260.6
Ref. Mon. 1269	48 06 44.99	326 02	Ref. Mon. 1254	279.6
	90 07 59.73	326 02	T. P. 1211	104.4
Ref. Mon. 1270	48 05 06.56	218 30 10	Ref. Mon. 1287	734.2
	90 01 55.64	218 30 10	T. P. 1289	340.1
		273 33 10	Ref. Mon. 1289	2,428.6
		273 33 10	T. P. 1290	662.5
		291 49 20	Ref. Mon. 1291	1,402.1
Ref. Mon. 1271	48 06 39.24	26 31	Ref. Mon. 1254	60.9
	90 07 50.86	26 31	T. P. 1212	33.2
Ref. Mon. 1272	48 04 31.91	294 08 10	Ref. Mon. 1293	981.1
	90 01 34.96			
Ref. Mon. 1273	48 06 25.53	46 09	T. P. 1258	14.0
	90 07 23.37	80 50	Ref. Mon. 1256	19.9
		96 21	T. P. 1257	12.0
		338 00 50	Ref. Mon. 1258	508.5
		338 00 50	T. P. 1259	160.8
Ref. Mon. 1274	48 04 19.38	271 15 30	Ref. Mon. 1293	649.1
	90 01 23.06	271 15 30	T. P. 1291	326.5
Ref. Mon. 1275	48 06 20.29	66 42 10	Ref. Mon. 1258	783.0
	90 06 39.42	66 42 10	T. P. 1260	401.2
Ref. Mon. 1276	48 03 57.45	229 13 40	Ref. Mon. 1295	877.9
	90 01 00.67	229 13 40	T. P. 1292	206.6
		243 56 20	T. P. 1293	508.4
Ref. Mon. 1277	48 06 23.08	50 23 20	Ref. Mon. 1260	655.8
	90 05 18.00	50 23 20	T. P. 1261	307.9
Ref. Mon. 1278	48 03 55.29	163 09	T. P. 1293	303.3
	90 00 34.37	190 38 20	Ref. Mon. 1295	651.4
		190 38 20	T. P. 1295	364.8
		222 30	Ref. Mon. 1297	366.2
		222 30	T. P. 1296	263.8
		265 29	T. P. 1297	239.5
		271 19	T. P. 1298	387.9
		284 21 20	Ref. Mon. 1299	595.3
		284 21 20	T. P. 1299	392.2
Ref. Mon. 1279	48 06 02.21	34 02 50	Ref. Mon. 1262	568.0
	90 03 51.16	34 02 50	T. P. 1263	284.0
		95 37 50	Ref. Mon. 1260	2,313.0
		95 37 50	T. P. 1262	734.3
		312 38 40	Ref. Mon. 1264	1,393.0
		312 38 40	T. P. 1264	691.5
Ref. Mon. 1280	48 03 06.62	221 05 20	Ref. Mon. 1301	1,839.3
	90 00 21.52	221 05 20	T. P. 1300	903.4
		286 40 20	Ref. Mon. 1303	2,206.0
		286 58 00	T. P. 1301	952.8
Ref. Mon. 1281	48 05 37.16	23 59	Ref. Mon. 1264	185.9
	90 02 57.99	23 59	T. P. 1265	134.5
Ref. Mon. 1282	48 02 28.87	229 38	Ref. Mon. 1305	426.0
	89 59 52.02	229 38	T. P. 1302	171.9
		318 39	Ref. Mon. 1284	246.8
		318 39	T. P. 1303	156.7
Ref. Mon. 1282–A	48 02 21.70	271 13	Ref. Mon. 1284–A	45.9
	89 59 47.71	271 13	T. P. 1304	14.7
		321 13	T. P. 1305	26.1
Ref. Mon. 1283	48 05 26.40	54 20	T. P. 1283	45.1
	90 02 33.68	338 28	Ref. Mon. 1266	209.0
		338 28	T. P. 1285	77.8
		356 40	T. P. 1284	67.1
Ref. Mon. 1284	48 02 22.87	138 39	Ref. Mon. 1282	246.8
	89 59 44.14	138 39	T. P. 1303	90.1
Ref. Mon. 1284–A	48 02 21.67	56 47	T. P. 1305	35.4
	89 59 45.49	91 13	Ref. Mon. 1282–A	45.9
		91 13	T. P. 1304	31.2
Ref. Mon. 1285	48 05 33.55	5 04	T. P. 1287	295.9
	90 02 19.08	28 30	Ref. Mon. 1266	472.5
		28 30	T. P. 1286	414.4
		351 30 10	Ref. Mon. 1268	631.0
		351 30 10	T. P. 1288	370.4
P. R. T. 270	48 02 02.02	178 54	P. R. T. 309	114.9
	89 59 47.70	276 48	T. P. 1309	24.5
		277 23	T. P. 1310	53.7
P. R. T. 309	48 02 05.74	148 03	T. P. 1307	55.7
	89 59 47.81	343 12	T. P. 1308	46.7
		358 54	P. R. T. 270	114.9
Ref. Mon. 1286	48 01 50.91	241 34	T. P. 1316	45.4
	89 59 42.03	343 11	Ref. Mon. 1288	222.0
		343 11	T. P. 1317	54.5
Ref. Mon. 1287	48 05 25.16	38 30 30	Ref. Mon. 1270	734.2
	90 01 33.55	38 30 30	T. P. 1289	394.1
Ref. Mon. 1288	48 01 44.03	40 35	T. P. 1321	26.6
	89 59 38.93	102 04	T. P. 1320	37.3
		163 11	Ref. Mon. 1286	222.0
		163 11	T. P. 1317	167.5
		293 05	P. R. T. 303	118.9
Ref. Mon. 1289	48 05 01.67	93 34 30	Ref. Mon. 1270	2,428.6
	89 59 58.52	93 34 30	T. P. 1290	1,766.1
P. R. T. 303	48 01 42.52	113 05	Ref. Mon. 1288	118.9
	89 59 33.65	312 07	T. P. 1325	12.7
Ref. Mon. 1290	48 01 23.27	181 24	Ref. Mon. 1292	91.9
	89 58 34.34	181 24	T. P. 1349	30.3
Ref. Mon. 1291	48 04 49.68	111 50 10	Ref. Mon. 1270	1,402.1
	90 00 52.75			
Ref. Mon. 1292	48 01 26.25	1 24	Ref. Mon. 1290	91.9
	89 58 34.23	1 24	T. P. 1349	61.6
Ref. Mon. 1293	48 04 18.92	91 15 50	Ref. Mon. 1274	649.1
	90 00 51.71	91 15 50	T. P. 1291	322.5
		114 08 40	Ref. Mon. 1272	981.1
		313 09 20	Ref. Mon. 1299	1,282.8
		313 09 20	T. P. 1294	470.3
Ref. Mon. 1294	48 00 51.77	138 01	T. P. 1364	48.4
	89 58 03.86	268 45	Ref. Mon. 1296	399.0
Ref. Mon. 1295	48 04 16.01	10 38 20	Ref. Mon. 1278	651.4
	90 00 28.56	10 38 20	T. P. 1295	286.6
		49 14 00	Ref. Mon. 1276	877.9
		49 14 00	T. P. 1292	671.3
Ref. Mon. 1296	48 00 52.05	88 45	Ref. Mon. 1294	399.0
	89 57 44.62	339 57	T. P. 1367	28.0
Ref. Mon. 1297	48 04 04.03	1 58	T. P. 1297	251.3
	90 00 22.42	42 30	Ref. Mon. 1278	366.2
		42 30	T. P. 1296	102.3
Ref. Mon. 1298	48 00 48.96	76 44	T. P. 1376	23.5
	89 56 58.15	149 07	Ref. Mon. 1300	266.5
Ref. Mon. 1299	48 03 50.51	104 21 40	Ref. Mon. 1278	595.3
	90 00 06.51	104 21 40	T. P. 1299	203.1
		126 17	T. P. 1298	234.3
		133 10 00	Ref. Mon. 1293	1,282.8
		133 10 00	T. P. 1294	812.5
Ref. Mon. 1300	48 00 56.37	220 32	T. P. 1380	49.9
	89 57 04.75	265 26	P. R. T. 271	278.2
		329 07	Ref. Mon. 1298	266.5
		334 23	T. P. 1379	51.1
P. R. T. 271	48 00 57.08	85 26	Ref. Mon. 1300	278.2
	89 56 51.37	106 16	T. P. 1383	85.0
Ref. Mon. 1301	48 03 51.50	41 06 00	Ref. Mon. 1280	1,839.3
	89 59 23.13	41 06 00	T. P. 1300	935.9

BOUNDARY REFERENCE MONUMENTS AND MARKED STATIONS—CURTAIN FALLS TO LAKE SUPERIOR—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 1302	48 00 56.95	285 47	Ref. Mon. 1304	113.3
	89 56 27.79	285 47	T. P. 1388	43.7
Ref. Mon. 1303	48 02 46.12	106 28 20	T. P. 1301	1,253.2
	89 58 39.49	106 41 40	Ref. Mon. 1280	2,206.0
Ref. Mon. 1304	48 00 55.95	105 47	Ref. Mon. 1302	113.3
	89 56 22.53	105 47	T. P. 1388	69.5
		165 31	T. P. 1389	36.8
		258 52	T. P. 1390	49.7
Ref. Mon. 1305	48 02 37.80	49 38	Ref. Mon. 1282	426.0
	89 59 36.35	49 38	T. P. 1302	251.4
P. R. T. 267	48 00 57.37	48 04	T. P. 1393	14.5
	89 56 03.63	347 24	Ref. Mon. 1306	315.3
Ref. Mon. 1306	48 00 47.41	167 24	P. R. T. 267	315.3
	89 56 00.32	232 15	T. P. 1397	30.2
		351 32	P. R. T. 220	273.9
P. R. T. 220	48 00 38.64	171 32	Ref. Mon. 1306	273.9
	89 55 58.37	194 02	T. P. 1400	47.8
Ref. Mon. 1307	48 00 25.43	230 09	Ref. Mon. 1308	70.7
	89 55 40.11	230 09	T. P. 1406	23.9
Ref. Mon. 1308	48 00 26.90	50 44	Ref. Mon. 1307	70.7
	89 55 37.49	50 09	T. P. 1406	46.9
P. R. T. 216	48 00 20.22	250 24	T. P. 1410	12.5
	89 55 32.66	358 31	P. R. T. 257	211.2
P. R. T. 257	48 00 13.38	146 33	T. P. 1413	6.7
	89 55 32.39	178 31	P. R. T. 216	211.2
Ref. Mon. 1309	48 00 06.68	239 05	T. P. 1418	22.4
	89 55 39.86			
Ref. Mon. 1310	47 59 48.68	150 35	Ref. Mon. 1311	54.5
	89 55 16.69	150 35	T. P. 1428	25.5
Ref. Mon. 1311	47 59 50.22	330 35	Ref. Mon. 1310	54.5
	89 55 17.98	330 35	T. P. 1428	29.0
Ref. Mon. 1312	47 59 32.37	66 10	T. P. 1439	36.6
	89 54 13.64	325 36 40	Ref. Mon. 1313	547.9
		325 36 40	T. P. 1440	115.4
Ref. Mon. 1313	47 59 17.73	142 34	T. P. 1441	135.2
	89 53 58.72	145 36 50	Ref. Mon. 1312	547.9
		145 36 50	T. P. 1440	432.4
		285 57	T. P. 1442	71.3
Ref. Mon. 1314	47 59 10.34	114 39	T. P. 1450	71.0
	89 53 04.14	247 17	Ref. Mon. 1315	244.3
		247 17	T. P. 1451	61.2
Ref. Mon. 1315	447 59 13.39	67 17	Ref. Mon. 1314	244.3
	89 52 53.27	67 17	T. P. 1451	183.2
Ref. Mon. 1316	47 59 15.40	214 21	Ref. Mon. 1317	336.4
	89 52 13.77	297 08	T. P. 1458	44.9
Ref. Mon. 1317	47 59 24.39	34 21	Ref. Mon. 1316	336.1
	89 52 04.61	135 00	T. P. 1460	18.1
P. R. T. 188	47 59 23.93	238 35	P. R. T. 227	97.7
	89 51 57.26	238 35	T. P. 1461	31.3
P. R. T. 227	47 59 25.58	58 35	P. R. T. 188	97.7
	89 51 53.24	58 35	T. P. 1461	66.3
Ref. Mon. 1318	47 59 41.06	286 22	Ref. Mon. 1319	49.3
	89 50 46.60	286 22	T. P. 1471	31.7
Ref. Mon. 1318-A	47 59 51.79	20 55	P. R. T. 178	190.9
	89 50 35.07	313 14	T. P. 1477	70.8
Ref. Mon. 1319	47 59 40.61	106 22	Ref. Mon. 1318	49.3
	89 50 44.32	106 22	T. P. 1471	17.7
P. R. T. 178	47 59 46.01	136 09	T. P. 1474	17.6
	89 50 38.36	200 55	Ref. Mon. 1318-A	190.9
Ref. Mon. 1320	48 00 13.73	334 18	Ref. Mon. 1321	87.6
	89 50 40.47	334 18	T. P. 1485	52.3
Ref. Mon. 1321	48 00 11.17	154 18	Ref. Mon. 1320	87.6
	89 50 38.64	154 18	T. P. 1485	35.3
		258 12	P. R. T. 211	146.7
P. R. T. 211	48 00 12.14	78 12	Ref. Mon. 1321	146.7
	89 50 31.71	321 38	T. P. 1487	43.5
Ref. Mon. 1322	48 00 00.21	17 36	Ref. Mon. 1322-A	100.5
	89 49 56.10	17 36	T. P. 1492	69.3
Ref. Mon. 1322-A	47 59 57.11	197 36	Ref. Mon. 1322	100.5
	89 49 57.57	197 36	T. P. 1492	31.3
P. R. T. 207	48 00 19.70	4 03	T. P. 1500	39.7
	89 49 44.26	227 22 40	P. R. T. 164	747.4
Ref. Mon. 1323	48 00 41.57	11 09	T. P. 1509	33.6
	89 49 21.14	77 02	T. P. 1510	98.0
		50 29	Ref. Mon. 1324	91.5
Ref. Mon. 1324	48 00 39.68	248 35	T. P. 1509	68.7
	89 49 24.54	145 22	T. P. 1510	44.0
		230 29	Ref. Mon. 1323	91.5
P. R. T. 195	48 00 45.67	321 03	T. P. 1516	6.0
	89 49 16.86			
P. R. T. 158	48 00 53.00	162 24	T. P. 1521	23.8
	89 49 14.06			
P. R. T. 154	48 00 58.21	219 53	T. P. 1531	20.6
	89 48 50.23			
Ref. Mon. 1325	48 01 02.68	69 38	Ref. Mon. 1326	131.4
	89 48 21.67	75 31	T. P. 1540	107.1
Ref. Mon. 1326	48 01 01.20	225 54	T. P. 1540	27.2
	89 48 27.61	249 38	Ref. Mon. 1325	131.4
		323 03	P. R. T. 181	72.8
		327 15	T. P. 1541	45.3
P. R. T. 181	48 00 59.31	136 10	T. P. 1541	27.9
	89 48 25.50	143 03	Ref. Mon. 1326	72.8
Ref. Mon. 1327	48 01 03.80	182 48	Ref. Mon. 1328	38.0
	89 47 38.19	182 48	T. P. 1560	18.0
Ref. Mon. 1328	48 01 05.03	2 48	Ref. Mon. 1327	38.0
	89 47 38.10	2 48	T. P. 1560	20.0
		251 26	P. R. T. 171	186.3
P. R. T. 171	48 01 06.95	36 02	T. P. 1563	13.6
	89 47 29.57	71 26	Ref. Mon. 1328	186.3
Ref. Mon. 1329	48 01 06.30	246 24	P. R. T. 132	317.0
	89 46 54.36	348 52	T. P. 1569	45.6
P. R. T. 132	48 01 10.41	66 25	Ref. Mon. 1329	317.0
	89 46 40.34	177 41	T. P. 1574	44.4
Ref. Mon. 1330	48 01 20.77	209 21	Ref. Mon. 1331	55.6
	89 46 29.03	209 21	T. P. 1578	36.0
Ref. Mon. 1331	48 01 22.34	29 21	Ref. Mon. 1330	55.6
	89 46 27.72	29 21	T. P. 1578	19.5
P. R. T. 161	48 01 20.97	34 04	T. P. 1586	60.0
	89 46 05.91			
P. R. T. 153	48 01 20.32	5 50	T. P. 1596	9.9
	89 45 11.82			
Ref. Mon. 1332	48 01 19.92	243 24	Ref. Mon. 1333	70.0
	89 44 42.08	243 24	T. P. 1607	57.8
Ref. Mon. 1333	48 01 20.94	63 24	Ref. Mon. 1332	70.0
	89 44 39.05	63 24	T. P. 1607	12.2
P. R. T. 115	48 01 17.53	142 09	P. R. T. 118	116.9
	89 44 36.71	322 06	T. P. 1609	25.7
P. R. T. 143	48 01 18.29	3 56	T. P. 1618	16.0
	89 44 11.82			
P. R. T. 106	48 01 08.47	225 38	T. P. 1637	32.3
	89 43 35.77	235 23	Ref. Mon. 1334	257.8
Ref. Mon. 1334	48 01 13.22	190 28	Ref. Mon. 1335	88.7
	89 43 25.53	190 28	T. P. 1643	55.3
Ref. Mon. 1335	48 01 16.04	10 28	Ref. Mon. 1334	88.7
	89 43 24.75	10 28	T. P. 1643	33.5
P. R. T. 131	48 01 05.89	135 16	Ref. Mon. 1335	441.5
	89 43 09.75	172 52	T. P. 1646	24.2
P. R. T. 100	48 01 01.28	242 24	T. P. 1650	41.9
	89 43 27.71	353 13	P. R. T. 125	105.0
P. R. T. 125	48 00 57.90	112 43	T. P. 1651	22.0
	89 43 27.11	173 13	P. R. T. 100	105.0

BOUNDARY REFERENCE MONUMENTS AND MARKED STATIONS—CURTAIN FALLS TO LAKE SUPERIOR—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″		
Ref. Mon. 1336	48 00 51.33	39 25	T. P. 1653	66.8
	89 43 24.69	166 07	P. R. T. 125	209.0
Ref. Mon. 1337	48 00 49.33	67 50	Ref. Mon. 1338	69.2
	89 42 59.34	67 50	T. P. 1669	12.4
Ref. Mon. 1338	48 00 48.48	247 50	Ref. Mon. 1337	69.2
	89 43 02.43	247 50	T. P. 1669	56.8
P. R. T. 109	48 00 35.63	51 26	T. P. 1674	28.4
	89 42 58.33	345 28	P. R. T. 86	72.5
		345 28	T. P. 1675	48.0
P. R. T. 86	48 00 33.36	165 28	P. R. T. 109	72.5
	89 42 57.46	165 28	T. P. 1675	24.5
Ref. Mon. 1339	48 00 36.53	187 40	Ref. Mon. 1340	76.0
	89 42 31.00	187 40	T. P. 1680	47.5
Ref. Mon. 1340	48 00 38.97	7 40	Ref. Mon. 1339	76.0
	89 42 30.51	7 40	T. P. 1680	28.5
		315 27	P. R. T. 101	127.1
		315 27	T. P. 1681	56.0
P. R. T. 101	48 00 36.04	135 27	Ref. Mon. 1340	127.1
	89 42 26.20	135 27	T. P. 1681	71.2
		350 53	T. P. 1682	68.2
P. R. T. 78	48 00 23.09	179 22	T. P. 1684	26.5
	89 42 11.41			
P. R. T. 93	48 00 32.10	51 10	P. R. T. 74	124.8
	89 41 42.06	337 28	T. P. 1688	19.1
Ref. Mon. 1341	48 00 36.87	270 05	Ref. Mon. 1342	231.0
	89 41 24.71	270 05	T. P. 1690	46.2
Ref. Mon. 1342	48 00 36.86	90 05	Ref. Mon. 1341	231.0
	89 41 13.57	90 05	T. P. 1690	184.8
P. R. T. 89	48 00 39.75	23 35	Ref. Mon. 1342	97.2
	89 41 11.69	327 01	T. P. 1693	38.0
P. R. T. 68	48 00 35.78	171 55	P. R. T. 89	123.9
	89 41 10.85	208 37	T. P. 1694	21.3
P. R. T. 64	48 00 40.02	212 34	T. P. 1699	26.9
	89 40 34.46			
P. R. T. 81	48 00 35.72	116 07	T. P. 1704	57.9
	89 40 14.75			
P. R. T. 77	48 00 39.35	20 11	T. P. 1710	22.9
	89 39 44.87			
Ref. Mon 1343	48 00 23.68	63 26	T. P. 1715	12.3
	89 39 16.59	355 39	Ref. Mon. 1344	41.0
Ref. Mon. 1344	48 00 22.35	158 17	T. P. 1715	38.1
	89 39 16.44	175 39	Ref. Mon. 1343	41.0
P. R. T. 52	48 00 15.36	64 50	T. P. 1720	45.9
	89 38 51.73	200 54	P. R. T. 65	252.3
P. R. T. 65	48 00 22.99	20 54	P. R. T. 52	252.3
	89 38 47.39	32 02	T. P. 1721	61.5
		280 55	T. P. 1722	53.4
P. R. T. 57	48 00 33.01	310 15	Ref. Mon. 1345	40.3
	89 38 17.93	345 14	T. P. 1732	26.7
Ref. Mon. 1345	48 00 32.17	90 43	T. P. 1732	24.0
	89 38 16.45	130 15	P. R. T. 57	40.3
		171 18	Ref. Mon. 1346	63.2
		171 18	T. P. 1733	24.5
Ref. Mon. 1346	48 00 34.19	351 18	Ref. Mon. 1345	63.2
	89 38 16.91	351 18	T. P. 1733	38.7
Ref. Mon. 1347	48 00 49.10	274 08	Ref. Mon. 1348	41.1
	89 36 56.66	274 08	T. P. 1747	22.9
Ref. Mon. 1347–A	48 00 45.89	273 05	Ref. Mon. 1348–A	38.1
	89 36 58.67	273 05	T. P. 1746	24.5
Ref. Mon. 1348	48 00 49.00	94 08	Ref. Mon. 1347	41.1
	89 36 54.68	94 08	T. P. 1747	18.1
Ref. Mon. 1348–A	48 00 45.83	93 05	Ref. Mon. 1347–A	38.1
	89 36 56.83	93 05	T. P. 1746	13.6
P. R. T. 31	48 00 55.40	34 48	T. P. 1755	40.3
	89 36 33.83	349 46	P. R. T. 27	431.2
P. R. T. 27	48 00 41.66	41 16	T. P. 1758	57.6
	89 36 30.13	55 28	P. R. T. 30	95.1
		167 14	T. P. 1757	29.4
P. R. T. 30	48 00 39.91	20 12	T. P. 1759	33.9
	89 36 33.91	235 27	P. R. T. 27	95.1
		255 08	T. P. 1758	41.7
P. R. T. 26	48 00 29.37	152 05	T. P. 1763	38.0
	89 36 32.29	317 07	T. P. 1764	51.7
		338 19	P. R. T. 24	81.2
P. R. T. 24	48 00 26.93	158 19	P. R. T. 26	81.2
	89 36 30.84	187 43	T. P. 1764	37.9
Ref. Mon. 1349	48 00 22.07	160 22	Ref. Mon. 1349–A	45.5
	89 36 23.29	160 22	T. P. 1767	19.4
Ref. Mon. 1349–A	48 00 23.46	340 22	Ref. Mon. 1349	45.5
	89 36 24.03	340 22	T. P. 1767	26.2
Ref. Mon. 1350	48 00 17.80	223 24	T. P. 1770	30.4
	89 35 54.37	250 27	Ref. Mon. 1351	77.3
		288 01	T. P. 1771	51.4
Ref. Mon. 1351	48 00 18.64	29 52	T. P. 1771	48.2
	89 35 50.86	70 27	Ref. Mon. 1350	77.3
		85 49	T. P. 1770	52.1
Ref. Mon. 1352	48 00 12.80	246 14	Ref. Mon. 1353	183.4
	89 35 35.03	246 14	T. P. 1781	54.1
Ref. Mon. 1353	48 00 15.19	66 15	Ref. Mon. 1352	183.4
	89 35 26.93	66 15	T. P. 1781	129.2
		317 40	Island F	96.0
Island I	48 00 11.90	55 08	T. P. 1782	32.5
	89 35 30.37	106 03	Ref. Mon. 1352	100.6
Island H	48 00 09.24	205 19	Island G	55.0
	89 35 28.98	250 08	T. P. 1783	31.5
Island G	48 00 10.85	25 19	Island H	55.0
	89 35 27.85	351 08	T. P. 1783	39.6
Island F	48 00 12.89	137 40	Ref. Mon. 1353	96.0
	89 35 23.82			
Ref. Mon. 1354	48 00 06.94	212 38	Ref. Mon. 1355	152.7
	89 35 18.87	212 38	T. P. 1784	73.6
Ref. Mon. 1355	48 00 11.10	32 38	Ref. Mon. 1354	152.7
	89 35 14.89	32 38	T. P. 1784	79.1
Ref. Mon. 1356	48 00 05.07	82 36	Ref. Mon. 1357	86 0
	89 35 04.31	82 36	T. P. 1786	40.6
		123 04	T. P. 1785	79.7
Ref. Mon. 1357	48 00 04.71	198 45	T. P. 1785	57.6
	89 35 08.43	262 36	Ref. Mon. 1356	86.0
		262 36	T. P. 1786	45.5
Ref. Mon. 1358	47 59 59.42	299 19	Ref. Mon. 1359	152.2
	89 35 10.43	299 19	T. P. 1787	60.6
Ref. Mon. 1359	47 59 57.01	7 10	Island E	136.8
	89 35 04.03	7 10	T. P. 1788	36.2
		119 20	Ref. Mon. 1358	152.2
		119 20	T. P. 1787	91.5
Island E	47 59 52.62	187 10	Ref. Mon. 1359	136.8
	89 35 04.85	187 10	T. P. 1788	100.7
		288 54	Ref. Mon. 1361	270.3
		288 54	T. P. 1789	80.3
Ref. Mon. 1360	47 59 47.56	254 33	T. P. 1790	159.3
	89 35 04.46	254 33	Ref. Mon. 1361	256.9
Ref. Mon. 1361	47 59 49.78	35 34	Island D	88.8
	89 34 52.52	35 34	T. P. 1791	67.6
		74 33	Ref. Mon. 1360	256.9
		74 33	T. P. 1790	97.6
		108 54	Island E	270.3
		108 54	T. P. 1789	190.0
		290 12	Island B	134.6
		348 31	Island C	95.3
		348 31	T. P. 1793	134.9
Island D	47 59 47.44	215 34	T. P. 1791	21.1
	89 34 55.01	215 34	Ref. Mon. 1361	88.8
		322 20	T. P. 1792	56.0

BOUNDARY REFERENCE MONUMENTS AND MARKED STATIONS—CURTAIN FALLS TO LAKE SUPERIOR—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ′ ″	° ′ ″				° ′ ″	° ′ ″		
Island C	47 59 46.76	57 29	T. P. 1792	43.2	Ref. Mon. 1364	47 59 53.62	334 35	Ref. Mon. 1365	154.9
	89 34 51.60	168 31	Ref. Mon. 1361	95.3		89 34 23.97	334 35	T. P. 1795	88.2
		348 31	T. P. 1793	39.6	Ref. Mon. 1365	47 59 49.09	154 35	Ref. Mon. 1364	154.9
Island B	47 59 48.28	110 12	Ref. Mon. 1361	134.6		89 34 20.76	154 35	T. P. 1795	66.7
	89 34 46.42				I. W. C. Mon. 3	47 59 58.22	7 46	T. P. 1796	159.5
Ref. Mon. 1362	47 59 52.50	1 21	Ref. Mon. 1363	160.9		89 34 14.26	291 45	Ref. Mon. 1366	127.1
	89 34 37.63	1 21	T. P. 1794	77.8			291 45	T. P. 1797=T. P. 269 I. W. C.	86.1
		288 58	Island A	207.4					
Ref. Mon. 1363	47 59 47.30	181 21	Ref. Mon. 1362	160.9	Ref. Mon. 1366	47 59 56.69	51 32	T. P. 1796	178.3
	89 34 37.82	181 21	T. P. 1794	83.0		89 34 08.56	111 45	I. W. C. Mon. 3	127.1
Island A	47 59 50.32	108 58	Ref. Mon. 1362	207.4			111 45	T. P. 1797=T. P. 269 I. W. C.	41.0
	89 34 28.17								

We certify that the foregoing is a true and accurate description and definition of the section of the international boundary line between the United States of America and the Dominion of Canada from the Northwesternmost Point of Lake of the Woods to Lake Superior, as reestablished by the commissioners and as marked by them on the quadruplicate sets of thirty-six accurate modern maps submitted with this report, in accordance with the provisions of Article V of the treaty between the United States and Great Britain signed at Washington, April 11, 1908, and of Article I of the treaty between the United States and His Britannic Majesty in respect of the Dominion of Canada, signed at Washington, February 24, 1925.

His Britannic Majesty's Commissioner.

Washington,
October 27, 1931.

United States Commissioner.

CONCLUSION

It is of importance to note that the section of the international boundary line from the Northwesternmost Point of Lake of the Woods to Lake Superior as now established under the provisions of existent treaties is geodetically fixed, and likewise defined, in terms of a geodetic datum common to the two countries in interest. Regardless therefore of changes which may take place in the shore lines of the boundary waterways, and irrespective of the deterioration or displacement of the boundary monuments and reference monuments, the permanency of the position of the line is henceforth assured.

In accomplishing the results set forth herein the commissioners have had the close cooperation and assistance of other departments and agencies of the two Governments. They refer particularly to the geodetic work done jointly by the Geodetic Survey of Canada and the United States Coast and Geodetic Survey in establishing the first-order control for the boundary triangulation; to the excellent work done for the commission by the United States Geological Survey in the printing of the boundary maps; to the cooperation of the International Joint Commission in the free exchange of survey data pertaining to Lake of the Woods and Rainy Lake; and to the many courtesies extended by the customs and immigration officials of both countries during the progress of the field work.

The commissioners desire to express their appreciation of the efficient and conscientious services of all of their associates who have taken part in the work. They are particularly indebted to Mr. Jesse Hill, engineer to the United States section of the commission, to Mr. J. A. Pounder, D. L. S., engineer to the Canadian section of the commission, to Mr. R. N. Ashmun, mathematician, Mr. Frank H. Brundage, topographic engineer, and Mr. Edward Rausch, cartographer, of the United States section of the commission, and to Mr. G. T. Prinsep, D. L. S., and Mr. D. F. Chisholm of the Canadian section of the commission. The competent and painstaking work done by these men is worthy of the highest commendation.

It is with regret that the commissioners have to record the loss to the two Governments, during the later years of the work, of former Commissioners J. J. McArthur and E. Lester Jones. Mr. McArthur died April 14, 1925, and Colonel Jones died April 9, 1929.

It is most gratifying to state that throughout the course of the work of carrying out the provisions of the boundary treaties the most cordial relations have existed between the commissioners, and that their duties have been performed in a spirit of hearty cooperation.

Noel J. Ogilvie

His Britannic Majesty's Commissioner.

Washington,
October 27, 1931.

James H. Haw Wagenen

United States Commissioner.

APPENDIX I

HISTORICAL SKETCH OF THE EARLY EXPLORATIONS OF THE REGION ALONG THE INTERNATIONAL BOUNDARY FROM LAKE SUPERIOR TO LAKE OF THE WOODS

The first white men of record to explore the region adjacent to the boundary between Ontario and Minnesota were Medard Chouart, Sieur des Groseilliers,[1] and his brother-in-law, Pierre Esprit Radisson. Groseilliers was a French fur trader of wide experience who in early life had been a helper in the Jesuit missions to the Indians. Radisson, when a boy, had been captured by the Iroquois and adopted into their tribe, and had lived with them about a year before making his escape. Both men were therefore well fitted for explorations in a country inhabited only by Indians.

It is probable that Groseilliers and Radisson were the first white men to traverse the region of the upper Mississippi River and to explore the southern shore of Lake Superior, almost to the site of the present city of Duluth.[2] Their ambition "to travell and see countreys,"[3] as Radisson expresses it in his account of his second "voyage," carried them among many Indian tribes from whom they gained much information regarding the geography of the northwest, particularly of the regions from which the best fur could be obtained. For several years, probably between 1654 and 1660,[4] they traded and hunted near the south shore of Lake Superior, penetrating the interior as far west as the country near the headwaters of the Mississippi. Of their wanderings in northern Minnesota, probably in the summer of 1655, Radisson says:

> We weare 4 moneths in our voyage without doeing any thing but goe from river to river. We mett severall sorts of people. We conversed with them, being long time in alliance with them. By the persuasion of som of them we went into the great river that divides itselfe in 2 * * *.

Historians differ as to what river Radisson refers; some think it was the Mississippi.

They returned to Quebec in 1656 and again in 1660 [5] with valuable cargoes of furs. In 1660, however, the unjust treatment which they considered that they had received from the Governor of Quebec and from the French Government caused them to offer their services to the English,[6] which after some delay were accepted. Finally, in 1668, a voyage was made by Groseilliers from London to Hudson Bay where he

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[1] Upham, Warren, Minnesota in Three Centuries, Vol. I, p. 128.
[2] Upham, Warren, Minnesota in Three Centuries, Vol. I, p. 185.
[3] Radisson, P. E., Voyages, p. 134.
[4] Upham, Warren, Minnesota in Three Centuries, Vol. I, p. 135.
[5] Upham, Warren, Minnesota in Three Centuries, Vol. I, p. 135.
[6] Marquis, T. G., Canada and Its Provinces, Vol. I, p. 160. Minnesota in Three Centuries, Vol. I, pp. 197–200.

wintered at the mouth of the Rupert River and collected a cargo of furs. So successful was this voyage that after his return to England in 1669, a royal charter was granted to the supporters of the enterprise, under the title of "the Governor and Company of Adventurers of England trading into Hudson's Bay," giving them exclusive rights of trade and absolute control over the territory adjacent to Hudson Bay, an event which was to have a profound effect upon the history of the northern part of North America.

Meanwhile, in the regions to the south, other explorers were penetrating into unknown territory, always with the idea of discovering a practicable route to India by way of the "Western Sea."

Beginning in 1678, Daniel Greysolon, Sieur du Lhut,[7] after whom the city of Duluth, Minn., was named, spent some 30 years in exploration principally in the Lake Superior region. He penentrated the wilderness farther west than any white man of his time, probably to the country west of Lake of the Woods.[8] He established a trading post near the present site of Port Arthur and Fort William, Ontario, as early as 1683, the first of its kind near the international boundary between Minnesota and Ontario.

The first explorer to traverse any part of the Minnesota-Ontario boundary was probably Jacques de Noyon, a native of Three Rivers, Quebec. As told in an official report of the Intendant Bégon, written at Quebec, November 12, 1716, and published in the Margry Papers (Vol. VI, pp. 495–498), De Noyon while in search of the "Western Sea," ascended the Kaministikwia River about the year 1688. Following a chain of lakes with many portages, he came by way of Seine River to Rainy Lake and spent the winter near the foot of the lake or on the banks of Rainy River. The following spring he descended Rainy River to Lake of the Woods. His description of the river and the region at its mouth leaves no doubt as to the identity of this stream.[9]

In 1717, Lieut. Zacharie Robutel de La Noüe followed the route taken by De Noyon as far as Rainy Lake but probably penetrated no farther west.[10]

The route from Lake Superior to Rainy Lake by way of Pigeon River appears to have been known as early as 1722, as is shown by a reference to that route in an official letter dated Quebec, October 27, 1722, published in the Margry Papers.[11]

In 1731 Pierre Gautier de Varennes, Sieur de la Vérendrye,[12] began a series of explorations that were continued until his death in 1749. On his first expedition he took with him a party of about 50 men, which included his three sons and his nephew. Arriving at the western end of Lake Superior in the summer of 1731, he decided to follow the Pigeon River route which, with the chain of lakes to the westward, later became part of the principal route of the fur traders of the Northwest Company between Montreal and Fort Garry (Winnipeg) and eventually became part of the international boundary.

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[7] Minnesota in Three Centuries, Vol. I, p. 206.
[8] Coyne, J. H., Canada and Its Provinces, Vol. I, p. 106.
[9] Burpee, L. J., Canada and Its Provinces, Vol. I, pp. 112–115.
[10] Burpee, L. J., Search for the Western Sea, p. 202.
[11] Minnesota in Three Centuries, Vol. I, p. 276.
[12] Burpee, L. J., Canada and Its Provinces, Vol. I, pp. 117–123.

The main party prepared to winter on Lake Superior at the mouth of the Kaministikwia River while an advance party under the nephew, La Jemeraye, went ahead to the western end of Rainy Lake. There, on what is now called Pithers Point, they built a trading post which they named "Fort St. Pierre" in honor of La Vérendrye.

The following spring the furs that had been collected at Fort St. Pierre were sent back to Montreal and the main party joined La Jemeraye on Rainy Lake. Leaving a few men to look after the trade with the Indians, the others descended Rainy River, crossed Lake of the Woods, and, on the south side of what is now known as Northwest Angle Inlet, built Fort St. Charles,[13] the first trading post, and in fact the first habitation of white men, ever built on Lake of the Woods. During the period covered by La Vérendrye's explorations farther westward, Fort St. Pierre and Fort St. Charles were maintained as trading posts and bases for the exploring parties.

Members of La Vérendrye's party were the first white men to descend the Winnipeg River and the first to see Lake Winnipeg. They were also the first white men to explore the Turtle Mountains, on the international boundary, between North Dakota and Manitoba. Their search for the western sea, which was of more concern to La Vérendrye than the fur trade, was cut short by his death in 1749, when he was preparing for further explorations on the Saskatchewan River.

The official successors of La Vérendrye, first St. Pierre and later De La Corne, continued the exploration of the Saskatchewan River, but, lacking the zeal of La Vérendrye, they added little to the geographical knowledge of the west. The cession of Canada to England in 1763 brought to a close the explorations under French auspices. From that time on such expeditions were as a rule headed by English-speaking explorers.

The first of these appears to have been James Finlay,[14] an independent fur trader from Montreal, who penetrated the country as far west as the Saskatchewan River in 1767. Thomas Curry, another of the small competitors of the Hudson Bay Co., appears to have accompanied Finlay or to have followed him a few years later.

The first of the English-speaking explorers to leave an account of his wanderings was Jonathan Carver of New England,[15] who by the canoe route through Green Bay and Fox, Wisconsin, and Mississippi Rivers reached northern Minnesota in 1766, where he wintered among the Sioux Indians. He visited the Grand Portage, the fur-trade route from Lake Superior to Pigeon River, but gave up his purpose of penetrating farther west and returned to New England after an absence of over two years on this trip. He explored no new territory and the value of his efforts lies chiefly in the thorough description of the region recorded in his Travels Through the Interior Parts of North America, which was published at London in 1778, ran through 23 editions, and was translated into three foreign languages.

[13] The site of Fort St. Charles was recovered in 1908 by members of the faculty of the College of St. Boniface, Manitoba.

[14] Burpee, L. J., Search for the Western Sea, p. 303.

[15] Minnesota in Three Centuries, pp. 280–283.

The next of the English traders to add to geographic knowledge of the boundary waterways, was Alexander Henry the elder, a native of New Brunswick, N. J., but engaged in the fur trade tributary to Montreal. He traversed the canoe route westward along the present boundary in 1775 and returned by the same route the following year. In 1809, he published his Travels and Adventures in Canada and the Indian Territories, Between the Years 1760 and 1776.

Sir Alexander Mackenzie, the first white man to reach the Pacific Ocean overland through British America and also the first to reach the Arctic Ocean by way of the river which bears his name, was the next of the English explorers to traverse the boundary waters. In his Voyages from Montreal, etc., he describes in great detail the fur trade of the years 1789 to 1793 and the water route from Lake Superior to Lake Winnipeg. The lakes and streams as he pictures them will be easily recognized by the present-day traveler in this region. He describes the arrival[16] of a fur-trader's "brigade" at the Grand Portage post[17] on the shore of Lake Superior southwest of the mouth of Pigeon River, and also the trip across the 8-mile portage from Grand Portage to a point on Pigeon River below Partridge Falls. He describes the boundary waterways from this point to Lake of the Woods, together with the fur traders' means of transportation, as follows:

> The trade from the Grande Portage, is, in some particulars, carried on in a different manner with that from Montreal. The canoes used in the latter transport are now too large for the former, and some of about half the size are procured from the natives, and are navigated by four, five, or six men, according to the distance which they have to go. They carry a lading of about thirty-five packages, on an average; of these twenty-three are for the purpose of trade, and the rest are employed for provisions, stores, and baggage. In each of these canoes are a foreman and steersman; the one to be always on the look out, and direct the passage of the vessel, and the other to attend the helm. They also carry her, whenever that office is necessary. The foreman has the command, and the middle-men obey both; the latter earn only two-thirds of the wages which are paid the two former. Independent of these a conductor or pilot is appointed to every four or six of these canoes, whom they are all obliged to obey; and is, or at least is intended to be, a person of superior experience, for which he is proportionably paid.
>
> In these canoes, thus loaded, they embark at the North side of the portage, on the river Au Tourt [Pigeon River], which is very inconsiderable; and after about two miles of a Westerly course, is obstructed by the Partridge Portage, six hundred paces long. In the spring this makes a considerable fall, when the water is high, over a perpendicular rock of one hundred and twenty feet. From thence the river continues to be shallow, and requires great care to prevent the bottom of the canoe from being injured by sharp rocks, for a distance of three miles and an half to the Prairie, or Meadow, when half the lading is taken out, and carried by part of the crew, while two of them are conducting the canoe among the rocks, with the remainder, to the Carreboeuf Portage, three miles and an half more, when they unload and come back two miles, and embark what was left for the other hands to carry, which they also land with the former; all of which is carried six hundred and eighty paces, and the canoe led up against the rapid. From hence the water is better calculated to carry canoes, and leads by a winding course to the North of West three miles to the Outard [Fowl] Portage, over which the canoe, and everything in her, is carried for two thousand four hundred paces. At the further end is a very high hill to descend, over which hangs a rock upwards of seven hundred feet high. Then succeeds the Outard Lake [North and South Fowl Lakes], about six miles long, lying in a North-West

[16] Voyages from Montreal (Reprint of 1902) Vol. I, p. lxxvii.

[17] A detailed description of Grand Portage is given on p. 200. See also Thompson's Narrative, J. B. Tyrrell. ed., p. 169.

course, and about two miles wide in the broadest part. After passing a very small rivulet, they come to the Elk [Moose] Portage, over which the canoe and lading are again carried one thousand one hundred and twenty paces; when they enter the lake of the same name [Moose Lake], which is an handsome piece of water, running North-West about four miles, and not more than one mile and an half wide.[18] They then land at the Portage de Cerise [Great Cherry Portage], over which, and in the face of a considerable hill, the canoe and cargo are again transported for one thousand and fifty paces. This is only separated from the second Portage de Cerise [Vaseux Portage] by a mud-pond [Vaseux Lake] (where there is plenty of water lilies), of a quarter of a mile in length; and this is again separated by a similar pond [Fan Lake] from the last Portage de Cerise [Lesser Cherry Portage], which is four hundred and ten paces. Here the same operation is to be performed for three hundred and eighty paces. They next enter on the Mountain Lake, running North-West by West six miles long, and about two miles in its greatest breadth. In the centre of this lake, and to the right, is the Old Road, by which I never passed; but an adequate notion may be formed of it from the road I am going to describe, and which is universally preferred. This is first, the small new portage over which everything is carried for six hundred and twenty-six paces, over hills and gullies; the whole is then embarked on a narrow line of water [Watap Lake], that meanders South-West about two miles and an half. It is necessary to unload here, for the length of the canoe, and then proceed West half a mile, to the new Grande Portage [Long Portage], which is three thousand one hundred paces in length, and over very rough ground, which requires the utmost exertions of the men, and frequently lames them: from hence they approach the Rose Lake, the portage of that name being opposite to the junction of the road from the Mountain Lake. They then embark on the Rose Lake, about one mile from the East end of it, and steer West by South, in an oblique course, across it two miles; then West-North-West, passing the Petite Peche to the Marten Portage three miles. In this part of the lake the bottom is mud and slime, with about three or four feet of water over it; and here I frequently struck a canoe pole of twelve feet long, without meeting any other obstruction than if the whole were water: it has, however, a peculiar suction or attractive power, so that it is difficult to paddle a canoe over it. There is a small space along the South shore, where the water is deep, and this effect is not felt. In proportion to the distance from this part, the suction becomes more powerful: I have, indeed been told that loaded canoes have been in danger of being swallowed up, and have only owed their preservation to other canoes, which were lighter. I have, myself, found it very difficult to get away from this attractive power, with six men, and great exertion, though we did not appear to be in any danger of sinking.

Over against this is a very high, rocky ridge, on the South side, called Marten Portage, which is but twenty paces long, and separated from the Perche Portage [South Lake Portage], which is four hundred and eighty paces, by a mud-pond [Rat Lake], covered with white lilies. From hence the course is on the lake of the same name [South Lake], West-South-West three miles to the height of land, where the waters of the Dove or Pigeon River terminate, and which is one of the sources of the great St. Laurence in this direction. Having carried the canoe and lading over it, six hundred and seventy-nine paces, they embark on the lake of Hauteur de Terre [19] [North Lake], which is in the shape of an horse-shoe. It is entered near the curve, and left at the extremity of the Western limb, through a very shallow channel, where the canoe passes half loaded for thirty paces with the current, which conducts these waters through the succeeding lakes and rivers, till they discharge themselves by the river Nelson into Hudson's-Bay. The first of these is Lac de pierres á fusil [Gunflint Lake], running West-South-West seven miles long, and two wide, and, making an angle at North-West one mile more, becomes a river [Pine River] for half a mile, tumbling over a rock, and forming a fall and portage, called the Escalier [Little Rock Falls], of fifty-five paces; but from hence it is neither lake or river, but

[18] Here is a most excellent fishery for white fish, which are exquisite.

[19] The route which we have been travelling hitherto leads along the high rocky land or bank of Lake Superior on the left. The face of the country offers a wild scene of huge hills and rocks, separated by stony vallies, lakes, and ponds. Wherever there is the least soil, it is well covered with trees.

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possesses the character of both, and runs between large rocks, which cause a current or rapid for about two miles and an half, West-North-West, to the portage of the Cheval du Bois [Blueberry Portage]. Here the canoe and contents are carried three hundred and eighty paces, between rocks; and within a quarter of a mile is the Portage des Gros Pins [Pine Portage], which is six hundred and forty paces over an high ridge. The opposite side of it is washed by a small lake three miles round; and the course is through the East end or side of it, three quarters of a mile North-East, where there is a rapid. An irregular, meandering channel, between rocky banks, then succeeds, for seven miles and an half, to the Maraboeuf Lake, which extends North four miles, and is three quarters of a mile wide, terminating by a rapid and décharge, of one hundred and eighty paces, the rock of Saginaga being in sight, which causes a fall of about seven feet, and a portage of fifty-five paces.

Lake Saginaga takes its names from its numerous Islands. Its greatest length from East to West is about fourteen miles, with very irregular inlets, is nowhere more than three miles wide, and terminates at the small portage of Le Roché, of forty-three paces. From thence is a rocky, stony passage of one mile, to Prairie Portage [Swamp Portage], which is very improperly named, as there is no ground about it that answers to that description, except a small spot at the embarking place at the West end: to the East is an entire bog; and it is with great difficulty that the lading can be landed upon stages, formed by driving piles into the mud, and spreading branches of trees over them. The portage rises on a stony ridge, over which the canoe and cargo must be carried for six hundred and eleven paces. This is succeeded by an embarkation on a small bay, where the bottom is the same as has been described in the West end of Rose Lake, and it is with great difficulty that a laden canoe is worked over it, but it does not comprehend more than a distance of two hundred yards. From hence the progress continues through irregular channels, bounded by rocks, in a Westerly course for about five miles, to the little Portage des Couteaux [Little Knife Portage], of one hundred and sixty-five paces, and the Lac des Couteaux [Knife Lake], running about South-West by West twelve miles, and from a quarter to two miles wide. A deep bay runs East three miles from the West end, where it is discharged by a rapid river, and after running two miles West, it again becomes still water. In this river are two carrying-places, the one fifteen, and the other one hundred and ninety paces. From this to the Portage des Carpes [Carp Portage] is one mile North-West, leaving a narrow lake on the East that runs parallel with the Lake des Couteaux [Knife Lake], half its length, where there is a carrying-place, which is used when the water in the river last mentioned is too low. The Portage des Carpes [Carp Portage] is three hundred and ninety paces, from whence the water spreads irregularly between rocks, five miles North-West and South-East to the portage of Lac Bois Blanc [now called Prairie Portage], which is one hundred and eighty paces. Then follows the lake of that name [Basswood Lake], but I think improperly so called, as the natives name it the Passeau Minac Sagaigan, or Lake of Dry Berries.

Before the small pox ravaged this country, and completed, what the Nodowasis, in their warfare, had gone far to accomplish, the destruction of its inhabitants, the population was very numerous: this was also a favourite part, where they made their canoes, &c. the lake abounding in fish, the country round it being plentifully supplied with various kinds of game, and the rocky ridges, that form the boundaries of the water, covered with a variety of berries.

When the French were in possession of this country, they had several trading establishments on the islands and banks of this lake. Since that period, the few people remaining, who were of the Algonquin nation, could hardly find subsistence; game having become so scarce, that they depended principally for food upon fish, and wild rice which grows spontaneously in these parts.

This lake is irregular in its form, and its utmost extent from East to West is fifteen miles; a point of land, called Point au Pin, jutting into it, divides it into two parts: it then makes a second angle at the West end, to the lesser Portage de Bois Blanc, two hundred paces in length. This channel is not wide, and is intercepted by several rapids in the course of a mile: it runs West-North-West to the Portage des Pins, over which the canoe and lading is again carried four hundred paces. From hence the channel is also intercepted by very dangerous rapids for two miles Westerly, to the point [portage] of Pointe du Bois, which is two hundred and eighty

paces. Then succeeds the portage of Lake Croche [Crooked Lake] one mile more, where the carrying-place is eighty paces, and is followed by an embarkation on that lake, which takes its name from its figure. It extends eighteen miles, in a meandering form, and in a westerly direction; it is in general very narrow, and at about two-thirds of its length becomes very contracted, with a strong current.

Within three miles of the last Portage is a remarkable rock, with a smooth face, but split and cracked in different parts, which hang over the water. Into one of its horizontal chasms a great number of arrows have been shot, which is said to have been done by a war party of the Nadowasis or Sieux, who had done much mischief in this country, and left these weapons as a warning to the Chebois or natives, that, notwithstanding its lakes, rivers, and rocks, it was not inaccessible to their enemies.

Lake Croche [Crooked Lake] is terminated by the Portage de Rideau, four hundred paces long, and derives its name from the appearance of the water, falling over a rock of upwards of thirty feet. Several rapids succeed, with intervals of still water, for about three miles to the Flacon portage [Bottle Portage], which is very difficult, is four hundred paces long, and leads to the Lake of La Croix, so named from its shape. It runs about North-West eighteen miles to the Beaver Dam, and then sinks into a deep bay nearly East. The course to the Portage is West by North for sixteen miles more from the Beaver Dam, and into the East bay is a road which was frequented by the French, and followed through lakes and rivers until they came to Lake Superior by the river Caministiquia, thirty miles East of the Grand Portage.

Portage la Croix is six hundred paces long: to the next portage is a quarter of a mile, and its length is forty paces; the river winding four miles to Vermillion Lake, which runs six or seven miles North-North-West, and by a narrow strait communicates with Lake Namaycan, which takes its name from a particular place at the foot of a fall, where the natives spear sturgeon: Its course is about North-North-West and South-South-East, with a bay running East, that gives it the form of a triangle: its length is about sixteen miles to the Nouvelle Portage. The discharge of the lake is from a bay on the left, and the portage one hundred and eighty paces, to which succeeds a very small river, from whence there is but a short distance to the next Nouvelle Portage, three hundred and twenty paces long. It is then necessary to embark on a swamp, or overflowed country, where wild rice grows in great abundance. There is a channel or small river in the centre of this swamp, which is kept with difficulty, and runs South and North one mile and a half. With deepening water, the course continues North-North-West one mile to the Chaudiere Portage, which is caused by the discharge of the waters running on the left of the road from Lake Naymaycan, which used to be the common route, but that which I have described is the safest as well as shortest. From hence there is some current though the water is wide spread, and its course about North by West three miles and an half to the Lac de la Pluie [Rainy Lake], which lies nearly East and West; from thence about fifteen miles is a narrow strait that divides the lake into two unequal parts, from whence to its discharge is a distance of twenty-four miles. There is a deep bay running North-West on the right, that is not included, and is remarkable for furnishing the natives with a kind of soft, red stone of which they make their pipes; it also affords an excellent fishery both in the summer and winter; and from it is an easy, safe, and short road to the Lake du Bois, (which I shall mention presently) for the Indians to pass in their small canoes, through a small lake and on a small river, whose banks furnish abundance of wild rice. The discharge of this lake is called Lake de la Pluie River, at whose entrance there is a rapid, below which is a fine bay, where there had been an extensive picketed fort and building when possessed by the French; the site of it is at present a beautiful meadow, surrounded with groves of oaks. From hence there is a strong current for two miles, where the water falls over a rock twenty feet [Koochiching Falls], and, from the consequent turbulence of the water, the carrying-place, which is three hundred and twenty paces long, derives the name of Chaudiere. Two miles onward is the present trading establishment, situated on an high bank on the North side of the river, in 48. 37. North latitude.

Here the people from Montreal come to meet those who arrive from the Athabasca country, as has been already described, and exchange lading with them. This is also the residence of

the first chief, or Sachem, of all the Algonquin tribes, inhabiting the different parts of this country. He is by distinction called Nectam, which implies personal pre-eminence. Here also the elders meet in council to treat of peace or war.

This is one of the finest rivers in the North-West, and runs a course West and East one hundred and twenty computed miles; but in taking its course and distance minutely I make it only eighty. Its banks are covered with a rich soil, particularly to the North, which, in many parts, are clothed with fine open groves of oak, with the maple, the pine, and the cedar. The Southern bank is not so elevated, and displays the maple, the white birch, and the cedar, with the spruce, the alder, and various underwood. Its waters abound in fish, particularly the sturgeon, which the natives both spear and take with drag-nets. But notwithstanding the promise of this soil, the Indians do not attend to its cultivation, though they are not ignorant of the common process, and are fond of the Indian corn, when they can get it from us.

Though the soil at the fort is a stiff clay, there is a garden, which, unassisted as it is by manure, or any particular attention, is tolerably productive.

We now proceed to mention the Lake du Bois [Lake of the Woods], into which this river discharges itself in latitude 49. North, and was formerly famous for the richness of its banks and waters, which abounded with whatever was necessary to a savage life. The French had several settlements in and about it; but it might be almost concluded that some fatal circumstance had destroyed the game, as war and the small pox had diminished the inhabitants, it having been very unproductive in animals since the British subjects have been engaged in travelling through it; though it now appears to be recovering its pristine state. The few Indians who inhabit it might live very comfortably, if they were not so immoderately fond of spirituous liquors.

This lake is also rendered remarkable, in consequence of the Americans having named it as the spot, from which a line of boundary, between them and British America, was to run West, until it struck the Mississippi; which, however, can never happen, as the North-West part of the Lake du Bois is in latitude 49. 37. North, and longitude 94. 31. West, and the Northernmost branch of the source of the Mississippi is in latitude 47. 38. North, and longitude 95. 6. West, ascertained by Mr. Thomson, astronomer to the North-West Company, who was sent expressly for that purpose in the spring of 1798. He, in the same year, determined the Northern bend of the Missisoury to be in latitude 47. 32. North, and longitude 101. 25. West; and, according to the Indian accounts, it runs to the south of West, so that if the Missisoury were even to be considered as the Mississippi, no Western line could strike it.

It does not appear to me to be clearly determined what course the Line is to take, or from what part of Lake Superior it strikes through the country to the Lake du Bois: were it to follow the principal waters to their source, it ought to keep through Lake Superior to the River St. Louis, and follow that river to its source; close to which is the source of the waters falling into the river of Lake la Pluie, which is a common route of the Indians to the Lake du Bois: the St. Louis passes within a short distance of a branch of the Mississippi, where it becomes navigable for canoes. This will appear more evident from consulting the map; and if the navigation of the Mississippi is considered as of any consequence, by this country, from that part of the globe, such is the nearest way to get at it.

But to return to our narrative. The Lake du Bois is, as far as I could learn, nearly round, and the canoe course through the centre of it among a cluster of islands, some of which are so extensive that they may be taken for the main land. The reduced course would be nearly South and North. But following the navigating course, I make the distance seventy-five miles, though in a direct line it would fall very short of that length. At about two-thirds of it there is a small carrying-place, when the water is low. The carrying-place out of the lake is on an island, and named Portage du Rat, in latitude 49. 37. North and longitude 94¼. West, it is about fifty paces long. The lake discharges itself at both ends of this island, and forms the River Winipic, which is a large body of water, interspersed with numerous islands, causing various channels and interruptions of portages and rapids.

Much information regarding conditions along the waterways traversed by the canoes of the trading companies is made available to us by the journal of Alexander Henry the younger, fur trader of the Northwest Company and a nephew of the earlier Alexander Henry, who had traversed the boundary in 1775. In the journal of the younger Henry, edited and condensed by Dr. Elliott Coues, his trip in 1800 along the water boundary [20] is described in much detail.

David Thompson, whose work as surveyor of this part of the international boundary is described in detail in Appendix III of this report, has been called by Dr. Elliott Coues "the greatest geographer of his day in British America, and the maker of what was then by far its greatest map." [21] He was from 1784 to 1797 an employee of the Hudson Bay Company. Afterwards he was the principal geographer of the Northwest Company and finally he was astronomer and surveyor for the British section of the International Boundary Commission under Articles VI and VII of the treaty of Ghent.

H. H. Bancroft says of him: "In the westward explorations of the Northwest Company no man performed more valuable service, or estimated his achievement more modestly."

It was Thompson's determination of the latitude and longitude of the source of the Mississippi River that led to the change in the description of that part of the international boundary which, in the treaty of 1783, was required to run from the most northwestern part of Lake of the Woods "on a due west course to the river Mississippi." Thompson says [22] regarding this impossible line:

> At the time of the treaty, 1783, the northwest point of the Lake of the Woods was supposed to lie in about 50° of north latitude and the head of the Mississippi somewhat farther north. * * * In the spring of 1797 [1798], I was on the headwaters of the Mississippi, and by astronomical observations determined its head to be in the latitude and longitude laid down in the map, making a difference of 2° and 20′ more south than the northwest point of the Lake of the Woods.

Later treaties substituted a determinable line for the line of the treaty of 1783 that Thompson's observations showed was impossible.

In the published narrative of Thompson's explorations the editor, Mr. J. B. Tyrrell, himself an explorer, geologist, and surveyor of note, says of Thompson's work: [23]

> His surveys were not merely rough sketches sufficient to give some idea of the general character of the country, but were careful traverses made by a master in the art, short courses being taken with a magnetic compass, the variation of which was constantly determined, distances being carefully estimated by the time taken to travel them, and the whole checked by numerous astronomical observations for latitude and longitude.

Thompson, after leaving the service of the Hudson Bay Company in 1797, immediately joined the Northwest Company at the post of Alexander Fraser

[20] New Light on the Early History of the Greater Northwest, vol. 1, ch. 2.
[21] New Light on the Early History of the Greater Northwest, vol. 1, p. xxii.
[22] Report of the International Joint Commission on the Lake of the Woods Reference, p. 133.
[23] Thompson's Narrative of His Explorations in Western America, pp. lx and lxi.

on Reindeer River. His general instructions from the Northwest Company are outlined in his narrative as follows: [24]

> And wherever I could mark the line of the 49th parallel of Latitude [I was told] to do so, especially on the Red River. Also, if possible to extend my surveys to the Missisourie River; visit the village of the ancient agricultural Natives who dwelt there; enquire for fossil bones of large animals, and any monuments, if any, that might throw light on the ancient state of the unknown countries I had to travel over and examine.

Within a few days after joining the Northwest Company Thompson began his first journey to Grand Portage, traveling by way of Winnipeg River and the waterways of the international boundary and making a survey of the route as was his custom.

Of his surveying and astronomical instruments for this first expedition for the Northwest Company he says: [25]

> My instruments were a Sextant of ten inches radius, with Quicksilver and parallel glasses, an excellent Achromatic Telescope; a lesser for common use; drawing instruments, and two Thermometers; all by Dollond.

After a brief rest at Grand Portage he started westward on a journey to the headwaters of the Assiniboine and Red Rivers. He followed the international water boundary as far as the northern part of Lake of the Woods, visiting Rainy Lake House, the first post of the Northwest Company, which, he says, was one-half mile below what are now called Koochiching Falls.

Of the waterways through which the international boundary passes Thompson on his first trip westward from Grand Portage writes: [26]

> We proceeded over the Great Carrying Place, the length of which is eight miles and twenty yards in a north west direction to the Pigeon River, which is about three hundred feet above Lake Superior: this was carried over by the Men in five day's hard labor. From this to the Height of Land the distance is thirty-eight miles, including twelve carrying places, of five and one-half miles of carriage, which makes severe labor for the canoe men: A short distance south eastward of the Height of Land in the crevices of a steep rock, about twenty feet above the water of a small Lake are a number of Arrows which the Sieux Indians shot from their Bows, the Arrows are small and short. The Chippaways, the Natives[,] say: these Arrows are the voice of the Sieux and tell us, "We have come to war on you, and not finding you, we leave these in the rocks in your country, with which we hoped to have pierced your bodies." This was about the year 1730.

Of the Lake of the Woods region he has the following tragic story to relate:

> It seems that when the French from Canada first entered these furr countries, every summer a Priest came to instruct the Traders and their men in their religious duties, and preach to them * * *. He had collected about twenty Men with a few of the Natives upon a small Island, of rock; and while instructing them, a large war party of Sieux Indians came on them and began the work of death; not one escaped; whilst this was going on, the Priest kept walking backwards and forwards on a level of rock of about fifty yards in length, with his eyes fixed on his book, without seeming to notice them; at length as he turned about, one of them sent an arrow through him and he fell dead. At this deed the rocky isle trembled and shook; the Sieux Indians became afraid, and they retired without stripping the dead, or taking their scalps. These Isles, of which there are three, are to this day called "The Isles of the Dead"

[24] Thompson's Narrative, pp. 170 and 171.
[25] Thompson's Narrative, p. 178.
[26] Thompson's Narrative, pp. 178 and 179.

(Les isles aux Morts). Such was the relation an old Canadian gave me, and which he said he had learned of the Furr Traders who then resided among those Indians.[27]

In 1798 Thompson returned east, starting in midwinter, passing Turtle Lake, which he named as the source of the Mississippi, and on to Lake Superior and Sault Ste. Marie. In the summer of this year he again made the trip westward along what is now the international boundary, after which journey he spent practically all of his time until the summer of 1812 in the country west of Lake of the Woods.

During this period he extended his explorations and surveys to the Pacific Ocean, upon reaching which he writes:

> Thus I have fully completed the survey of this part of North America from sea to sea, and by almost innumerable astronomical Observations have determined the positions of the Mountains, Lakes and Rivers, and other remarkable places on the northern part of this Continent; the Maps of all of which have been drawn, and laid down in geographical position, being now the work of 27 years.

From 1816 to 1826 Thompson was engaged in surveying and defining the boundary line, on the part of Great Britain, between Canada and the United States. (See Appendix III.) He was employed in 1817 on the St. Lawrence, and thence proceeding westward around the shores of the Great Lakes he reached Northwest Angle Inlet of Lake of the Woods in 1824 where he made surveys and observations which were used the following year by Dr. J. L. Tiarks, astronomer for the British Government, in the determination of the "most northwestern point" of Lake of the Woods. (See page 107.)

The early history of this water boundary would be incomplete without a reference to the fur companies and their part in the development of this region.

Perhaps the first trading post of any permanence in the vicinity of our international boundary was that of Du Lhut, who did so much to establish good will and promote trade between the French and the natives. He established a post during the winter of 1683–84 near the present city of Port Arthur. Fort St. Pierre at the foot of Rainy Lake and Fort St. Charles on the west shore of Lake of the Woods, established by La Vérendrye in 1731 and 1732, were the first posts on these lakes. All of these early posts were short lived, however.

Grand Portage at the Lake Superior end of the carrying place to Pigeon River, when Carver visited it in 1767, was already an important center of the fur trade. The post as it existed some years later is described by Sir Alexander Mackenzie in his General History of the Fur Trade from Canada to the Northwest (part of his Voyages from Montreal). He writes: [29]

> At length they all arrive at the Grande Portage, which is one hundred and sixty leagues from St. Mary's Coastways, and situated on a pleasant bay on the north side of the lake, in latitude 48. North and longitude 90. West from Greenwich. * * *
>
> At the entrance of the bay is an island which screens the harbour from every wind except the South. * * * The bottom of the bay, which forms an amphitheatre, is cleared of

[27] This appears to be a somewhat legendary account of the massacre of Jean de la Vérendrye, Father Aulneau, and their party near Fort St. Charles. See Pathfinders of the Great Plains, p. 37; L. J. Burpee.

[29] Mackenzie, Sir Alexander, Voyages from Montreal, p. xl, et. seq.

wood and enclosed; and on the left corner of it, beneath an hill, three or four hundred feet in height, and crowned by others of a still greater altitude, is the fort, picketed in with cedar pallisadoes, and inclosing houses built with wood and covered with shingles. They are calculated for every convenience of trade, as well as to accommodate the proprietors and clerks during their short residence there. The Northmen [30] live under tents; but the more frugal pork-eater [31] lodges beneath his canoe. * * *

When they are arrived at the Grande Portage, which is near nine miles over, each of them has to carry eight packages of such goods and provisions as are necessary for the interior country. * * *

Having finished this toilsome part of their duty, if more goods are necessary to be transported they are allowed a Spanish dollar for each package: and so inured are they to this kind of labour, that I have known some of them set off with two packages of ninety pounds each, and return with two others of the same weight, in the course of six hours, being a distance of eighteen miles over hills and mountains.

Doctor Coues in his New Light on the History of the Greater Northwest describes the Grand Portage post as follows:

The N. W. establishment there, before and after 1800, was a stockaded post, 24 x 30 rods, on the edge of the bay and under the hill; it was long a famous rendezvous of the Northmen, who were assembled sometimes to the number of more than a thousand. It was abandoned in 1803,[32] headquarters being then removed to Kaministiquia (Fort William). In 1785 the old fort was in charge of Mr. Croutier, with Mr. Givins of Montreal as clerk. In the spring of that year Gregory, McLeod & Co. started a rival post in charge of Pierre Lanniau or L'Anneau, with Roderick McKenzie as clerk, and 18 voyageurs. The X. Y. Co. post was built in 1797, about 200 rods from that of the N. W. Co., across a small stream which makes into the bay. * * * Fort Charlotte was the N. W. Co. post at the other end of the portage on Pigeon River.

The following notes on the fur trade in the region of the larger boundary lakes are taken from the very able history of the region in the Final Report of the International Joint Commission on the Lake of the Woods Reference (pp. 123 to 131).

The first trading establishment of the Northwest Company in the Lake of the Woods district was that known as Rainy Lake House, or Fort of Lake La Pluie. It is uncertain when this post was built, but in the journal of John McDonnell [33] of 1793 it is referred to as follows:

> In sight of the fort of Lake La Pluie is the Kettle Fall, causing a portage. The fort stands on the top of a steep bank of the river. It has two wooden bastions in front flanking the gate.

David Thompson, who visited the post in 1797, says [34] it stood half a mile below the falls. On the other hand, Alexander Mackenzie,[35] in his General History of the Fur Trade (1801), described it as standing 2 miles below the falls, "situated on a high bank on the north side of the river, in 48. 37. north latitude. Here," he adds, "the people from Montreal come to meet those who arrive from the Athabasca country and exchange lading with them."

In 1799 Peter Grant was in charge of the post, and was succeeded by Dr. John McLoughlin, in later years, after the amalgamation of the Northwest and Hudson's Bay Companies, one of the leaders of the fur trade on the Pacific coast. In any event, Rainy Lake House must have

[30] "Northmen" or "winterers" was the name given to the parties that traded directly with the Indians and who wintered at Grande Portage and the region to the north and west.

[31] The "pork-eaters" or "goers and comers" were the clerks, guides, and canoe-men hired by the Northwest Company to go and come between Montreal and Grande Portage or Fort William with the canoe "brigades" that brought supplies to the traders and returned with furs.

[32] This movement from Grand Portage to Fort William was made during the years 1801 to 1807; Burpee, Search for the Western Sea, p. 388.

[33] Burpee, Fur Traders of the West.

[34] Coues, New Light on the Early History of the Greater Northwest, Vol. I, p. 20.

[35] Mackenzie, Voyages from Montreal Through the Continent of North America. Rep. 1902, p. xciii.

been built some time before 1793 and after 1775, as it is not mentioned in Alexander Henry's Travels and Adventures.

The Hudson's Bay Company also built a post on Rainy River about where the town of Fort Frances stands to-day.

It was rebuilt many years afterwards and named Fort Frances, after the wife of Sir George Simpson, governor of the company. In fact, the Hudson's Bay Company must have had more than one trading post on Rainy River before 1800, for in his journal of that year Alexander Henry writes:[36]

> We camped below Manitou Rapids * * *. At daybreak we embarked and passed the old H. B. Co. establishment, which has been abandoned for several years. Soon after we came down the Long Sault. At 12 o'clock passed Rapid River, at 2 o'clock passed another old H. B. Co. establishment, and soon after came to the entrance of Lake of the Woods.

Jesuit missionaries accompanied La Vérendrye into the Lake of the Woods country and did what they could to Christianize the natives. Many years later Protestant missionaries attempted the same field, as appears from the following entry in the minutes of the council of the Hudson's Bay Company, held at Norway House in 1842:

> That a commissioned gentleman's allowance be forwarded from York Factory to each of the following Wesleyan missionaries: * * * Mr. Mason, Lac La Pluie.

The first attempt by an American company to enter the fur trade of the then northwestern frontier was made by the old Southwest Company, to which, in the name of Toussaint Pothier, in the winter of 1811 or spring of 1812, a patent was issued for property for a trading post at the Strait of Mackinac. The patent itself was captured by a British party during the War of 1812, and nothing further was apparently done to enter the fur trade in this region until after the war.

Michilimackinac, or Mackinac, as it was afterwards called, was a point of strategic importance from a commercial point of view, and through this post passed the trade from the district of Fond du Lac, so called from a post of that name at the place where the city of Duluth stands to-day. The district of Fond du Lac first consisted of the upper Mississippi posts at Leech Lake, Pokegame Lake, and Sandy Lake, together with the Red Lake post. Later the confines of the district were extended northward to the boundary, to take in the entire United States portion of the Lake of the Woods watershed.[37]

The property and stock of the old Southwest Company was held principally by John Jacob Astor, of New York, and McTavish & Company, of Montreal. In 1815–16 Congress, in hope of excluding foreign competition in the frontier region, enacted a law prohibiting any one not a citizen from engaging in the Indian trade. Soon after Astor bought out the McTavish interest and formed the American Fur Company. The property was taken over in April, 1817, at Montreal, by Ramsay Crooks in behalf of Astor. Shortly after this the American Fur Company purchased from the Northwest Company the posts at the headwaters of the Mississippi, which this company had maintained here for a number of years. This purchase was the first step made by an American company in entering the fur trade on waters flowing into the Lake of the Woods. On June 20, 1817, Crooks writes to William Morrison from St. Marys Falls on Lake Superior:

> I came to this place yesterday in the hope of possible meeting with and handing you in person the inclosed letter from Mr. Rocheblave, by which you will perceive the Northwest Company have sold to Mr. John Jacob Astor, of New York, all the interest they hold in the department of Fond du Lac now in your charge. * * *

[36] New Light on the Early History of the Greater Northwest, Vol. I, p. 21.

[37] These notes on the American fur trade are based principally upon information contained in the old letter books of the American Fur Company, 1816 to 1825, photostat copies of which are in the possession of the Wisconsin Historical Society. The manuscript reproductions were, through the courtesy of this society, forwarded to the Minnesota Historical Society of St. Paul for reference. The old letters consist mainly of correspondence from Ramsay Crooks, later president of the American Fur Company, to John Jacob Astor and various others, who were employed by or who furnished goods to this company, and from Robert Stuart, agent of the American Fur Company at Michilimackinac.

With the property of the Northwest Company, the American Fur Company became heir to the former company's ruthless competition with the Hudson's Bay Company. The law previously passed by Congress was designed to prohibit the engagement in American trade of agents of either of the Canadian companies. It was provided that each trader must be a citizen of the United States and must procure a bonded license from the agent of Indian affairs.

Referring to the early difficulties with the Hudson's Bay Company, then controlled by Lord Selkirk, Crooks writes from Mackinac to Astor on June 23, 1817:

* * * And by indirect advice from Fond du Lac our affairs in that quarter are likely to be more advantageous than we could have expected from the state of that department at the beginning of last winter, and the large stories circulated by the N. W. Co. of the amount of property seized by Lord Selkirk's emissaries, who it now appears, restored all they had taken—the real state of the business, however, can not be known till the arrival of Mr. Morrison, which I look for in 10 or 15 days.

And again on July 21, 1817:

All the people of Lake Superior have come out and, with a few exceptions, from almost every quarter. In the aggregate the returns are bad.

Selkirk's emissary, in addition to the destruction of our adventure to Red Lake, did us a most serious injury in sending Messrs. Morrison and Roussain prisoners to Fort William last fall * * * (afterwards returned to their posts). Selkirk sent into that quarter last fall at different times not less than 12 canoes and 50 men * * * and, without scruple, introduced the goods which opposed us in the whole department of Fond du Lac, never finding it convenient to consult the collector of the customs or the agent of Indian affairs. * * *

We have, however, had the good fortune to thwart most completely his ungenerous designs. * * *

Settlement with Lord Selkirk for the seizure of certain property and employees was later made, and the Hudson's Bay Company withdrew its operations to the boundary. The American Fur Company did not consider extending its posts to the boundary frontier until 1821, and these posts were not established until the following year. On September 1, 1821, Crooks writes to Mr. William W. Matthews, of Montreal:

I should like to get a couple of good traders for the Rainy Lake department, and wish you would be on the lookout; should good people for that quarter be found, it must be known early, as we would order goods accordingly, and these people might in Montreal wait the arrival of the English goods.

On November 24, 1821, this company entered into a four-year contract with William Morrison for a salary of $1,400 per annum to oversee their trade in the entire region of northern Minnesota. The contract, written by Crooks, is, in part, as follows:

* * * And in addition that you will regulate and conduct the trade of all such posts or places as may be established by the American Fur Company in the country north of the Fond du Lac department, say in that region extending from the old Grand Portage on Lake Superior to the Lake of the Woods, or further if required within the limits of the United States. * * *

About this time the British Government had taken measures to regulate the fur trade in their dominions, very similar to those already taken by Congress. On November 31, 1821, Crooks writes to Astor relative to this new legislation and to their own extension into the Northwest:

* * * Since the British Government has legislated us out of Canada we shall next year occupy three posts within our lines from the vicinity of Rainy Lake to the Lake of the Woods. These are the remotest post we can have on the north, and although we shall come in contact with the Hudson Bay folks along the boundary, the best hunting grounds are on the American side. * * *

Further, in regard to the supplies for the new territory, Crooks writes to Robert Stuart, the agent at Mackinac, on December 5, 1821:

Morrison will next year establish the Rainy Lake country and carry our trade as near as practicable to the boundary line. To do this effectually he is to get a Mr. McGillis, and he will make the necessary arrangements.

And on April 8, 1822, Crooks again writes Stuart:

You are already aware that Morrison will establish some new posts along our northwestern border. The old Grand Portage is allowed to be within our line, and there the N. W. have always had a good little post, since they retired to Fort William. An outfit from the Fond du Lac department should be sent to that place under some active man; and in order to keep our opponents on their own side of the boundary, our clerks or traders are to

be made customhouse officers, and as an additional security against the interfering with our Indians, the new station should be located as far from the boundary line as may be possible, having a due regard to the interest of the trade; and this will lessen the temptation which the rum of our adversaries would always be sure to create were our houses so near to theirs.

The liquor problem mentioned in the last letter proved to be a stumbling-block in the way of the whole undertaking of the American Fur Company in the Lake of the Woods region. The American traders were allowed to take no liquor whatever to the Indian country, while the Hudson's Bay Company with liquor were enabled to draw the Indians to the boundary and buy up their excess provisions, which resulted in literal starvation for the American posts along the boundary. In July, 1822, Stuart requests from George Boyd, the agent for Indian affaris at Mackinac, the right to import liquor into the Indian country for the particular use of the boundary trade in the Lake of the Woods territory.

During the early part of 1823 the American Fur Company and the Stone Bostwick Company combined, still keeping the old name. In writing to Mr. Stone relative to the state of their trade in the Northwest, Mr. Stuart brings up again the liquor question. He says:

But as at each post (say three in number) we come in immediate contact with the Hudson Bay Company we find it will be impossible to oppose them successfully without having some liquor—last year our people were almost starved out and had to carry provisions from the interior posts, at least 500 miles, on dog trains—& all this in consequence of the H. B. Co. purchasing with whiskey what provisions the Indians could spare; as there is no remedy at present for the evil (for the British Co. come over to the line & draw over the Indians), I am confident Gov. Cass will at once relieve us, by giving permission to carry in say 20 barrels whiskey; & you may give him any pledge he may require that a single drop of it shall not be used elsewhere; both Col. Boyd and Mr. Schoolcraft would I am satisfied see the propriety of this & be inclined to grant our request, but they might be averse to taking the responsibility. * * *

The agent for Indian affairs, Maj. George Boyd, in July, 1824, granted a permit to Wm. A. Aitkin to take two barrels of liquor into the Indian country for use in the extreme northwestern frontier. The permit was never renewed.

Of the three posts of the American Fur Company, that at the mouth of Rainy Lake is the only one definitely located, although as elsewhere stated there seems to have been one at the mouth of Warroad River. The Indians have a tradition that on the Namakan River, which was at that time regarded as the boundary line, the American Fur Company maintained a small post on one side and the Hudson's Bay Company a post on the other.

When the matter of adjustment of affairs previous to consolidation with the Stone Bostwick Company in 1823 came up, it was conceded that the three northern posts, under conditions existing at that time, had little value. In fact the American traders began more and more to look to the south and west and to the Pacific region. In regard to the extensions in that direction, Crooks writes to Stuart on April 8, 1822:

* * * For the south and west will eventually be our chief dependence and we had better prosecute that trade with vigor, before the door is closed against us by the enterprise and permanent arrangements now about to be matured by other adventurers.

The date of abandonment of these American posts in the Lake of the Woods region is not known with certainty. In the minutes of the council of the Hudson's Bay Company, held at the Red River settlement in June, 1833, the following appears:

That the sum of three hundred pounds stg. be paid by draft on the governor and committee to Wm. A. Aitkin, Esqre.; the American Fur Company having withdrawn during the past outfit from the frontier of the Lake Superior, Lac la Pluie, Winnipeg, and Red River districts, conformably to the terms of an engagement entered between Governor Simpson and Mr. Aitkin, as per correspondence dated Red River, 21st March, 1833, the said amount to be charged to the Lac la Pluie district, Ot., 1834.

The same entry is repeated in the annual minutes of the council up to the year 1842. In the minutes of 1839 the name of Ramsay Crooks replaces that of Wm. A. Aitkin; and the minutes of 1840 add the following to the usual vote of £300:

Information having been received through Mr. Keith from Ramsay Crooks, Esq., president of the American Fur Company, intimating the probability of Mr. W. A. Aitkin, establishing a trading post on the borders of Lac la Pluie district, near Vermilion Lake, with a view of carrying on a trade with the natives of that quarter,

and Mr. Crooks, having requested permission to oppose Mr. Aitkin in order to restrain his encroachments upon the trade of Lac la Pluie district, it is resolved, that Mr. Crooks be requested to oppose him accordingly; that Chief Factor McDonnell be instructed to make the necessary arrangements for meeting the expected opposition with vigor; and that any additional supplies in men and goods required for that purpose be furnished him from Red River by C. F. Finlayson.[38]

Keating, in his Narrative,[39] mentions a post of the American Fur Company on the south side of Rainy River, at or near the site of the present town of International Falls. He learned from the agent that the American Fur Company carried on a trade between Rainy Lake and Fond du Lac, by way of the Grand Fork, Little Lake Winnipeek, the Mississippi, Sandy Lake, Savannah River, and the River St. Louis. Incidentally, it may be noted that in 1819 Lord Selkirk proposed to the American Fur Company that they should establish a trading post "north and east of Lake La Pluie and the Lake of the Woods."

Dr. Bigsby, who made a tour of the Lake of the Woods and Rainy River in 1823, as secretary to the Boundary Commission under Articles VI and VII of the treaty of Ghent, makes a passing reference to the establishment of the American Fur Company, which incidentally throws a certain light on the rivalries of the fur traders. He says:

> Walking out the morning after our arrival (at Fort Frances) with Mr. W. McGillivray, the lieutenant governor, I saw on the opposite side of the river some buildings, and a tall, shabby-looking man angling near the falls. I asked my companion what all that meant. He replied, "The two or three houses you see form a fur-trading post of John Jacob Astor, the great merchant of New York. The man is one of his agents. He is fishing for a dinner. If he catch nothing, he will not dine. He and his party are contending with us for the Indian trade. We are starving them out, and have nearly succeeded."

Bigsby adds this dry comment:

> The expedients for preventing a rival from entering a rich fur country are sometimes decisive. Every animal is advisedly exterminated and the district is ruined for years.[40]

The establishment of the Northwest Company on Rainy River was the scene of one of the minor conflicts between the company and Lord Selkirk, growing out of the rivalries between the Hudson's Bay Company and the Northwest Company, and the establishment of Selkirk's settlement on the Red River.

In 1816 Selkirk sent one of his agents named Fiddler with an armed party to seize Rainy Lake Fort. Dease, who was in charge of the post for the Northwest Company, managed to beat off the attack. Fiddler returned to Selkirk at Fort William, and the latter then sent d'Orsonnens, an officer of the disbanded Swiss regiment, a portion of which he had brought west with him from Montreal, with a strong force of men and two fieldpieces to capture the post, which they had no difficulty in doing. In the winter of the following year Lord Selkirk's band of De Meurons, in order to outflank the men of the Northwest Company, crossed over to the Red River from the Lake of the Woods, probably from some point on Buffalo Bay, and reached Pembina. They came down Red River, surprised the Nor'westers, and captured their post, Fort Douglas.

It does not appear that the Northwest Company established any trading posts on the Lake of the Woods. The first posts built on the lake subsequent to the establishment of Fort St. Charles were those of the Hudson's Bay Company at Rat Portage, known at one time as Rat Portage House, and of the American Fur Company at the mouth of Warroad River. When Rat Portage House was first established it is impossible to say with our present information. There may have been a temporary post there as early as 1823, but if so it is curious that neither Mr. Keating nor Dr. Bigsby makes any reference to it. Paul Kane, however, mentions it in 1845 and in 1846.

"We next made the Rat Portage," he says, "at the foot of which is the fort, a small establishment where they were so badly supplied with provisions as to be able to afford us only two whitefish."

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[38] Oliver, The Canadian Northwest, pp. 716, 732, 765, 781, 805, 822, 858.

[39] Keating, Narrative of an Expedition to the Source of St. Peters River.

[40] The Shoe and Canoe, Vol. II, p. 273.

On his return journey he says, "Arrived at Rat Portage where we were received by Mr. McKenzie with the greatest hospitality and kindness." [41]

Captain Palliser says in 1857:

> On the left bank of the river, opposite to where the portage path terminates, there is a small temporary trading post of the Hudson's Bay Company.[42]

Henry Youle Hind, writing the same year, describes the fort as, * * * "beautifully situated on an island at one outlet of the Lake of the Woods. It is surrounded with hills about 200 feet high, and near it some tall white and red pine, the remains of an ancient forest, are standing amidst a vigorous second growth." [43]

Dr. Robert Bell, for many years an officer of the Geological Survey of Canada, writes: [44]

> I was at Rat Portage in 1872. The H. B. Co.'s post was all that there was of it then. It consisted of two one-story log shanties, a sales shop, and a dwelling. They stood on the west side of what afterwards became the first and main street of Rat Portage. The shanties were at the same spot till 1882, when they were burned, and the company moved across the street and a little farther south. By 1881 they had been replaced by clapboarded buildings, or the log ones had been clapboarded and built higher. * * * My visit in 1872 was made when I came up the Winnipeg River and passed into the Northwest Angle. The place was then a little outpost of the company with a small stock of goods for the Indian trade. The only clearing was the little place between the canoe-landing and the shanties. All around was unbroken forest. In 1826 there might have been a post at the western outlet, but I have never heard so.

Alexander Matheson, at one time a factor in the service of the Hudson's Bay Company, says:

> The old post was situated on an island a short distance below the falls at the eastern outlet of Lake of the Woods, and relics in the shape of parts of clay chimneys, etc., were to be seen there a few years ago. The Portage du Rat proper is west of the Western Outlet, at the place where Dick Banning & Company's sawmill is. The site of the old post is now known as Millers Island, and is nearly opposite the Rat Portage electric works.

This identification of the old post is confirmed by R. J. K. Pither, for some years an employee of the Hudson's Bay Company, later an agent of the Indian Department of Canada, and now living in his extreme old age at Kenora.

Mr. Archibald Blue, from whose valuable narrative of his Tour of Inspection Through Northwestern Ontario (Ontario Bureau of Mines Report, 1895), the above is taken, has this to say in regard to the three outlets of the Lake of the Woods:

> There are three outlets from the lake which unite below to form the Winnipeg River—one near the west side, a small stream, now called Keewatin Channel, where Keewatin village stands; one near the east side of the lake, close to the modern town of Rat Portage, called the east branch of the river, on which is the beautiful Hebes Falls; and the third and largest in the middle, called the west branch, on which is the Witch's Cauldron, and the great dam recently completed by the Keewatin Power Company. The village of Norman, built on the island between the middle and western outlets, is now part of Rat Portage town, having been incorporated with it in 1892, but Keewatin has maintained an independent existence. On the old maps Portage du Rat is shown to be near the western channel. Upon the left bank of the middle channel there is to be seen an old trail, now grown up with bushes; but the portage at present in use by the Indians is on the right bank of the eastern channel.

Very little is known of the establishment of the American Fur Company at the mouth of Warroad River. Henry R. Schoolcraft, who was Indian agent for the United States Government at Sault Ste. Marie for several years, has the following in a report on trading posts in his agency, dated August 9, 1824:

> Pursuant to instructions, I have determined on the following places where trade may be carried on with the different bands of Indians within the limits of this agency * * * 18. At Rainy Lake. 19. At War Road * * *

It appears from the schedule to the deed of surrender from the Hudson's Bay Company to the Crown in 1869, when Canada assumed jurisdiction over what was known as Ruperts Land, that the company at that time had the following trading posts in the Lake La Pluie

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[41] Kane, Wanderings of an Artist, p. 447.

[42] Palliser, Journals, Reports, and Observations Relative to the Exploration of British North America, p. 34.

[43] Hind, Narrative of the Red River Expedition, p. 107.

[44] Ontario Bureau of Mines Report, 1895, pp. 169–170.

district, extending from the mouth of Winnipeg River to Rainy Lake: Fort Alexander, English River, Eagles Nest, Lac du Bonnet, Rat Portage, Whitefish Lake, Trout Lake, Lake of the Woods, Shoal Lake, Big Island, Clearwater Lake, Sandy Point, Hungry Hall, and Fort Frances.

This sketch brings us down approximately to the time when the need for a well-defined boundary line between the possessions of Great Britain and the United States in this region became apparent to both Governments. In the attempt to secure such a boundary, negotiations were carried on between representatives of the two Governments early in the nineteenth century and a treaty, in which this part of the boundary was defined, was concluded in 1842. These official proceedings, which are discussed in Appendix II of this report, and negotiations pertaining to other parts of the boundary, resulted eventually in the conclusion of the treaty of 1908, which provided for the more complete definition and demarcation of the international boundary from the Atlantic to the Pacific Ocean.

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Report on Lake of the Woods Reference. International Joint Commission.

Search for the Western Sea. L. J. Burpee.

Thompson's Narrative of His Explorations in North America. Ed., J. B. Tyrrell.

Voyages from Montreal Through the Continent of North America. Alexander Mackenzie.

Voyages of Peter Esprit Radisson. Ed., G. D. Scull.

APPENDIX II

NEGOTIATIONS AND TREATIES PERTAINING TO THE BOUNDARY PREVIOUS TO THE TREATY OF 1908[1]

The negotiators of the first of the several boundary treaties, the provisional articles of peace of 1782, in deciding upon the general course of the international boundary westward from the Great Lakes, very probably desired that the line should follow the most suitable topographic feature extending farthest westward from Lake Superior toward the supposed locality of the upper reaches of the Mississippi River, which stream at that time was to be the western boundary of the United States. For their geographic knowledge of the region, they depended principally upon the information shown on the Mitchell map of the British and French Dominions of North America of 1755. As will be seen by consulting a reproduction of the northwestern portion of this map (p. 208), a large river is shown flowing from Lake of the Woods to Lake Superior. Also, a note on Mitchell's map states that the source of the Mississippi River was supposedly near the fiftieth degree of north latitude. The logical course for the boundary seemed therefore to be along this stream to Lake of the Woods and thence westward to the Mississippi River.

Later explorations however, proved that this part of Mitchell's map was quite inaccurate. The continuous stream shown between Lake of the Woods and Lake Superior was, in fact, a system of disconnected rivers and lakes; a height of land intervened, from the crest of which part of the waters were found to drain westward into Lake of the Woods and the others eastward into Lake Superior. Furthermore, the headwaters of the Mississippi River were found not to extend as far north as latitude 50°[2] and, of course, could not be intersected by a line running west from Lake of the Woods[3] as presupposed by the treaty makers.

The first description of this part of the international boundary appears in the provisional articles of peace, concluded November 30, 1782, between the United States and Great Britain. It was repeated word for word in Article II of the definitive treaty of peace of 1783, the text of which is as follows:

Definitive Treaty of Peace

(Concluded at Paris September 3, 1783; ratified by the Congress of the United States January 14, 1784; ratified by Great Britain April 9, 1784)

* * * * * * * * *

ARTICLE II

And that all disputes which might arise in future, on the subject of the boundaries of the said United States may be prevented, it is hereby agreed and declared, that the following are, and shall be their boundaries, viz: From the northwest angle of Nova Scotia, viz. that angle

[1] The text of the treaties has been taken from Treaties, Conventions, International Acts, Protocols, and Agreements between the United States of America and other Powers, Vol. I, by W. M. Malloy. This differs from other published texts only in unimportant details of punctuation, capitalization, division into paragraphs, and order of precedence.

[2] Tyrrell, J. B., Thompson's Narrative of His Explorations, p. 269; also Appendix I, p. 197, of this report.

[3] Convention of London (1818); Malloy, W. M., Treaties, Conventions, International Acts Protocols, and Agreements, Vol. I, p. 632; Webster-Ashburton Treaty, p. 211, of this report.

which is formed by a line drawn due north from the source of Saint Croix River to the Highlands; along the said Highlands which divide those rivers that empty themselves into the river St. Lawrence, from those which fall into the Atlantic Ocean, to the northwesternmost head of Connecticut River; thence down along the middle of that river, to the forty-fifth degree of north latitude; from thence, by a line due west on said latitude, until it strikes the river Iroquois or Cataraquy; thence along the middle of said river into Lake Ontario, through the middle of said lake until it strikes the communication by water between that lake and Lake Erie; thence along the middle of said communication into Lake Erie, through the middle of said lake until it arrives at the water communication between that lake and Lake Huron; thence along the middle of said water communication into the Lake Huron; thence through the middle of said lake to the water communication between that lake and Lake Superior; thence through Lake Superior northward of the Isles Royal and Phelipeaux, to the Long Lake; thence through the middle of said Long Lake, and the water communication between it and the Lake of the Woods, to the said Lake of the Woods; thence through the said lake to the most northwestern point thereof, and from thence on a due west course to the river Mississippi; thence by a line to be drawn along the middle of the said river Mississippi until it shall intersect the northernmost part of the thirty-first degree of north latitude. South, by a line to be drawn due east from the determination of the line last mentioned, in the latitude of thirty-one degrees north of the Equator, to the middle of the river Apalachicola or Catahouche; thence along the middle thereof to its junction with the Flint River; thence strait to the head of St. Mary's River; and thence down along the middle of St. Mary's River to the Atlantic Ocean. East, by a line to be drawn along the middle of the river St. Croix, from its mouth in the Bay of Fundy to its source, and from its source directly north to the aforesaid Highlands, which divide the rivers that fall into the Atlantic Ocean from those which fall into the river St. Lawrence; comprehending all islands within twenty leagues of any part of the shores of the United States, and lying between lines to be drawn due east from the points where the aforesaid boundaries between Nova Scotia on the one part, and East Florida on the other, shall respectively touch the Bay of Fundy and the Atlantic Ocean; excepting such islands as now are, or heretofore have been, within the limits of the said province of Nova Scotia.

The "Long Lake" mentioned above in Article II of the treaty of 1783 had not been identified up to the time of the negotiation of the treaty of 1814 (treaty of Ghent), and without an agreement upon the location of this part of the boundary even an approximate determination of the line in this region was impossible. It was apparent that this question as well as the determination of the most northwestern point of Lake of the Woods would require surveys to be made. Accordingly, the negotiators of the treaty of Ghent made provision in that treaty for the determination of this portion of the international boundary together with other portions. Articles VII and VIII of the treaty of Ghent refer to this part of the boundary and are as follows:

Treaty of Peace and Amity (Treaty of Ghent)

(Concluded at Ghent December 24, 1814; ratifications exchanged February 17, 1815)

* * * * * * * * *

ARTICLE VII

It is further agreed that the said two last-mentioned Commissioners, after they shall have executed the duties assigned to them in the preceding article, shall be, and they are hereby, authorized upon their oaths impartially to fix and determine, according to the true intent of the said treaty of peace of one thousand seven hundred and eighty-three, that part of the boundary between the dominions of the two Powers which extends from the water communication between Lake Huron and Lake Superior, to the most northwestern point of the Lake of the Woods, to decide to which of the two parties the several islands lying in the lakes, water communications and rivers, forming the said boundary, do respectively belong, in conformity with the true intent of the said treaty of peace of one thousand seven hundred and eighty-three; and to cause such parts of the said boundary as require it to be surveyed and marked. The said Commissioners shall, by a report or declaration under their hands and seals, designate the boundary aforesaid, state their decision on the points thus referred to them, and particularize the latitude and longitude of the most northwestern point of the Lake of the Woods, and of

PART OF THE MITCHELL MAP OF THE BRITISH AND FRENCH DOMINIONS IN NORTH AMERICA, 1755

NEW FRANCE

LAKE SUPERIOR

LAKE HURON

LAKE MICHIGAN

LAKE ALEMIPIGON

LAKE TECAMANIOUEN

LAKE OF THE WOODS

LAKE OF THE SIOUX OR ISATIS

LAKE AFSEMPOUALS

CHRISTINAUX OR KILISTINOS

ASSENIPOUALS

EASTERN SIOUX

OUTAOUACS OR MASCOUTINS

OUTAWAS

SAULTEURS OR OUTCHIPOUES

ALGONQUINS

ABITIBIS

NIPISSIRINIENS

Albany River

Peray River

Bounds of Hudsons Bay by the Treaty of Utrecht

The Northern Mountains or the Lands Height

Northern Bounds of New England by Charter Nov.r 3 1620 extending to the South Seas

The Head of the Missisipi is not yet known: It is supposed to arise about the 50th degree of Latitude, and Western Bounds of this Map beyond which N.th America extends nigh as far Westward as it does to the Eastward by all accounts

Thus far the Missisipi has been ascended

The Passage from y.e Lake of the Woods to Port Nelson on Hudson's Bay may probably be by these two Lakes, instead of so many new Lakes, running so far West, as has been imagined

The long and Barbarous Names lately given to some of these Northern Parts of Canada and the Lakes we have not inserted, as they are of no use, and uncertain Authority.

THE SCALE.

Miles or Minutes of Latitude ——— marked M.s

English Miles 69½ to a Degree ——— marked M.s

English and French Sea-Leagues 20 to a Degree

Common French Leagues 25 to a Degree

Dutch Miles 15 to a Degree

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such other parts of the said boundary as they may deem proper. And both parties agree to consider such designation and decision as final and conclusive. And in the event of the said two Commissioners differing, or both or either of them refusing, declining or wilfully omitting to act, such reports, declarations or statements shall be made by them, or either of them, and such reference to a friendly sovereign or State shall be made in all respects as in the latter part of the fourth article is contained, and in as full a manner as if the same was herein repeated.

ARTICLE VIII

The several boards of two Commissioners mentioned in the four preceding articles shall respectively have power to appoint a Secretary, and to employ such surveyors or other persons as they shall judge necessary. Duplicates of all their respective reports, declarations, statements and decisions and of their accounts, and of the journal of their proceedings, shall be delivered by them to the agents of His Britannic Majesty and to the agents of the United States, who may be respectively appointed and authorized to manage the business on behalf of their respective Governments. The said Commissioners shall be respectively paid in such manner as shall be agreed between the two contracting parties, such agreement being to be settled at the time of the exchange of the ratifications of this treaty. And all other expenses attending the said Commissions shall be defrayed equally by the two parties. And in the case of death, sickness, resignation or necessary absence, the place of every such Commissioner, respectively, shall be supplied in the same manner as such Commissioner was first appointed, and the new Commissioner shall take the same oath or affirmation, and do the same duties. It is further agreed between the two contracting parties, that in case any of the islands mentioned in any of the preceding articles, which were in the possession of one of the parties prior to the commencement of the present war between the two countries, should, by the decision of any of the Boards of Commissioners aforesaid, or of the sovereign or State so referred to, as in the four next preceding articles contained, fall within the dominions of the other party, all grants of land made previous to the commencement of the war, by the party having had such possession, shall be as valid as if such island or islands had, by such decision or decisions, been adjudged to be within the dominions of the party having had such possession.

The commissioners who were appointed to carry out the provisions of Article VII of the treaty of Ghent, Peter B. Porter for the United States and Anthony Barclay for His Britannic Majesty, had also been designated under Article VI of the same treaty to fix the boundary through the St. Lawrence River and the Great Lakes as far as the eastern end of Lake Superior. Upon the termination of their duties under Article VI, they therefore issued instructions to their surveyors to take up the work west of Lake Superior.

The surveyors were instructed to ascertain the position of the body of water referred to in the treaty as "Long Lake."[4] If this waterway did not discharge into Lake Superior, they were instructed to make surveys of the chain of waters that most nearly approximated the line intended by the treaty. Their first surveys, which covered Pigeon River and the other waterways traversed by the present boundary line, were completed in time for the results to be reported to the commissioners at a meeting held at Montreal in October, 1824.

In the discussion of the claims of the two Governments at this meeting, the commissioners were apparently close to an agreement upon Pigeon Bay at the mouth of Pigeon River as the Long Lake of the treaty of 1783.[5] But failing to reach an agreement, they modified their claims and issued instructions for further surveys. The British commissioner ordered that the St. Louis River and adjacent waterways leading to Sand Point Lake be surveyed, while the United States commissioner issued similar orders regarding Kaministikwia River, Dog Lake, Dog River, and the waterways leading to Lac LaCroix. The arguments in favor of these routes are

[4] White, James, Boundary Disputes and Treaties, p. 831; Moore, J. B., International Arbitrations, p. 172.
[5] Moore, J. B., International Arbitrations, pp. 172 and 182.

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discussed in detail in James White's Boundary Disputes and Treaties, pages 832–835, and also in J. B. Moore's History and Digest of International Arbitrations, Volume I, pages 180–186.

The commissioners failed to reach an agreement upon either the St. Louis River or the Kaministikwia route. A compromise route was next proposed by each commissioner but these were rejected also.

The lines which were first claimed by the commissioners and the compromise lines which they later proposed are shown on the map opposite this page. The British compromise line as described in the journal of the commissioners stated that "the boundary should be conducted from water to water, overland, through the middle of the old and accustomed portages, in those places where from falls, rapids, shallows, or any other obstruction, the navigation and access into the interior by water, are rendered impracticable."

A subsequent modification of the British compromise line was offered, namely, to follow Pigeon River from its mouth to Rainy Lake by a water line, where possible, but this offer was accompanied by the stipulation that the Grand Portage route should be made free and common to the use of both parties.[6] The United States commissioner rejected this proposal for the reason that he had no authority to agree to such a stipulation.

In order that there might be no misunderstanding regarding their actions, the commissioners, at a meeting held October 23, 1826, entered in their journal [7] their points of agreement and disagreement, together with a description of the part of the line that was acceptable to both commissioners, a description of the St. Louis River and Kaministikwia River routes, and of the compromise lines.

The commissioners held their final meeting December 24, 1827, and submitted separate reports.[8] The part of the boundary upon which they were agreed and which was later accepted by Webster and Ashburton during the negotiation of the treaty of 1842, was described in their journal as follows: [9]

Beginning at a point in Lac La Pluie, close north of island marked No. 1, lying below the Chaudiere falls of lake Namecan; thence, down this channel, between the islets marked No. 2 and No. 3; thence, down the middle of said channel, into Lac La Pluie, westward of island No. 4; thence, through the said lake, close to the south point of island No. 5; thence, through the middle of said lake, north of island No. 6, and south of island No. 7; thence through the middle of said lake, to the north of islet No. 8, and south of islands No. 9, No. 10, No. 11, and between islands No. 12 and No. 13; thence, south of islands No. 14 and No. 15; thence, through the middle of said lake, north of a group of islands, No. 16; thence, south of a group of rocks, No. 17; thence, south of a group of islets, No. 18; thence, north of an islet, No. 19; thence, through the middle of said lake, to the south of island No. 20, and all its contiguous islets; thence, south of island No. 21, and midway between islands No. 22 and No. 23; thence, southwest of island No. 24; thence north of island No. 25; thence through the middle of said lake, to its *sortie*, which is the head of the Riviere La Pluie; thence, down the middle of said river, to the Chaudiere falls, and having a portage on each side; thence, down the middle of said falls and river, passing close south of islet No. 26; thence down the middle of said Riviere La Pluie, and passing north of islands No. 27, No. 28, No. 29, and No. 30; thence, down the middle of said river, passing west of island No. 31; thence, east of island No. 32; thence, down the middle of said river, and of the Manitou rapid, and passing south of No. 33; thence, down the middle of said river, and the Long Sault rapid, north of island No. 34, and south of islets No. 35, No. 36, and No. 37; thence,

[6] Report of British Commissioner, U. S. House of Representatives Doc. No. 451, 25th Cong., 2d sess.

[7] British and Foreign State Papers, Vol. LVII, p. 803.

[8] U. S. House of Representatives Executive Doc. No. 451, 25th Cong., 2d sess.

[9] Text from J. B. Moore's International Arbitrations, p. 187.

BOUNDARY CLAIMS OF GREAT BRITAIN AND THE UNITED STATES PRIOR TO THE TREATY OF 1842

- Boundary claimed by British Commissioner (1822–1827) under Treaty of Ghent.
- Boundary claimed by United States Commissioner (1822–1827) under Treaty of Ghent.
- Boundary proposed as compromise by British Commissioner under Treaty of Ghent.
- Boundary proposed as compromise by United States Commissioner under Treaty of Ghent.
- Boundary as fixed by the Webster-Ashburton Treaty of 1842 and as reestablished under Treaty of 1908.



BASE MAP TAKEN FROM ENGRAVED PLATE PREPARED BY THE DEPT. OF THE INTERIOR, CANADA

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down the middle of said river, passing south of island No. 38; thence, down the middle of said river, to its entrance between the main land and Great Sand Island, into the Lake of the Woods; thence, by a direct line to a point in said lake, one hundred yards east of the most eastern point of island No. 1; thence, northwestward, passing south of islands No. 2 and No. 3; thence, northeastward [10] of island No. 4, and southwestward of islands No. 5 and No. 6; thence, northward of island No. 7, and southward of islands No. 8, No. 9, No. 10, and No. 11; thence, through the middle of the waters of this bay, to the northwest extremity of the same, being the most northwestern point of the Lake of the Woods. And from a monument erected in this bay, on the nearest firm ground to the above northwest extremity of said bay, the courses and distances are as follows, viz: 1st. N., 56° W., 1,565½ feet[11]; 2d. N., 6° W., 861½ feet; 3d. N., 28° W., 615.4 feet; 4th. N., 27° 10′ W., 495.4 feet; 5th. N., 5° 10′ E., 1,322½ feet; 6th. N., 7° 45′ W., 493 feet; the variation being 12° east. The termination of this 6th or last course and distance, being the above said most northwestern point of the Lake of the Woods, as designated by the 7th article of the treaty of Ghent; and being in the latitude forty-nine degrees twenty-three minutes and fifty-five seconds north of the equator; and in longitude, ninety-five degrees fourteen minutes and thirty-eight seconds west from the observatory at Greenwich.

After the submission of the separate reports of commissioners Barclay and Porter, no discussion regarding this part of the boundary seems to have taken place for a period of 10 years.[12] The negotiations for the settlement of the Maine-Quebec boundary offered the opportunity of disposing of this question also, and Webster and Ashburton came to an agreement upon the boundary from the Northwestern-most Point of Lake of the Woods to Lake Superior, which they then laid down on the maps prepared for that purpose in 1822–1824. They described its course in Article II of the treaty of 1842, the text of which is as follows:

Webster-Ashburton Treaty

(*Concluded August 9, 1842; ratifications exchanged October 13, 1842*)

* * * * * * * * *

ARTICLE II

It is moreover agreed, that from the place where the joint Commissioners terminated their labors under the sixth article of the treaty of Ghent, to wit, at a point in the Neebish Channel, near Muddy Lake, the line shall run into and along the ship-channel between Saint Joseph and St. Tammany Islands, to the division of the channel at or near the head of St. Joseph's Island; thence, turning eastwardly and northwardly around the lower end of St. George's or Sugar Island, and following the middle of the channel which divides St. George's from St. Joseph's Island; thence up the east Neebish Channel, nearest to St. George's Island, through the middle of Lake George; thence, west of Jonas' Island, into St. Mary's River, to a point in the middle of that river, about one mile above St. George's or Sugar Island, so as to appropriate and assign the said island to the United States; thence, adopting the line traced on the maps by the Commissioners, thro' the river St. Mary and Lake Superior, to a point north of Ile Royale, in said lake, one hundred yards to the north and east of Ile Chapeau, which last-mentioned island lies near the northeastern point of Ile Royale, where the line marked by the Commissioners terminates; and from the last-mentioned point, southwesterly, through the middle of the sound between Ile Royale and the northwestern main land, to the mouth of Pigeon River, and up the said river, to and through the north and south Fowl Lakes, to the lakes of the height of land between Lake Superior and the Lake of the Woods; thence, along the water communication to Lake Saisaginaga, and through that lake; thence, to and through Cypress Lake, Lac du Bois Blanc, Lac la Croix, Little Vermillion Lake, and Lake Namecan and through the several smaller lakes, straits, or streams, connecting the lakes here mentioned, to that point in Lac la Pluie. or Rainy Lake, at the Chaudière Falls, from which the Commissioners traced the line to the most north-

[10] Text has been corrected to read "northeastward" instead of "northwestward" to agree with maps of the boundary under the treaty of 1842.

[11] Text has been corrected to read "1,565½ feet" instead of "156.5½" to agree with distance given in British and Foreign State Papers, Vol. LVII, and also in report of Dr. J. L. Tiarks, astronomer for the British Government, as published in American Journal of Science and Arts, Vol. XV, p. 52.

[12] Moore, J. B., International Arbitrations, p. 191.

western point of the Lake of the Woods; thence, along the said line, to the said most northwestern point, being in latitude 49° 23′ 55″ north, and in longitude 95° 14′ 38″ west from the observatory at Greenwich; thence, according to existing treaties, due south to its intersection with the 49th parallel of north latitude, and along that parallel to the Rocky Mountains. It being understood that all the water communications and all the usual portages along the line from Lake Superior to the Lake of the Woods, and also Grand Portage, from the shore of Lake Superior to the Pigeon River, as now actually used, shall be free and open to the use of the citizens and subjects of both countries.

After the surveys had been made under Article VII of the treaty of 1814 (treaty of Ghent), this part of the line was not resurveyed, mapped, or monumented by joint action of the two Governments up to the time of the negotiation of the treaty of 1908. During this period questions arose regarding the nationality of islands in Lake of the Woods and Lac LaCroix, and the necessity for resurveying and monumenting this part of the boundary was recognized in correspondence between the two Governments. In 1896, a field inspection of this part of the international boundary was made under the direction of the chief astronomer of the Dominion of Canada and the data thus obtained were later used in framing Article V of the treaty of 1908 under the provisions of which the boundary line from the Northwesternmost Point of Lake of the Woods to Lake Superior has been reestablished.

APPENDIX III

ORIGINAL SURVEY OF THE BOUNDARY FROM THE NORTHWESTERNMOST POINT OF LAKE OF THE WOODS TO LAKE SUPERIOR

The several waterways which constitute this part of the international boundary, as will be seen from a perusal of the historical sketch in Appendix I of this report, were followed by explorers and fur traders during their journeys from the Great Lakes to the fur country of the northwest in the period preceding the cession of Canada to Great Britain. Nevertheless, so little was generally known at that time regarding the geography of this part of North America that on the Mitchell map of 1755 [1] these waterways were incorrectly represented as one large river flowing from Lake of the Woods to Lake Superior.

After the cession of Canada to Great Britain, English traders began to make their way westward over this route and it became well known, having been traversed by Alexander Henry, Alexander Mackenzie, David Thompson, and others. Thompson probably took astronomical observations along it, as was his custom on all his travels, but it is very doubtful if any systematic survey was made of the route previous to the treaty of Ghent, Article VII of which provided for the determination of the boundary "from the water communication between Lake Huron and Lake Superior to the most northwestern point of Lake of the Woods."

The following account of the surveys under the treaty of Ghent has been drawn almost entirely from the unpublished journals of David Thompson,[2] who was surveyor and astronomer for Great Britain. This account, therefore, necessarily deals largely with Thompson's work. As far as is known, the only records of the field work of the United States surveyors are the maps that they made of part of the region along the boundary. The Canadian and United States parties made their surveys quite independently of each other.

At a conference of the boundary commissioners under Articles VI and VII of the treaty of Ghent (Peter B. Porter for the United States and Anthony Barclay for His Britannic Majesty), held in February, 1822, the commissioners apparently issued informal instructions to their field parties for the surveys necessary for the carrying out of the provisions of Article VII.

Thompson, surveyor for the British commission, lived at that time in Williamstown, a small village in eastern Ontario near the St. Lawrence River, about 50 miles west of Montreal. On his return from the conference above referred to, he at once began preparations for the coming season's operations. Realizing the necessity for a light boat for use on the surveys, he had work begun on the construction of one of a suitable type. It was necessary for him to oversee everything personally, the cutting of the cedar logs, the sawing of the lumber, and the actual designing and building of the boat.

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[1] Appendix II, p. 208.

[2] The Thompson journals are filed in the archives of the Crown Lands Department of Ontario.

After many delays the boat was finally completed and he set out on May 24 for Sault Ste. Marie. His route was up the St. Lawrence River, through the Bay of Quinte, and along the north shore of Lake Ontario to Toronto, then known as York. From York the boat, men, and supplies were hauled north to Holland Landing, a distance of 32 miles. The boat was again launched on the Holland River at this point, and the voyage was resumed, proceeding down this river and through Lake Simcoe to the site of the present town of Barrie. From this point the boat and supplies were hauled by oxen overland several miles to the Nottawasaga River, down which the voyage was continued to Georgian Bay, and thence along the eastern and northern shores of that bay and along the north shore of Lake Huron to Sault Ste. Marie. Thompson arrived at Sault Ste. Marie on June 23 and found that the United States surveyor, Mr. James Ferguson, was already at work in that vicinity.

In the meantime, at a meeting in June, 1822, at Utica, N. Y., the commissioners had given formal instructions that the surveyors, after passing Lake Superior, were to ascertain the position of the Long Lake of the treaty of 1783, or, if no lake of that name was to be found, they were to locate the chain of waters referred to in the treaty by that designation. If they should find, as it was said they probably would, that those waters did not communicate with Lake Superior, they were to ascertain what rivers or bodies of water, divided by a height of land, and emptying, one into Lake Superior and the other into Lake of the Woods, approximated most nearly to the line intended by the treaty.

It is perhaps fitting that a little space be given to a description of the conditions under which these early surveys were made.

The surveyors traveled almost entirely by boats or canoes, the property of the commission. Even the journey from Montreal to York was made by water as a rule. Transportation on the Great Lakes by vessels was, in general, too slow to be relied upon; a shipment made from Sault Ste. Marie October 1, 1825, did not reach Montreal until July 27, 1826. On account of the long distances to be covered from the base of supplies to the region to be surveyed, the slow rate of travel, and the many delays due to bad weather and high winds, it was necessary to travel virtually from daylight till dark. An average working day for the canoe men was from 5 a. m. to 7.30 p. m. The usual practice was to start off soon after daylight, paddle or row for several hours, go ashore and breakfast, continue the journey until early afternoon, go ashore again for dinner, and then continue on until sundown, when camp was made and supper was eaten. The crew did not include a cook, and each man was apparently responsible for his own rations, which were weighed out and issued to him once or twice a week. The remainder of the food was kept when possible under lock and key. The daily ration consisted of a pound of salt pork or beef, a pound of biscuit, and half a pint of corn. Thompson evidently considered this a very liberal ration, for he complains that his men threatened to quit the service on one occasion, if they were given only the usual grease and corn; that they demanded pork; and that he was forced to pay $16 for a barrel of pork at Sault Ste. Marie. On another occasion he notes in his diary, apparently with some bitterness, that his men stole from him a few pounds of biscuits and a piece of salt beef. These

rations were supplemented to some extent by fish and game, but Thompson's diary indicates that for some reason, probably lack of time, only very small quantities of these were obtained. The Indians encountered between Pigeon River and Lake of the Woods were frequently near starvation, and the death of one from that cause is recorded. When passing or working near settlements or Indian encampments, fresh meat was purchased when available. Dried peas were sometimes substituted for the corn, and flour for the biscuit, and occasionally the men were allowed a little sugar and whiskey. The wages of laborers were small, $17 to $20 per month with board, but an assistant surveyor hired by Thompson after the completion of the field work of the boundary surveys was paid £24 7/ 6d per month. Thompson seems to have been as familiar with dollar currency as with sterling, both apparently being in general use in Canada at that time.

As noted above, the surveyors, acting under orders previously given, were already in the field at the time of the commissioners' meeting and had reached Sault Ste. Marie. When Thompson visited the United States party then working in that vicinity, he was informed by its chief, Mr. Ferguson, that the United States surveyors had been instructed to continue their field work through the coming winter and to explore the rivers flowing into Lake Superior, but only those north of Isle Royal. Thompson, who had no such instructions, continued his voyage around the south shore of Lake Superior and after exploring the west end of the lake arrived at Pigeon Bay. He examined Pigeon River for a short distance and then proceeded to Fort William, having run out of provisions. After securing provisions he returned to the Grand Portage, a few miles southwest of Pigeon Bay, where he found the dwellings and storehouses, formerly used by the fur traders, in ruins. After crossing the portage, he explored the chain of lakes forming the present boundary as far as Saganaga Lake. The lateness of the season, August 17, did not permit his going farther, but he instructed his interpreter and guide, an Englishman named Sayer, whom he had hired at Fort William, to make explorations in the Vermilion Lake district. On reaching Arrow Lake on his return, he passed Mr. Ferguson, the United States surveyor, and his party going in. They were planning to follow the same route as Thompson had taken. Thompson continued on his way out and after a hazardous voyage via Fort William, Sault Ste. Marie, Georgian Bay, and Lake Simcoe reached York, whence he proceeded to his home by wagon and boat, arriving on November 14.

What explorations and surveys were made by the United States surveyors during the winter is unknown.

Apparently the commissioners held no conference during the winter of 1822–23 at which Thompson was present, but he had much correspondence with them.

Thompson left home again on May 8, 1823, and proceeded to Lake Superior, via York, Lake Simcoe, and Georgian Bay. He reached the Grand Portage on June 28 and started a rapid survey of the route to Lake of the Woods. The party consisted of Thompson, his son Samuel, who acted as his assistant, Doctor Bigsby (the secretary to the commission), Doctor Bigsby's servant, and eight men. On this occasion Thompson does not seem to have gone through Arrow Lake.

At Gunflint Lake he was joined by his interpreter, Sayer, who was accompanied by his family. The party then proceeded westward along the route of the present

boundary, reaching Lake of the Woods on July 16. They next made a preliminary survey of this lake, working westward along the south shore and thence northward and eastward. Thompson took observations for latitude and longitude as often as the weather permitted, and by July 29 the party again arrived at the mouth of Rainy River, having passed completely around Lake of the Woods. During this time Thompson visited Rat Portage, the present town of Kenora, where he took observations and left a letter for Mr. Ferguson. Apparently he did not enter Northwest Angle Inlet.

The party spent the first 12 days of August surveying Rainy Lake. While so engaged, they met the United States party in charge of Messrs. Ferguson, Whistler, and Delafield.

Thompson's party continued their rapid surveys until August 14, at which time they had reached Bottle Portage. By this time, only sufficient provisions for two days' full rations were left, so they now made all haste to Fort William, where they arrived on August 23, all weak from lack of food.

At Fort William, Thompson again met Messrs. Ferguson and Delafield and proposed to them that during the coming winter joint maps combining the results of both their surveys should be made. Mr. Ferguson declined this offer, and stated that he had surveyed separately and would prefer to keep his maps so. Major Delafield doubted whether the expense of conferences of the surveyors would be warranted.

The next day the United States party set off to survey the islands southwest of Fort William, and on the following day Thompson left for Sault Ste. Marie, arriving on September 14. The United States survey party arrived the next day.

Thompson spent the next two weeks making triangulation surveys among the islands of the St. Marys River and then left for home, reaching York on October 30, and arriving at his home on November 9. He spent the winter in preparing maps from the observations, surveys, and sketches made during the preceding summer.

In February, 1824, a conference of the commissioners was held at Albany, N. Y., at which the surveyors presented their maps which covered part of the present boundary waterways. They were instructed to complete their surveys of the route from the mouth of Pigeon River to the Northwesternmost Point of Lake of the Woods and to determine the Northwesternmost Point in accordance with Thompson's suggestions as to how that was to be done.

The United States party left Montreal about May 1 the following season, the British party a week later. Both parties followed the route of the Ottawa River, the Mattawa River, Lake Nipissing, French River, and Lake Huron to Sault Ste. Marie, a journey which required a month by canoe. By June 15 both parties were at Fort William ready for work.

The maps prepared by the United States surveyor cover the boundary waterways from Lake Superior to the western end of Saganaga Lake, the Arrow River route, Lac LaCroix, Namakan River, the east end of Namakan Lake, and the waterways on the north side of Hunter Island.[3] These maps constitute the only available record of the field work done by the United States parties, although the

[3] Map showing boundary claims of Great Britain and the United States, p. 210.

journal of the commissioners under the treaty of Ghent states that a report describing the astronomical observations made by the United States surveyor was submitted to them and ordered to be filed. The field work done by the British parties, however, besides being shown on their maps, is described in Thompson's journals together with their methods of surveying.

The control for the surveys made by the British parties consisted of astronomical observations made whenever time, opportunity, and the weather permitted. Compass traverses were made of the rivers and lakes; in the rivers the distances were estimated—on the lakes they were determined by the use of a patent log towed by a canoe. Islands were located by traverse, and the shore lines were traversed and sketched.

By July 24 the British party had completed much of their surveys and had reached Lake of the Woods. The next week was spent determining and marking the forty-ninth parallel of latitude on the west shore of that lake and in selecting, marking, and making observations at three points which were intended as alternative locations of the Northwesternmost Point of Lake of the Woods. The first of these three points, at the head of what is now known as Northwest Angle Inlet, after further observations made the following year by Doctor Tiarks, astronomer for the British Government, was accepted by the commissioners as the Northwesternmost Point of Lake of the Woods and was formally adopted as such by the Webster-Ashburton treaty of 1842.

After completing this work, Thompson spent a few days traversing Lake of the Woods and arrived again at the mouth of Rainy River on August 5. He apparently did not visit Rat Portage (Kenora) this season or consider it at this time as the possible location of the Northwesternmost Point of Lake of the Woods. He then proceeded eastward again, finishing as he went the surveys of those lakes which were not already completely surveyed.

On reaching Lac LaCroix, Thompson met his guide of the previous year, Sayer, alone with his family and nearly starving. Sayer gave him detailed information regarding the route to the height of land by way of Vermilion River, for which Thompson paid him with one calico shirt and a little ammunition. Work was continued eastward, short rations being supplemented by game secured from the Indians. By the first of September the surveys were finished and Pigeon River was reached. Thompson arrived at Fort William on September 7 and was informed that the United States party had left for the east 10 days previously in one canoe. Thompson arrived at Sault Ste. Marie on September 27 and found the United States party there. Both parties left soon after for Montreal via French River, Lake Nipissing, and the Ottawa River. They arrived at Montreal late in October and on the 25th of that month Thompson drew up a report on the season's surveys which he presented at the commissioners' conference. This report is as follows:

Gentlemen,—

In obedience to the orders of your Honorable Board, we left La Chine on the 6th May and proceeded up the Ottawa River, from thence to Lakes Huron and Superior, having carried over the Great Carrying Place, we commenced the survey of all those Lakes and Rivers, that we had not yet fully examined, and thence proceeded to the Lake of the Woods; here we coasted the West side of the lake, minutely examining its shores, having arrived at the 49th degree of north latitude we there placed a heap of large stones with several pickets well driven into the ground,

at the first angle of this Lake there being no stones within several miles we erected a square monument of Logs of 12 feet high by 7 feet width, the lower part of Oak, the upper part of Aspin— and nailed to it a Tin Plate marked the North West Corner of the Lake of the Woods No. 1— proceeding northward at the second Angle of the Lake we erected a Pyramid of Stones 7 feet high by 4 feet square at the Base and a Cedar post in its centre nailed a Tin Plate pierced. The North West Corner of the Lake of the Woods, No. 2— proceeding still further northward at the third Angle of the Lake we erected a pyramid of Stones 8 feet high by 6 feet at the base and to an Oak Post placed in its Centre nailed a Tin Plate marked The North West Corner of the Lake of the Woods No. 3—proceeding several miles still farther northward, we found as last year the Land bend E and N without any considerable Angle we then returned among the Islands of this Lake by a route we had not before taken; to the entrance of the Rainy River and continued adding to the accuracy of our maps until we came to the Great Carrying Place. On the 6th September we arrived at Fort William and from thence returned to Montreal on the 21st October. We flatter ourselves we have paid that minute attention to the Countries we have surveyed as will enable us to produce maps of those Countries satisfactory to your Honorable Board. At every opportunity astronomical observations were made to ascertain the position of respective places.

Report of October 26, 1824.

While it seemed likely at this conference that the Pigeon River route would be adopted as the boundary, nevertheless the commissioners issued separate instructions for further surveys, the British commissioner directing that a survey be made of the Fond du Lac or St. Louis River route and the United States commissioner directing that a survey be made of the Kaministikwia route. These routes are shown on the map opposite page 210.

Thompson left Montreal on April 29, 1825, via the Ottawa River and reached Sault Ste. Marie on May 27. The next two weeks were spent surveying the St. Marys River. In the meantime Mr. Barclay, the British commissioner, Doctor Tiarks, astronomer for the British Government, and Mr. Hassler, astronomer for the United States Government, arrived and with Thompson went on to Fort William and the mouth of Pigeon River. Here Thompson was taken violently ill with dysentery and after waiting for several days hoping to recover, sent his son Samuel, who was acting as his assistant, with the best of his men to make the surveys of the St. Louis River route while he himself turned back to Fort William. Thence after a partial recovery he returned to Sault Ste. Marie, arriving on August 3. The next month he spent making additional surveys on the St. Marys River.

In the meantime his son carried on the surveys of the route through the St. Louis River, Embarras River, Lake Vermilion, and Vermilion River to Sand Point Lake. Maps of this route were filed with the reports of Commissioners Porter and Barclay, but no record has been found of the United States party's survey of the Kaministikwia route.

While these surveys were being made, Doctor Tiarks proceeded to Lake of the Woods, apparently for the purpose of definitely selecting the Northwesternmost Point. Apparently it had been decided from Thompson's surveys that this point should be either at Rat Portage (Kenora) or at the northern part of the bay now known as the Northwest Angle Inlet. Capt. W. J. Twining, chief astronomer of the United States section of the boundary survey of 1872–1876, says: [4]

This question was settled by Tiarks in favor of the latter, on the principle that the northwest point was that point at which, if a line were drawn in the plane of a great circle, making an angle of 45° with the meridian, such a line would cut no other water of the lake. He therefore

[4] Reports upon the Survey of the Boundary between the Territory of the United States and the Possessions of Great Britain from the Lake of the Woods to the Summit of the Rocky Mountains, Washington, 1878; p. 80. See also Dr. Tiarks's report, in American Journal of Science and Arts, Vol. XV, p. 52.

determined the relative position of the two points in question by means of their latitude and longitude; the latitudes were fixed by means of the sextant, and the longitude by the mean of several chronometer determinations.

On September 4 the parties of Samuel Thompson and Commissioner Barclay reached Sault Ste. Marie; Barclay set out immediately for Montreal while the Thompsons, father and son, remained to complete the surveys on the St. Marys River, which they did by the end of September, thus completing the surveys under Article VII of the treaty of Ghent.

The survey equipment was then sold by auction at Sault Ste. Marie, but very little was realized, as none of the bidders had much cash. On October 2 the party set off for Montreal, but on this occasion went via Georgian Bay, Lake Simcoe, and York instead of via the Ottawa River. Montreal was reached on October 29.

The finished maps and reports of the surveyors were submitted to the commissioners at a conference held in New York in October, 1826. At a conference held a year later the commissioners decided that they were unable to reach an agreement on that portion of the boundary dealt with under Article VII of the treaty of Ghent and agreed to submit separate reports.

The maps, submitted by the surveyors to the commissioners, were the ones on which Webster and Ashburton later marked the boundary defined in the treaty signed by them in Washington on August 9, 1842.

APPENDIX IV

ELEVATIONS AND DESCRIPTIONS OF BENCH MARKS [1]

The elevations and the descriptions of all permanent bench marks established or used in the survey of the international boundary from the Northwesternmost Point of Lake of the Woods to Lake Superior are given on the following pages. The list includes bench marks of the United States Geological Survey, which were used for vertical control of the topographic surveys along Rainy River, and also a number of the bench marks of the Geodetic Survey of Canada. The elevations of the bench marks of the Geodetic Survey of Canada are given as published in 1929 [2] and their elevations were used as the basis of the final adjustment of the elevations of the other bench marks listed, including those of the United States Geological Survey. The elevations are in feet and are referred to mean sea-level datum.

	Elevation (feet)
Warroad, Roseau County, Minn.; 12 meters southwest of the intersection of Lake and State Streets, on the public-school grounds, 50 meters east of the schoolhouse; iron post with bronze cap marked "U. S. Geological Survey B. M. 1069"	[3] 1, 067. 26
Warroad, Roseau County, Minn.; on the public-school ground, near the fence, in front of and to the west of the new schoolhouse; International Joint Commission bench mark, copper plug in concrete block whose base extends 6 feet below the surface of the ground	[3] 1, 068. 19
Warroad, Roseau County, Minn.; 335 meters east of the Lake Street crossing of the Canadian National Railway, 44 meters east of Mr. Moody's house, 12 meters north of the edge of Warroad River, and 17 meters southeast of an outbuilding on Mr. Moody's grounds; U. S. Engineer Corps bench mark No. 303, top of cap on iron post	[3] 1, 065. 35
Warroad, Roseau County, Minn.; in the west foundation wall of the post office, a concrete-block building on the north side of Lake Street about 120 meters east of the Canadian National Railway, 1.9 meters from the southwest corner of the building and 0.12 meter below the concrete blocks; Geodetic Survey of Canada bench mark No. 12–E, copper bolt marked "G. S. C., B. M. 12–E"	1, 069. 296
Boundary Monument 924, Roseau County, Minn.; Provencher District, Manitoba; 33 miles north of Warroad, Minn., 41 miles southwest of Kenora, Ontario; on the north side of Harrison Creek and the Old Dawson Road about 600 meters southwest of Northwest Angle Inlet; International Joint Commission bench mark, bronze plug set in the concrete base of the monument	1, 065. 67
Oak Island in Lake of the Woods, Lake of the Woods County, Minn.; on the western extremity of Oak Island, on the highest point of ledge about 25 meters west of the fish house and about 3 meters from the water's edge; International Joint Commission bench mark, bronze disk set in the rock	1, 063. 79
Zippel, Lake of the Woods County, Minn.; 30 meters northwest of the store; nail in lead plug in top of large bowlder	1, 066. 90
Baudette, Lake of the Woods County, Minn.; 200 meters east of the Canadian National Railway station, in the north wing-wall of the west abutment of the railway bridge over Rainy River; aluminum disk set in the capstone and marked "U. S. Geological Survey B. M. 1084"	[3] 1, 081. 98

[1] Leveling, p. 97, this report.

[2] Precise Levelling in Ontario (Publication No. 20), Geodetic Survey of Canada, 1929.

[3] Elevation determined by Geodetic Survey of Canada.

	Elevation (feet)
Rainy River, Rainy River District, Ontario, 1 mile west of; in the south end of the west face of the concrete retaining wall behind the east abutment of the Canadian National Railway bridge over Rainy River; Geodetic Survey of Canada bench mark No. 16–E, copper bolt marked "G. S. C., B. M. 16–E."	1, 079. 295
Spooner, Lake of the Woods County, Minn., 2 miles east of; on the south side of and in contact with the corner post of sections 5, 6, 7, and 8 of township 160 north, range 30 west; at an angle in the road and about 120 meters from the south bank of Rainy River; iron post with bronze cap marked "U. S. Geological Survey B. M. 1093"	1, 091. 35
Clementson, Lake of the Woods County, Minn.; near the mouth of Rapid River, 19.5 meters northeast of the corner of H. Clementson's house and 53 meters west of the rapids; aluminum disk set in an exposed ledge and marked "U. S. Geological Survey B. M. 1088"	1, 085. 66
Central, Koochiching County, Minn., 2½ miles west of; in the northeast quarter of section 5 of township 160 north, range 29 west; 170 meters south of the south bank of Rainy River and 10.7 meters south of the corner of the house owned by S. Tornquist; iron post with bronze cap marked "U. S. Geological Survey B. M. 1089"	1, 087. 08
Central, Koochiching County, Minn., 1¼ miles east of; in section 1 of township 160 north, range 29 west; about 20 meters south of the south bank of Rainy River at a point opposite the mouth of Pine Creek, 75 meters west of Henry Vog's house; iron post with bronze cap marked "U. S. Geological Survey B. M. 1086"	1, 084. 09
Frontier, Koochiching County, Minn.; beside the corner stake of sections 20, 21, 28, and 29 of township 160 north, range 28 west; 248 meters southwest of Mr. Murphy's store, in which is the post office, and about the same distance from the south bank of Rainy River; iron post with bronze cap marked "U. S. Geological Survey B. M. 1086"	1, 084. 31
Frontier, Koochiching County, Minn., 4 miles east of; in section 25 of township 160 north, range 28 west, 65.5 meters west of the line between ranges 27 and 28; on the west side of the mouth of a small creek, about 100 meters east of Mr. Brindle's house and directly across Rainy River from Mr. Bernstein's house, which is just below Boucherville, Ontario; iron post with bronze cap marked "U. S. Geological Survey B. M. 1081"	1, 080. 07
Birchdale, Koochiching County, Minn., 1 mile north of; about 260 meters south of the south bank of Rainy River at Birchdale Landing and 9 meters due west of the corner of sections 27, 28, 33, and 34 of township 160 north, range 27 west; iron post with bronze cap marked "U. S. Geological Survey B. M. 1111"	1, 109. 39
Birchdale, Koochiching County, Minn., 3 miles east of; about 25 meters from the south bank of Rainy River on the range line between section 36 of township 160 north, range 27 west, and section 31 of township 160 north, range 26 west; iron post with bronze cap marked "U. S. Geological Survey B. M. 1093 "	1, 091. 13
Manitou, Koochiching County, Minn, one-half mile east of; 45 meters east of the line between sections 33 and 34 of township 160 north, range 26 west; aluminum disk marked "U. S. Geological Survey B. M. 1074" set in a large rock at the edge of Rainy River	1, 071. 58
Manitou, Koochiching County, Minn., 3½ miles east of; near the township corner of townships 159 and 160 north, ranges 25 and 26 west, 10.7 meters west of the range line and 4.6 meters north of the township line; iron post with bronze cap marked "U. S. Geological Survey B. M. 1113"	1, 110. 65
Indus, Koochiching County, Minn.; in the northwest quarter of section 3 of township 159 north, range 25 west; on the brow of the slope descending to Rainy River, at the edge of the board walk between the Indus Mercantile Co.'s store and the building formerly used by H. Scholta as a saloon; iron post with bronze cap marked "U. S. Geological Survey B. M. 1106"	1, 104. 47
Indus, Koochiching County, Minn., 4 miles south of; in the southwest quarter of section 23 of township 159 north, range 25 west; 9 meters east of the southwest corner of the section near an angle in the road; iron post with bronze cap marked "U. S. Geological Survey B. M. 1097"	1, 095. 05
Loman, Koochiching County, Minn., 2 miles north by west of; on the line between townships 158 and 159 north, range 25 west; 28.3 meters east of the corner of sections 2, 3, 34, and 35; iron post with bronze cap marked "U. S. Geological Survey B. M. 1100"	1, 097. 98
Loman, Koochiching County, Minn.; near the corner of sections 11, 12, 13, and 14 of township 158 north, range 25 west; on the south side of the road, about 190 meters east of the bridge over Black River; iron post with bronze cap marked "U. S. Geological Survey B. M. 1098"	1, 096. 27

	Elevation (feet)
Laurel, Koochiching County, Minn.; 113 meters south of the south bank of Rainy River, in a fence corner, 12 meters east of the southeast corner of Fred Smith's barn, which is near the store and post office; iron post with bronze cap marked "U. S. Geological Survey B. M. 1102"	1, 099. 98
Pelland, Koochiching County, Minn., 1½ miles north of; in township 70 north on the line between ranges 25 and 26 west; about 1¼ miles west of the bridge over Little Fork River near its mouth, about 100 meters south of the south bank of Rainy River and 160.9 meters north of the corner of sections 25, 30, 31, and 36; iron post with bronze cap marked "U. S. Geological Survey B. M. 1106"	1, 103. 72
International Falls, Koochiching County, Minn., 6 miles southwest of; about 320 meters south of the south bank of Rainy River near the north side of the road beside the corner post of sections 23, 24, 25, and 26 of township 70 north, range 25 west; iron post with bronze cap marked "U. S. Geological Survey B. M. 1124"	1, 122. 31
International Falls, Koochiching County, Minn.; about 90 meters north of First Street, in line with Third Avenue, about 55 meters southwest of the shore of Rainy River, and the same distance from the south end of the international bridge; aluminum disk marked "U. S. Geological Survey B. M. 1126" set in a ledge of solid rock	[5] 1, 123. 54
International Falls, Koochiching County, Minn.; on the north side of Riverside Drive, about 180 meters northeast of the north end of Eighth Avenue, about 30 meters east of the center line of Seventh Avenue produced, and 3 meters south of the top of the steep slope to Rainy River; iron post with bronze cap marked "U. S. Geological Survey B. M. 1121"	[5] 1, 119. 41
Fort Frances, Rainy River District, Ontario; in the east foundation wall of the town hall, 0.84 meter from the northeast corner of the main portion of the building and 0.81 meter below the brickwork; Geodetic Survey of Canada bench mark No. 30–E, copper bolt marked "G. S. C., B. M. 30–E"	1, 119. 365
Fort Frances, Rainy River District, Ontario, 5½ miles west of; "Fort Frances West Base" triangulation station; on the first prominent rise west of Fort Frances, about one-fourth mile west of the north-and-south road between sections 21 and 22 of Crozier Township, and 53.98 meters south of the south rail of the Canadian National Railway; bronze triangulation disk set in a block of concrete whose surface is 0.41 meter square	1, 160. 28
Ranier, Koochiching County, Minn.; on the shore of Rainy Lake, about 90 meters west of the wharf at the foot of Main Street, about 25 meters west of a boat shop, and about 55 meters east of a mill; bronze disk stamped "1111" set in rock outcrop about 2 meters from the water's edge	1, 109. 86
Kettle Falls, Rainy River District, Ontario; on a point extending into the water below the Canadian Falls, south of the Canadian Channel and north of the end of the portage; Public Works Department of Canada bench mark No. 1, copper plug set in rock	1, 107. 21
Kettle Falls, Rainy River District, Ontario; about 940 meters east of the Canadian Falls; Public Works Department of Canada bench mark No. 3, copper plug set in rock near Rainy Lake gage and near blazed reference tree	1, 110. 91
Namakan Lake, St. Louis County, Minn.; on the southwest corner of the island north of Blind Pig Island, in section 28 of township 69 north, range 17 west; on the north side of Steamboat Narrows about 30 meters south of a blazed tree which is marked "Island No. 9, T. B. G. 36"; bronze disk	1, 127. 23
Sand Point Lake, Rainy River District, Ontario; at the head of Portage Bay on the north side of the Dawson Portage trail a few meters east of the shore line; a bronze disk set in the rock	1, 117. 37
Loon River, St. Louis County, Minn.; on the left bank at the south end of the narrows between Little Vermilion Lake and Loon River; close to the shore and about 5 feet above the high-water mark; top of boundary reference monument 410, an 8-inch bronze post	1, 122. 69
Loon River, St. Louis County, Minn.; on the left bank, 100 meters north of the "Big Bend" in Loon River; about 3 meters above the high-water mark and close to the shore; top of boundary reference monument 432, an 8-inch bronze post	1, 125. 41
Loon River, St. Louis County, Minn.; on the left bank of Loon River beside the small rapids that are one-half mile below the portage to Loon Lake; close to the shore; top of boundary reference monument 452, an 8-inch bronze post set in a drill hole in rock in place	1, 119. 89

[5] Elevation determined by Geodetic Survey of Canada.

	Elevation (feet)
Loon River, St. Louis County, Minn.; on the left bank of Loon River at the foot of the rapids between Loon Lake and Loon River; close to the shore; top of monument 462, an 8-inch bronze post set in a drill hole in rock in place	1, 120. 59
Loon Lake, Rainy River District, Ontario; at the dam at the foot of Loon Lake, about 10 feet to the right side of the north end of the dam, close to the shore and a little below high-water mark; top of reference monument 467, an 8-inch bronze post set in a drill hole in rock in place	1, 168. 75
Loon Lake, St. Louis County, Minn.; at the head of Loon Lake, about 19 meters east of reference monument 490 and about 61 meters north of reference monument 489; bronze disk set in the rock at extreme high-water mark	1, 166. 74
Lac La Croix, St. Louis County, Minn.; at the Lac La Croix end of the portage to Loon Lake, west of the track, about 14 meters north of reference monument 494 and about 41 meters northeast of reference monument 495; bronze disk set in the rock at extreme high-water mark	1, 190. 08
Lac La Croix, St. Louis County, Minn.; near the Lac La Croix end of the portage to Loon Lake, about 2 meters east of the track and about 9 meters south of the south corner of the log ice-house; cross on rock	1, 195. 54
Lac La Croix, St. Louis County, Minn.; at the extreme western end of Lac La Croix, at the eastern end of the Dawson Portage between Lac La Croix and Sand Point Lake; a cross chiseled on a bowlder 3 meters from the water's edge	1, 189. 63
Lac La Croix, Rainy River District, Ontario; at the extreme eastern end of Lac La Croix, on the southwest end of the small island which is at the entrance to the small bay at the head of which is the northwest end of Bottle Portage; bronze disk set in rock about 7 meters from shore	1, 189. 62
Iron Lake, Rainy River District, Ontario; at the west end of Iron Lake, about 330 meters northeast of the dam at the outlet of the lake and about 270 meters southeast of the Iron Lake end of Bottle Portage; bronze disk set in a rock about 2 meters in diameter	1, 221. 89
Iron Lake, St. Louis County, Minn.; on a point of the mainland at the foot of the rapids between Crooked and Iron Lakes, 15 meters southwest of a small island; bronze disk set in rock	1, 220. 94
Crooked Lake, St. Louis County, Minn.; at the west end of Crooked Lake at the east end of the Curtain Falls Portage, 1 meter north of the trail and 5 meters from the falls; top of boundary reference monument 656, an 8-inch bronze post set in the smooth granite ledge	1, 251. 0
Crooked Lake, Rainy River District, Ontario; at the extreme southeastern end of Crooked Lake near the falls from Basswood River, on the northwest side of a small rocky island which rises about 0.3 meter above high water; top of boundary reference monument 760, an 8-inch bronze post set in rock	1, 252. 0
Basswood River, Lake County, Minn.; on the south side of the middle one of the three falls from Basswood River into Crooked Lake; top of boundary reference monument 763, an 8-inch bronze post set in the highest part of the bare rock just north of the portage trail and about 5 meters above high water	1, 274. 3
Basswood River, Lake County, Minn.; on Basswood River on the north side and at the foot of American Wheelbarrow Falls; bronze disk set in a large bowlder at the water's edge	1, 262. 61
Basswood River, Lake County, Minn.; on Basswood River at the west end of Horse Portage, the portage around the falls at the outlet of Basswood Lake; bronze disk set in a bowlder 15 meters east of the end of the portage and 5 meters from the water's edge	1, 277. 48
Basswood Lake, Lake County, Minn.; about 90 meters above the falls at the outlet of Basswood Lake and about 30 meters south of the east end of the portage trail; bronze disk set in rock 6 meters from the lake shore	1, 308. 43
Basswood Lake, Lake County, Minn.; "Hoist" triangulation station; at the south end of the long arm of the lake that terminates at Hoist Portage; about 12 meters west of the north end of the St. Croix Lumber Co.'s bunkhouse, about 15 meters from the shore, and about 1.5 meters above the level of the lake; bronze triangulation disk set in the smooth granite ledge	1, 305. 80
Basswood Lake, Lake County, Minn.; near the camp site of the lumber company at Prairie Portage, about 210 meters northwest of the rapids between Sucker and Basswood Lakes, on a large rock on a point which extends into the lake; top of boundary reference monument 831, an 8-inch bronze post set in the rock	1, 308. 3

	Elevation (feet)
Basswood Lake, Lake County, Minn.; on the United States side of the rapids between Sucker and Basswood Lakes, on a smooth outcrop of ledge about 200 meters below the dam and just west of the trail to the site of the lumber camp; top of boundary reference monument 833, an 8-inch bronze post set in the ledge	1, 327. 0
Sucker Lake, Lake County, Minn.; at the northwest end of Sucker Lake, about 75 meters west of the south end of the Prairie Portage tramway and about 22 meters southwest of the dam; top of boundary reference monument 834, an 8-inch bronze post set in a rounded ledge	1, 351. 4
Birch Lake, Lake County, Minn.; on the United States side of the stream connecting Carp and Birch Lakes, about 185 meters downstream from Carp Lake Dam, about 30 meters upstream from the Birch Lake Wharf, and about 5 meters above the level of the lake; top of boundary reference monument 850, an 8-inch bronze post set in ledge rock	1, 353. 6
Carp Lake, Lake County, Minn.; at the United States end of Carp Lake Dam about 9 meters from the sluice, on the trail leading from the dam to Birch Lake; top of boundary reference monument 854, an 8-inch bronze post set in the highest part of a smooth ledge	1, 363. 9
Cypress Lake, Lake County, Minn.; at the west end of Swamp Portage between Swamp and Cypress Lakes, about 50 meters from the lake shore and about 3 meters from boundary monument 1 which is a bronze post rising about 1.5 meters above the surface of the ground; top of boundary reference monument 938, an 8-inch bronze post set in a smooth granite ledge	1, 411. 2
Swamp Lake, Rainy River District, Ontario; on the east shore of Swamp Lake, north of the outlet of Swamp Lake into Saganaga Lake and between the outlet and the portage trail; 21 meters south 17° west of boundary reference monument 945 and 0.12 meter east of a bronze disk marking triangulation station "Cartoon"; the surface of the rock is the bench mark	1, 434. 53
Saganaga Lake, Cook County, Minn.; about 30 meters west of the falls in the outlet of Maraboeuf Lake where it flows into Saganaga Lake, and about 6 meters above the level of the lake; top of boundary reference monument 984, an 8-inch bronze post	1, 453. 3
Maraboeuf Lake, Cook County, Minn.; about 130 meters south of the narrows of Horsetail Rapids which are about three-fourths mile south of the outlet into Saganaga Lake, about 15 meters from the shore and 6 meters above the level of the lake; top of boundary reference monument 998, an 8-inch bronze post set in the rock	1, 463. 2
Granite River, Thunder Bay District, Ontario; on the east shore of Granite River about 100 meters above the rapids where the river empties into Round Lake; top of reference monument 1035, an 8-inch bronze post set in outcropping rock	1, 445. 2
Granite River, Thunder Bay District, Ontario; "Chap" triangulation station; at the head of the fourth rapids and about 1 mile above Round Lake, 9.3 meters east of reference monument 1045; bronze disk set in a small rock at the water's edge	1, 449. 54
Granite River, Thunder Bay District, Ontario; "Cutty" triangulation station; on the most northern point of the shore of the second pond in Granite River below Granite Lake, about 100 meters northwest of the second rapids and about 130 meters northeast of the third rapids, 18 meters west of reference monument 1053; a bronze disk set in a ridge-shaped rock in a niche in the shore	1, 453. 15
Granite River, Thunder Bay District, Ontario; "Crumb" triangulation station; on the northeast shore of the pond in Granite River between the first and second rapids below Granite Lake; 6.3 meters south of reference monument 1055; bronze disk set in an oblong rock at high-water mark	1, 458. 64
Granite River, Cook County, Minn.; on the west bank of Granite River about halfway down the first rapids below Granite Lake, 0.6 meter from the shore; top of reference monument 1048, an 8-inch bronze post set in a large rock	1, 461. 1
Pine Lake, Cook County, Minn.; "Dud" triangulation station; on the east shore of Pine Lake, near the west end of the portage across Pine Island about 35 meters north of the trail; bronze disk set in rock	1, 463. 74
Pine River, Cook County, Minn.; on the west side of a small pond in Pine River on the prominent point of the shore line 160 meters south of the east end of the Pine Portage trail; on the summit of the point about 7 meters above the water level; top of boundary reference monument 1078, an 8-inch bronze post set in a rock	1, 529. 8

	Elevation (feet)
Pine River, Thunder Bay District, Ontario; at the east end of Blueberry Portage on the granite ridge 15 meters northeast of the cut in the rock through which the trail passes; 5 meters from and 2.5 meters above the shore line; top of boundary reference monument 1095, an 8-inch bronze post set in the rock	1, 539. 1
Magnetic Lake, Thunder Bay District, Ontario; just below the upper rapids at the outlet of Magnetic Lake on a large granite ledge; top of boundary reference monument 1105, an 8-inch bronze post set in the most northern projection of the ledge	1, 549. 1
Gunflint Lake, Cook County, Minn.; at the west end of Gunflint Lake on the point at the west side of the outlet into Magnetic Lake, about 30 meters south of the old railway bridge, on a rock near high-water mark; top of boundary reference monument 1110, an 8-inch bronze post set in the rock	1, 546.4
Gunflint Lake, Thunder Bay District, Ontario; at the west end of Gunflint Lake, on the point at the east side of the outlet into Magnetic Lake, about 30 meters south of the old railroad bridge, on a large rock; top of boundary reference monument 1115, an 8-inch bronze post set in the rock	1, 547. 7
Gunflint Lake, Cook County, Minn.; at the east end of Gunflint Lake, on the south side of the stream flowing from Little Gunflint Lake; in front of the customhouse and about 3 meters east of the sidetrack of the Pigeon River Lumber Co.; top of boundary reference monument 1124, an 8-inch bronze post set in a granite rock	1, 553. 1
Little Gunflint Lake, Thunder Bay District, Ontario; "Canute" triangulation station; at the east end of Little Gunflint Lake, on the north side of the stream flowing from Little North Lake, about 6 meters from Little Gunflint Lake, about 4 meters from the stream, and 3.3 meters east of boundary reference monument 1137; a bronze disk set in a bowlder	1, 546. 07
North Lake Railway Station, Thunder Bay District, Ontario; 30 meters west of North Lake railway station, 17 meters south of the Canadian National Railway track, in the north face of a concrete pier built for astronomical observations; Geodetic Survey of Canada bench mark No. 106–E, copper bolt marked "G. S. C., B. M. 106–E"	1, 565. 189
North Lake, Thunder Bay District, Ontario; at the north end of Height-of-Land Portage between North and South Lakes, 45 meters east of boundary monument 4, and 1.5 meters from the door of a house; bronze disk set in a bowlder	1, 560. 64
South Lake, Thunder Bay District, Ontario; "Crown" triangulation station; about 70 meters east of the south end of Height-of-Land Portage trail between North and South Lakes, near the edge of a cliff about 10 meters high, and about 9 meters from the water's edge; bronze disk set in the rock	1, 578. 20
South Lake, Cook County, Minn.; at the east end of South Lake about 8 meters west of the west end of the portage trail, about 3 meters from the water's edge, and 0.3 meter north of boundary reference monument 1166; bronze disk stamped "1552" set in the rock	1, 553. 35
Rose Lake, Cook County, Minn.; at the west end of Rose Lake between the portage and the rapids from Rat Lake, 5.4 meters north of boundary reference monument 1172, 16.5 meters from boundary reference monument 1173, and 0.2 meter north of "Duke" triangulation station; bronze disk stamped "1526" set in the rock	1, 522. 99
Rose Lake, Thunder Bay District, Ontario; at the east end of Rose Lake on a sharp prominent point about 600 meters northwest of the west end of the Long Portage trail from Watap Lake; about 15 meters northeast of boundary reference monument 1205; bronze disk stamped "1525" set in the rock	1, 525. 43
Watap Lake, Thunder Bay District, Ontario; at the west end of Watap Lake on the small knoll about 50 meters south of the Long Portage trail and about the same distance from the mouth of the stream which connects Rose and Watap Lakes; bronze disk stamped "1673" set in a rock, 0.08 meter from boundary reference monument 1211	1, 673. 67
Mountain Lake, Cook County, Minn.; Thunder Bay District, Ontario; near the boundary at the west end of Mountain Lake and the east end of the portage trail from Watap Lake, about 12 meters from the water's edge and about 3 meters from boundary monument 9; bronze disk stamped "1644" set in rock	1, 650. 19
Mountain Lake, Thunder Bay District, Ontario; at the east end of Mountain Lake about 200 meters west of the outlet and 0.20 meter south of boundary reference monument 1259; bronze disk stamped "1645" set in the rock	1, 645. 34

	Elevation (feet)
Moose Lake, Cook County, Minn.; at the west end of Moose Lake in an old logging road, about 15 meters south of the boundary stream, and about 73 meters from the lake; bronze disk stamped "1500" set in a rock	1, 499. 45
North Fowl Lake, Thunder Bay District, Ontario; at the west end of North Fowl Lake, about 30 meters north of the stream which connects Moose and North Fowl Lakes, about 30 meters south of the portage trail, and about 10 meters south of boundary reference monument 1283; bronze disk stamped "1440" set in a bowlder	1, 439. 82
South Fowl Lake, Thunder Bay District, Ontario; 6 meters north of the Canadian end of the dam at the outlet of South Fowl Lake; bronze disk stamped "1448" set in the ledge 1.2 meters above the top of the dam	1, 447. 93
Pigeon River, Thunder Bay District, Ontario; near the shore of Pigeon River, about three-fourths mile south of South Fowl Lake and about 50 meters downstream from the second dam below South Fowl Lake Dam; a bronze disk stamped "305" set in the same rock in which boundary reference monument 1288 is set	1, 380. 18
Pigeon River, Cook County, Minn.; about 4½ miles below the South Fowl Lake Dam, and at the lower end of along stretch of dead water, about 15 meters north of the west end of the portage trail, about 6 meters from the water's edge, and about 85 meters southwest of reference monument 1304; bronze disk stamped "1356" set in a large rock	1, 356. 32
Pigeon River, Cook County, Minn.; about 45 meters south of Partridge Falls, about 24 meters from Pigeon River and about 3 meters north of the portage trail; bronze disk stamped "1328" set in the rock	1, 328. 00
Pigeon River, Thunder Bay District, Ontario; about 25 meters south of the dam at The Cascades, about 2 meters south of boundary reference monument 1324 and about 1 meter south of a bronze disk stamped "199"; bronze disk stamped "1271" set in the ledge	1, 270. 49
Pigeon River, Thunder Bay District, Ontario; traverse station 181; about 1 mile below The Cascades, about 120 meters below the point where the river leaves the long canyon and turns abruptly to the south, and about 130 meters southwest of reference monument 1325; bronze disk stamped "181" set in a large rock on the river bank directly opposite a wing dam	1, 038. 60
Pigeon River, Thunder Bay District, Ontario; about 1⅞ miles above the mouth of Arrow River and about one-half mile above reference monument 1333, on a large rock about 3 meters off shore, opposite a large mud slide; bronze disk stamped "967" set in the rock 0.3 meter west of a bronze disk which marks traverse station 153 and which is stamped "153"	966. 25
Pigeon River, Thunder Bay District, Ontario; traverse station 145; about 1⅝ miles above the mouth of Arrow River and about 115 meters below reference monument 1333; close to the shore line on a rocky point just above a wide part of Pigeon River; bronze disk stamped "145" set in the rock	954. 97
Pigeon River, Thunder Bay District, Ontario; traverse station 143; about 1 mile above the mouth of Arrow River on the north bank of Pigeon River at the mouth of a small stream; bronze disk stamped "143" set in a large rock	940. 99
Pigeon River, Thunder Bay District, Ontario; traverse station 101; on the north side of Pigeon River, about 100 meters below the Scott Highway Bridge and about 120 meters below reference monument 1340, about 1.5 meters back from the edge of a cliff and about 12 meters above the water; bronze disk stamped "101" set in the rock	926. 12
Pigeon River, Thunder Bay District, Ontario; on the north side of Pigeon River, about 100 meters below the Scott Highway Bridge, and about 120 meters below reference monument 1340; about 15 meters north of traverse station 101 and about 15 meters above the water; bronze disk stamped "935" set in the rock	934. 36
Pigeon River, Thunder Bay District, Ontario; traverse station 89; on the north bank of Pigeon River about 2 miles above Horn Rapids, at the head of some very swift rapids and opposite a large, low island, and about 100 meters north of reference monument 1342; bronze disk stamped "89" set in a large rock close to the water's edge	872. 00
Pigeon River, Thunder Bay District, Ontario; traverse station 77; on the north bank of Pigeon River, about one-half mile above Horn Rapids and about 50 meters above the mouth of a small stream; bronze disk stamped "77" set in a large rock	849. 71

	Elevation (feet)
Pigeon River, Thunder Bay District, Ontario; on the north bank of Pigeon River, at the head of Horn Rapids, about 22 meters south of the road, about 9 meters from the river's edge, and about 8 meters east of boundary reference monument 1343; bronze disk stamped "861" set in the rock	860. 98
Pigeon River, Thunder Bay District, Ontario; on the Canadian side of Pigeon River, at the lower end of Little Falls on a shoulder of the ledge about 3 meters above high water and 0.3 meter from boundary reference monument 1347; bronze disk stamped "793" set in the rock	792. 18
Pigeon River, Thunder Bay District, Ontario; on the north side of Pigeon River at High Falls, about 12 meters north of the sluice-way and 0.45 meter east of reference monument 1351; bronze disk stamped "722" set in the rock	721. 29
Pigeon River, Thunder Bay District, Ontario; on the Canadian side at the mouth of Pigeon River; copper bolt in top of International Waterways Commission monument 3, a concrete pier	608. 42

APPENDIX V

GEOGRAPHIC POSITIONS AND DESCRIPTIONS OF TRIANGULATION AND TRAVERSE STATIONS

In this appendix will be found the geographic positions of all the boundary triangulation and traverse stations, boundary monuments, and boundary reference monuments, together with descriptions of the locations of all the monuments and of most of the triangulation and traverse stations. The latitudes and longitudes of the stations are on the North American geodetic datum of 1927. Azimuths and lengths of lines from each station to adjacent stations are given. The azimuths are reckoned clockwise from the south. The distances are reduced to mean sea-level values.

Explanation of Tables

The latitudes and longitudes of the stations in the table of first-order triangulation are given to thousandths of seconds, the azimuths are given to hundredths of seconds, and the logarithms of the distances are given to seven places of decimals. The latitudes and longitudes of the stations of the first-order traverse are given to thousandths of seconds, the azimuths to tenths of seconds, and the logarithms to seven places of decimals. In the table of major triangulation, which is subsidiary to the first-order triangulation, the latitudes and longitudes are given to thousandths of seconds, the azimuths to tenths of seconds, and the logarithms to six places of decimals. In the tables of minor triangulation, the latitudes and longitudes are given to hundredths of seconds, the azimuths to even seconds, and the logarithms to five places of decimals.

The azimuth and length of any line of the triangulation or traverse will be found opposite the second of the two stations of that line as they appear in the list. The logarithms in the tables have been derived from the computations and the distances given have been obtained from their corresponding logarithms.

The following abbreviations have been used throughout the tables: "Mon." for Monument, "Ref." for Reference, and "ecc." for eccentric station.

At the end of the appendix, page 587, is an index to all stations contained in the tables. The use of this index and the sketches of the triangulation and traverse which accompany this report under a separate cover will materially facilitate obtaining any specific geodetic data desired. In selecting stations upon which to base new triangulation, points of the first order or major schemes of triangulation should be chosen in preference to those of a lower order. In searching for a particular triangulation station on the ground reference should be made to the boundary maps and triangulation sketches as well as to the printed description of the station.

GEOGRAPHIC POSITIONS OF TRIANGULATION AND TRAVERSE STATIONS, NORTHWESTERN MOST POINT OF LAKE OF THE WOODS TO LAKE SUPERIOR, FIRST-ORDER SCHEME

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Warroad north base=Boundary Monument 909.	48 59 56.463 95 22 30.377					
Warroad south base	48 55 19.862 95 19 33.829	157 13 15.71	337 11 02.55	Warroad north base	9,268.657	3.9670168
Thunder	49 00 29.631 95 14 46.326	31 27 35.65 83 50 54.94	211 23 58.78 263 45 04.70	Warroad south base Warroad north base	11,214.62 9,487.18	4.0497845 3.9771370
West Willow	48 53 44.637 95 09 35.166	103 37 43.55 126 08 34.18 153 11 31.40	283 30 12.36 305 58 49.59 333 07 36.74	Warroad south base Warroad north base Thunder	12,540.58 19,512.59 14,021.39	4.0983175 4.2903148 4.1467910
Stoney	49 09 03.604 95 07 56.980	4 01 47.04 27 39 41.26 46 27 16.55	184 00 32.91 207 34 31.95 226 16 16.64	West Willow Thunder Warroad north base	28,458.46 17,919.50 24,492.88	4.4542114 4.2533258 4.3890398
Miller	48 58 22.277 94 57 25.663	95 35 25.16 100 38 35.12 147 10 02.02	275 16 29.78 280 25 29.83 327 02 05.11	Warroad north base Thunder Stoney	30,731.66 21,519.35 23,595.88	4.4875860 4.3328291 4.3728362
Garden	49 11 09.213 94 52 46.906	13 27 30.55 78 12 34.23	193 23 59.92 258 01 05.64	Miller Stoney	24,358.21 18,839.79	4.3866454 4.2750760
Big	49 04 50.694 94 43 16.479	55 16 09.49 104 44 31.37 135 22 46.03	235 05 28.34 284 25 52.06 315 15 34.65	Miller Stoney Garden	21,013.87 31,022.93 16,445.40	4.3225060 4.4916828 4.2160444
Ref. Mon. 48	48 52 35.786 94 41 37.713	119 06 53.65 174 57 17.21	298 54 59.04 354 56 02.70	Miller Big	22,066.87 22,791.06	4.3437407 4.3577645
Burton	48 56 58.739 94 36 56.709	35 11 22.71 96 01 20.25 152 08 50.99	215 07 50.91 275 45 53.29 332 04 04.31	Ref. Mon. 48 Miller Big	9,935.77 25,132.11 16,495.79	3.9972016 4.4002290 4.2173732
War (U. S. C. & G. S.)	48 55 00.958 95 19 22.558	158 32 56.0	338 32 47.5	Warroad south base	627.42	2.7975608
Road (U. S. C. & G. S.)	48 53 41.891 95 18 46.629	163 19 38.4	343 19 11.3	War	2,549.71	3.4064905
Red (U. S. C. & G. S.)	48 52 34.156 95 16 37.123	128 25 47.5	308 24 09.9	Road	3,367.37	3.5272905
Full (U. S. C. & G. S.)	48 49 45.025 95 09 41.831	121 43 21.7	301 38 09.0	Red	9,948.47	3.9977564
Dout (U. S. C. & G. S.)	48 47 52.030 95 05 06.878	121 55 12.8	301 51 45.9	Full	6,606.87	3.8199956
Wet ecc. (U. S. C. & G. S.)	48 47 18.465 95 02 42.422	109 23 24.0	289 21 35.3	Dout	3,125.38	3.4949024
Wet (U. S. C. & G. S.)	48 47 18.370 95 02 42.475	200 20 33	20 20 33	Wet ecc	3.134	0.49610
May (U. S. C. & G. S.)	48 46 33.237 94 59 23.415	108 59 54.3	288 57 24.6	Wet ecc	4,296.18	3.6330823
Spur (U. S. C. & G. S.)	48 45 24.821 94 54 29.592	109 26 03.6	289 22 22.6	May	6,361.49	3.8035587
Hen ecc. (U. S. C. & G. S.)	48 44 35.504 94 50 55.848	109 15 23.2	289 12 42.5	Spur	4,624.42	3.6650570
Hen (U. S. C. & G. S.)	48 44 35.797 94 50 55.715	16 45 08	196 45 08	Hen ecc	9.443	0.97511
Ton (U. S. C. & G. S.)	48 43 43.516 94 47 10.364	109 14 21.8	289 11 32.3	Hen ecc	4,879.26	3.6883536
Bon (U. S. C. & G. S.)	48 43 09.102 94 44 41.775	109 18 28.6	289 16 37.0	Ton	3,217.58	3.5075296
Brush (U. S. C. &. G. S.)	48 42 38.478 94 42 31.792	109 36 38.1	289 35 00.4	Bon	2,820.46	3.4503205
Baudette (U. S. C. & G. S.)	48 42 56.562 94 36 03.139	86 01 07.3	265 56 15.3	Brush	7,964.69	3.9011687
Toad (U. S. C. & G. S.)	48 43 22.032 94 35 03.519	57 09 35.9	237 08 51.1	Baudette	1,450.55	3.1615313
Gip (U. S. C. & G. S.)	48 43 22.040 94 31 54.173	90 00 58.5	269 58 36.2	Toad	3,869.99	3.5877098
Fritz (U. S. C. & G. S.)	48 43 22.071 94 30 33.578	89 58 28.8	269 57 28.2	Gip	1,647.26	3.2167622

LAKE OF THE WOODS TO LAKE SUPERIOR, FIRST-ORDER SCHEME—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ray (U. S. C. & G. S.)	48 43 22.544 94 27 02.140	89 49 42.3	269 47 03.4	Fritz	4,321.54	3.6356386
Henri (U. S. C. & G. S.)	48 43 22.052 94 21 01.832	90 09 20.6	270 04 49.8	Ray	7,364.23	3.8671271
Reddy (U. S. C. & G. S.)	48 43 06.472 94 19 46.004	107 15 28.2	287 14 31.2	Henri	1,622.89	3.2102889
Myrtle (U. S. C. & G. S.)	48 42 17.954 94 15 46.644	107 03 14.1	287 00 14.3	Reddy	5,117.67	3.7090719
Delf (U. S. C. & G. S.)	48 41 23.778 94 11 19.709	107 04 20.7	287 01 00.2	Myrtle	5,709.31	3.7565833
Pipp (U. S. C. & G. S.)	48 40 01.278 94 04 40.565	107 22 30.8	287 17 31.0	Delf	8,553.61	3.9321494
Grace (U. S. C. & G. S.)	48 39 10.856 94 00 36.335	107 20 02.8	287 16 59.4	Pipp	5,235.01	3.7189174
Zip (U. S. C. & G. S.)	48 38 31.543 93 57 27.968	107 30 06.0	287 27 44.6	Grace	4,042.43	3.6066428
Rip (U. S. C. & G. S.)	48 38 24.282 93 56 06.995	97 42 50.5	277 41 49.7	Zip	1,672.78	3.2234385
Pat (U. S. C. & G. S.)	48 38 26.084 93 54 42.193	88 10 21.0	268 09 17.4	Rip	1,736.96	3.2397901
Rub (U. S. C. & G. S.)	48 38 12.139 93 53 17.314	103 55 52.9	283 54 49.2	Pat	1,790.32	3.2529300
Jesse (U. S. C. & G. S.)	48 38 04.492 93 52 35.272	105 20 58.1	285 20 26.5	Rub	892.58	2.9506480
Walt (U. S. C. & G. S.)	48 38 03.611 93 51 39.541	91 22 19.5	271 21 37.7	Jesse	1,141.39	3.0574338
Pine (U. S. C. & G. S.)	48 37 17.725 93 49 10.620	114 56 40.7	294 54 48.9	Walt	3,362.78	3.5266987
LaBelle (U. S. C. & G. S.)	48 37 05.975 93 44 57.066	94 01 28.6	273 58 18.3	Pine	5,205.54	3.7164656
Stone (U. S. C. & G. S.)	48 37 02.392 93 43 40.159	94 01 37.8	274 00 40.1	LaBelle	1,579.02	3.1983866
States (U. S. C. & G. S.)	48 36 51.412 93 39 55.679	94 14 32.1	274 11 43.7	Stone	4,610.30	3.6637293
Rob (U. S. C. & G. S.)	48 36 51.405 93 34 09.892	90 02 16.1	269 57 56.7	States	7,082.64	3.8501950
Pig (U. S. C. & G. S.)	48 36 50.863 93 32 33.546	90 29 43.5	270 28 31.2	Rob	1,973.50	3.2952370
Fort Frances west base ecc. (U. S. C. & G. S.).	48 36 51.050 93 31 16.116	89 47 56.4	269 46 58.3	Pig	1,585.97	3.2002947
Fort (U. S. C. & G. S.)	48 36 50.048 93 23 30.514	90 14 04.6	270 08 15.3	Fort Frances west base ecc	9,536.85	3.9794051
Zero (U. S. C. & G. S.)	48 38 10.084 93 21 28.229	45 22 48.8	225 21 17.0	Fort	3,518.97	3.5464150
Lake (U. S. C. & G. S.)	48 37 39.667 93 15 04.983	96 52 03.6	276 47 16.0	Zero	7,903.21	3.8978033
Raney (U. S. C. & G. S.)=Rainy Lake 14	48 37 56.945 93 11 10.843	83 40 20.0	263 37 24.3	Lake	4,823.92	3.6834003
Water (U. S. C. & G. S.)=Rainy Lake 37	48 37 26.510 93 10 55.547	161 34 30.2	341 34 18.7	Raney	990.91	2.9960350
Roll (U. S. C. & G. S.)	48 37 43.525 93 05 48.589	85 15 08.4	265 11 18.0	Water	6,307.75	3.7998743
Sea (U. S. C. & G. S.)	48 36 32.507 92 56 25.469	100 49 42.0	280 42 39.5	Roll	11,739.92	4.0696650
Breaul (U. S. C. & G. S.)	48 35 33.380 92 53 51.609	120 06 12.7	300 04 17.3	Sea	3,643.17	3.5614793
Manitou (U. S. C. & G. S.)	48 34 39.081 92 48 57.957	105 36 12.2	285 32 32.0	Breaul	6,247.59	3.7957127
Late (U. S. C. & G. S.)=Boundary	48 32 47.611 92 43 17.771	116 18 30.7	296 14 15.7	Manitou	7,778.68	3.8909056
Joy (U. S. C. & G. S.)	48 32 36.213 92 37 53.102	93 03 36.6	272 59 33.2	Late	6,668.47	3.8240260
Dog (U. S. C. & G. S.)	48 30 37.369 92 37 33.044	173 36 19.7	353 36 04.7	Joy	3,693.96	3.5674921
Bell (U. S. C. & G. S.)	48 29 58.358 92 37 44.722	191 14 57.4	11 15 06.1	Dog	1,228.62	3.0894172

LAKE OF THE WOODS TO LAKE SUPERIOR, FIRST-ORDER SCHEME—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Knox (U. S. C. & G. S.)	48 29 36.547 92 38 04.322	210 50 48.1	30 51 02.8	Bell	784.74	2.8947281
Nix (U. S. C. & G. S.)	48 29 41.675 92 38 32.562	285 16 32.6	105 16 53.8	Knox	601.05	2.7789128
Bat (U. S. C. & G. S.)	48 29 56.157 92 39 33.659	289 37 19.3	109 38 05.0	Nix	1,331.69	3.1244037
Doran (U. S. C. & G. S.)	48 29 45.082 92 39 41.424	204 59 08.9	24 59 14.8	Bat	377.43	2.5768322
Bees Kees (U. S. C. & G. S.)	48 29 47.743 92 42 01.603	271 37 17.5	91 39 02.4	Doran	2,879.10	3.4592560
Pluss (U. S. C. & G. S.)=Ref. Mon. 340	48 28 59.492 92 42 09.738	186 23 37.6	6 23 43.7	Bees Kees	1,499.75	3.1760182
Harry (U. S. C. & G. S.)	48 27 42.260 92 42 40.780	194 57 37.3	14 58 00.6	Pluss	2,469.33	3.3925799
Rye (U. S. C. & G. S.)	48 27 36.031 92 41 57.522	102 13 11.3	282 12 38.9	Harry	909.30	2.9587072
Deer (U. S. C. & G. S.)	48 26 14.358 92 39 17.611	127 31 48.9	307 29 49.2	Rye	4,142.78	3.6172924
Randolph (U. S. C. & G. S.)	48 25 19.721 92 38 58.568	166 56 32.66	346 56 18.41	Deer	1,732.46	3.2386638
Namakan west base (U. S. C. & G. S.)	48 26 31.974 92 37 03.376	46 42 24.91 78 51 24.99	226 40 58.73 258 49 44.55	Randolph Deer	3,253.89 2,812.09	3.5124031 3.4490289
Grassy (U. S. C. & G. S.)	48 25 56.425 92 35 02.649	76 52 03.28 113 52 56.47	256 49 06.79 293 51 26.14	Randolph Namakan west base	4,980.80 2,713.54	3.6972995 3.4335365
Portage (U. S. C. & G. S.)	48 24 21.670 92 32 50.158	103 21 16.46 127 44 05.22	283 16 40.91 307 40 55.79	Randolph Namakan west base	7,785.10 6,580.47	3.8912643 3.8182567
Namakan east base (U. S. C. & G. S.)	48 26 51.694 92 30 57.468	26 34 26.54 71 18 37.33 74 01 18.85 85 24 25.91	206 33 02.23 251 15 33.86 253 55 18.89 265 19 52.09	Portage Grassy Randolph Namakan west base	5,180.85 5,320.54 10,289.02 7,544.429	3.7144013 3.7259556 4.0123741 3.8776264
Tower (U. S. C. & G. S.)	48 28 37.114 92 29 37.116	26 42 53.29 26 53 27.08 53 27 22.94 62 12 11.61 67 11 10.97	206 40 28.84 206 52 26.94 233 23 19.30 242 05 11.44 247 05 36.95	Portage Namakan east base Grassy Randolph Namakan west base	8,831.62 3,650.80 8,329.19 13,049.39 9,949.99	3.9460406 3.5623882 3.9206029 4.1155901 3.9978225
Fish	48 23 25.602 92 20 11.536	96 24 41.82 129 40 17.90	276 15 14.54 309 33 14.74	Portage Tower (U. S. C. & G. S.)	15,700.57 15,091.22	4.1959155 4.1787242
Vermilion	48 18 53.351 92 23 21.204	130 56 51.15 156 49 36.64 204 53 18.83	310 49 45.95 336 44 55.55 24 55 40.56	Portage Tower (U. S. C. & G. S.) Fish	15,492.36 19,619.59 9,271.72	4.1901175 4.2926899 3.9671604
Center II	48 20 49.633 92 18 23.500	59 40 16.62 155 14 07.44	239 36 34.24 335 12 46.69	Vermilion Fish	7,106.30 5,305.99	3.8516433 3.7247662
Loon (U. S. C. & G. S.)	48 17 54.111 92 13 52.423	98 55 55.86 134 10 51.24 142 42 59.73	278 48 51.14 314 07 28.77 322 38 16.47	Vermilion Center II Fish	11,862.73 7,783.11 12,875.60	4.0741845 3.8911529 4.1097675
Burnt	48 22 21.284 92 15 27.781	51 58 15.38 108 49 14.96 346 36 14.06	231 56 04.06 288 45 42.83 166 37 25.30	Center II Fish Loon	4,593.31 6,167.47 8,482.89	3.6621258 3.7901069 3.9285437
Granite (U. S. C. & G. S.)	48 18 46.092 92 09 44.079	72 36 26.63 133 14 16.66	252 33 21.19 313 09 59.86	Loon Burnt	5,363.63 9,709.42	3.7294588 3.9871931
Timber (U. S. C. & G. S.)	48 14 47.423 92 05 14.049	118 23 55.54 138 00 36.26 142 58 02.78	298 17 28.67 317 52 57.95 322 54 41.23	Loon Burnt Granite	12,145.33 18,880.02 9,238.04	4.0844092 4.2760025 3.9655798
Cedar (U. S. C. & G. S.)	48 21 54.273 92 04 17.091	5 05 35.79 49 14 03.36 93 31 42.44	185 04 53.26 229 09 59.07 273 23 21.13	Timber Granite Burnt	13,236.54 8,895.56 13,829.15	4.1217763 3.9491734 4.1407956
Shortiss	48 17 00.978 91 56 29.058	69 11 50.61 101 17 25.05 133 15 56.95	249 05 18.85 281 07 31.48 313 10 07.37	Timber Granite Cedar	11,586.39 16,704.09 13,229.70	4.0639482 4.2228229 4.1215500
Falls	48 12 02.999 91 56 19.795	114 47 02.99 178 48 40.88	294 40 24.57 358 48 33.97	Timber Shortiss	12,140.38 9,205.79	4.0842324 3.9640611
Lister	48 10 58.466 91 54 22.843	117 48 50.52 129 32 32.77 166 55 05.12	297 40 44.95 309 31 05.60 346 53 30.98	Timber Falls Shortiss	15,189.94 3,131.64 11,495.99	4.1815560 3.4957714 4.0605466
Ark (U. S. C. & G. S.)	48 15 40.340 91 45 37.580	51 17 19.92 100 34 16.34	231 10 48.22 280 26 10.13	Lister Shortiss	13,904.89 13,662.77	4.1431676 4.1355388
Hargo	48 10 41.080 91 46 00.430	93 00 49.73 132 11 38.31 182 55 07.49	272 54 35.31 312 03 49.46 2 55 24.53	Lister Shortiss Ark	10,392.49 17,492.58 9,255.36	4.0167194 4.2428538 3.9663931

LAKE OF THE WOODS TO LAKE SUPERIOR, FIRST-ORDER SCHEME—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Glint	48 12 04.678	73 44 29.08	253 39 10.48	Hargo	9,198.25	3.9637052
	91 38 52.983	128 37 26.95	308 32 25.19	Ark	10,681.28	4.0286234
Beaver (U. S. C. & G. S.)	48 08 58.756	102 08 28.61	281 59 35.59	Hargo	15,117.57	4.1794819
	91 34 05.013	131 00 37.66	310 52 01.33	Ark	18,929.81	4.2771462
		134 00 59.71	313 57 25.12	Glint	8,268.71	3.9174379
Rock (U. S. C. & G. S.)	48 04 33.162	136 27 39.53	316 21 09.95	Hargo	15,690.35	4.1956327
	91 37 17.242	171 55 53.88	351 54 42.57	Glint	14,085.67	4.1487776
		205 50 23.32	25 52 46.42	Beaver	9,116.19	3.9598135
Canada (Geodetic Survey of Canada)	48 05 49.017	71 47 16.71	251 43 01.19	Rock	7,482.39	3.8740401
	91 31 33.873	151 56 33.06	331 54 40.52	Beaver	6,641.87	3.8222902
Found	48 00 51.105	125 28 06.73	305 22 20.47	Rock	11,833.77	4.0731230
	91 29 31.635	159 26 20.83	339 22 57.40	Beaver	16,089.57	4.2065443
		164 37 52.98	344 36 22.06	Canada	9,543.25	3.9796961
Emily	48 04 01.610	158 52 41.26	338 51 55.17	Canada	3,556.52	3.5510251
	91 30 31.933	348 00 34.45	168 01 19.29	Found	6,015.09	3.7792424
Fang	48 01 41.335	74 07 44.89	254 04 29.48	Found	5,663.61	3.7530932
	91 25 08.768	122 56 58.42	302 52 58.08	Emily	7,972.93	3.9016181
		133 51 12.72	313 46 26.25	Canada	11,049.89	4.0433578
Gone	48 05 03.800	14 56 14.61	194 54 59.89	Found	8,077.41	3.9072723
	91 27 51.170	60 01 19.15	239 59 19.53	Emily	3,842.31	3.5845924
		331 42 47.22	151 44 48.01	Fang	7,100.32	3.8512780
Had	48 03 40.925	145 58 04.68	325 57 49.17	Emily	770.93	2.8870149
	91 30 11.093	228 31 03.36	48 32 47.46	Gone	3,865.47	3.5872019
Garb	48 04 33.958	64 23 38.98	244 21 36.25	Had	3,787.754	3.5783817
	91 27 26.123	75 27 30.27	255 25 12.02	Emily	3,974.14	3.5992428
		114 21 21.40	294 18 17.02	Canada	5,627.00	3.7502772
		150 38 48.94	330 38 30.30	Gone	1,057.51	3.0242835
Sunday (Geodetic Survey of Canada)	48 08 43.131	10 04 00.38	190 02 37.31	Fang	13,231.09	4.1215958
	91 23 17.142	28 02 11.62	207 57 32.97	Found	16,511.71	4.2177921
		46 00 52.31	225 55 28.66	Emily	12,510.47	4.0972735
		62 25 11.13	242 19 01.28	Canada	11,595.55	4.0642915
Paddy (Geodetic Survey of Canada)	48 06 04.584	58 29 35.08	238 21 39.70	Fang	15,529.20	4.1911491
	91 14 29.737	114 14 01.22	294 07 28.52	Sunday	11,955.88	4.0775815
Ewing (Geodetic Survey of Canada)	48 02 48.894	80 37 51.35	260 30 20.45	Fang	12,733.44	4.1049457
	91 15 02.377	186 22 30.17	6 22 54.46	Paddy	6,081.84	3.7840349
Trouble (Geodetic Survey of Canada)	48 09 58.293	76 45 29.54	256 39 35.30	Sunday	10,098.10	4.0042396
	91 15 21.630	351 32 24.80	171 33 03.45	Paddy	7,297.85	3.8631947
		358 16 40.58	178 16 54.91	Ewing	13,268.71	4.1228288
Saunders (Geodetic Survey of Canada)	48 04 52.141	62 02 01.06	241 57 43.85	Ewing	8,107.87	3.9089070
	91 09 16.618	109 04 59.89	289 01 06.87	Paddy	6,854.94	3.8360036
		141 26 17.24	321 21 45.46	Trouble	12,099.49	4.0827672
Dorothy (Geodetic Survey of Canada)	48 10 21.477	10 23 35.30	190 22 28.18	Saunders	10,341.51	4.0145841
	91 07 46.480	46 27 33.94	226 22 33.62	Paddy	11,509.54	4.0610581
		85 41 33.77	265 35 54.63	Trouble	9,431.51	3.9745813
Poly (Geodetic Survey of Canada)	48 05 09.235	87 30 13.70	267 23 08.34	Saunders	11,842.48	4.0734427
	90 59 44.988	134 08 14.46	314 02 15.92	Dorothy	13,861.40	4.1418071
Helga (Geodetic Survey of Canada)	48 10 51.551	43 57 27.76	223 51 02.97	Saunders	15,407.44	4.1877304
	91 00 39.900	84 01 37.44	263 56 19.55	Dorothy	8,861.54	3.9475092
		353 51 54.60	173 52 35.49	Poly	10,633.87	4.0266912
Paulsen (Geodetic Survey of Canada)	48 05 28.541	87 00 04.13	266 53 22.32	Poly	11,189.75	4.0488205
	90 50 45.043	129 06 37.17	308 59 14.17	Helga	15,836.62	4.1996625
Mabel (Geodetic Survey of Canada)	48 10 43.114	40 36 09.87	220 30 52.00	Poly	13,573.66	4.1326968
	90 52 38.138	91 32 59.57	271 27 00.55	Helga	9,955.55	3.9980653
		346 27 23.81	166 28 48.03	Paulsen	9,993.60	3.9997220
Vera (Geodetic Survey of Canada)	48 14 08.350	7 53 40.08	187 52 16.96	Poly	16,810.50	4.2255807
	90 57 53.423	29 30 12.05	209 28 07.93	Helga	6,983.05	3.8440451
		314 12 26.37	134 16 21.43	Mabel	9,086.28	3.9583859
		331 05 07.10	151 10 26.26	Paulsen	18,334.01	4.2632575
Stuart (Geodetic Survey of Canada)	48 15 22.117	7 27 37.52	187 26 11.07	Paulsen	18,489.84	4.2669331
	90 48 49.028	28 46 55.93	208 44 05.09	Mabel	9,830.12	3.9925590
		78 35 19.97	258 28 33.85	Vera	11,460.32	4.0591966
Light (Geodetic Survey of Canada)	48 13 39.703	25 48 16.04	205 43 52.04	Paulsen	16,845.59	4.2264863
	90 44 50.682	60 34 41.43	240 28 52.94	Mabel	11,086.70	4.0448024
		122 46 31.82	302 43 34.02	Stuart	5,847.27	3.7669530
John (Geodetic Survey of Canada)	48 18 24.488	5 52 37.02	185 52 16.04	Stuart	5,662.76	3.7530280
	90 48 20.918	7 05 37.13	187 03 49.69	Paulsen	24,150.93	4.3829338
		333 44 24.05	153 47 00.94	Light	9,806.77	3.9915259
Mowe (Geodetic Survey of Canada)	48 21 54.896	0 53 58.63	180 53 49.94	Light	15,297.27	4.1846139
	90 44 39.044	13 57 46.01	193 53 13.04	Paulsen	31,388.35	4.4967684
		35 08 01.93	215 05 16.17	John	7,944.67	3.9000761
Gunflint (Geodetic Survey of Canada)	48 08 22.877	74 31 55.34	254 20 19.50	Paulsen	20,067.70	4.3024977
	90 35 10.399	127 32 11.43	307 22 01.18	Stuart	21,294.64	4.3282703
		129 17 18.86	309 10 06.38	Light	15,473.77	4.1895963
		154 59 37.26	334 52 33.00	Mowe	27,688.78	4.4423038

LAKE OF THE WOODS TO LAKE SUPERIOR, FIRST-ORDER SCHEME—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Addie (Geodetic Survey of Canada)	48 10 20.288	77 32 36.32	257 22 48.55	Gunflint	16,704.83	4.2228421
	90 22 01.403	127 36 14.80	307 19 21.63	Mowe	35,272.52	4.5474365
Greenwater (Geodetic Survey of Canada)	48 29 39.478	16 44 41.16	196 37 32.73	Gunflint	41,164.63	4.6145242
	90 25 36.736	58 41 22.60	238 27 07.99	Mowe	27,520.18	4.4396512
		352 54 59.78	172 57 40.64	Addie	36,078.63	4.5572501
Echo (Geodetic Survey of Canada)	48 21 17.320	52 20 43.60	232 04 56.51	Addie	33,121.46	4.5201095
	90 00 52.208	117 05 38.91	296 47 08.36	Greenwater	34,236.02	4.5344832
Zero (Geodetic Survey of Canada)	48 33 48.802	62 43 14.19	242 34 10.54	Greenwater	16,760.27	4.2242811
	90 13 31.192	326 01 42.98	146 11 11.06	Echo	27,963.68	4.4465944
Ware (Geodetic Survey of Canada)	48 31 09.152	63 12 50.14	242 51 02.27	Echo	40,311.22	4.6054260
	89 31 44.251	95 44 19.77	275 13 00.97	Zero	51,658.38	4.7131408
Whitefish (Geodetic Survey of Canada)	48 09 40.036	92 24 31.67	272 05 30.84	Addie	31,662.49	4.5005451
	89 56 30.258	165 56 38.45	345 53 23.00	Echo	22,204.76	4.3464461
		217 23 22.49	37 41 52.70	Ware	50,218.90	4.7008672
Devilfish (Geodetic Survey of Canada)	47 58 48.840	137 34 44.73	317 23 00.85	Addie	28,975.22	4.4620267
	90 06 15.367	189 04 28.65	9 08 29.44	Echo	42,182.39	4.6251312
		210 59 49.23	31 07 04.53	Whitefish	23,478.84	4.3706767
Pigeon (Geodetic Survey of Canada)	47 58 33.851	91 07 47.41	270 51 54.99	Devilfish	26,592.01	4.4247511
	89 44 53.317	145 01 59.27	324 53 20.78	Whitefish	25,130.74	4.4002053
		154 54 09.06	334 42 14.62	Echo	46,541.80	4.6678431
Farquhars Knob (U. S. Lake Survey)	47 52 40.248	143 06 56.68	323 01 50.73	Devilfish	14,240.91	4.1535379
	89 59 23.202	186 28 23.96	6 30 32.52	Whitefish	31,700.64	4.5010681
		238 44 43.27	58 55 28.98	Pigeon	21,103.75	4.3243596
Blake (Geodetic Survey of Canada)	48 11 50.299	38 28 10.81	218 16 30.42	Pigeon	31,377.25	4.4966149
	89 29 12.129	83 23 21.37	263 03 00.58	Whitefish	34,078.80	4.5324843
		114 16 59.39	293 53 21.25	Echo	42,914.26	4.6326016
		175 00 57.15	354 59 03.47	Ware	35,931.46	4.5554749
McKay (Geodetic Survey of Canada)	48 20 41.169	42 17 48.09	222 08 49.58	Blake	22,142.08	4.3452184
	89 17 10.560	67 29 09.14	246 59 48.58	Whitefish	52,786.44	4.7225224
		137 17 40.44	317 06 46.77	Ware	26,435.12	4.4221812
Macgregor (Geodetic Survey of Canada)	48 34 18.488	32 58 28.60	212 48 33.80	McKay	30,065.46	4.4780679
	89 03 55.878	36 59 48.33	216 40 54.74	Blake	52,032.82	4.7162774
		80 28 29.77	260 07 39.35	Ware	34,715.19	4.5405196
Isle Royal East (U. S. Lake Survey)	48 07 43.612	75 52 22.97	254 48 38.57	Farquhars Knob	110,252.94	5.0423902
	88 33 37.364	79 35 13.16	258 42 12.84	Pigeon	90,162.67	4.9550268
		96 39 15.97	275 57 51.39	Blake	69,330.83	4.8409264
		114 16 41.17	293 44 11.96	McKay	59,029.22	4.7710670
		121 30 36.80	300 47 12.34	Ware	83,928.80	4.9239110
		142 57 07.46	322 34 28.61	Macgregor	61,876.04	4.7915225

GEOGRAPHIC POSITIONS OF TRIANGULATION STATIONS, NORTHWESTERNMOST POINT OF LAKE OF THE WOODS TO LAKE SUPERIOR, MAJOR SCHEME

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Warroad north base	48 59 56.463 95 22 30.377					
Warroad south base	48 55 19.862 95 19 33.829	157 13 15.71	337 11 02.55	Warroad north base	9,268.657	3.9670168
Buffalo	48 59 58.700 95 13 56.339	38 35 26.6 89 40 29.7	218 31 12.0 269 34 01.8	Warroad south base Warroad north base	11,014.9 10,448.8	4.041979 4.019066
Willow 1913	48 54 17.122 95 07 57.445	97 51 21.9 120 38 29.9 145 21 14.5 180 01 11.0	277 42 37.0 300 27 31.6 325 16 43.8 0 01 11.3	Warroad south base Warroad north base Buffalo Stoney	14,311.1 20,623.3 12,831.9 27,385.0	4.155674 4.314358 4.108292 4.437512
Gull Island	48 59 02.469 95 03 31.269	31 35 49.9 70 45 09.0 94 14 20.8 163 49 56.6	211 32 29.2 250 33 03.1 274 00 01.2 343 46 35.8	Willow 1913 Warroad south base Warroad north base Stoney	10,345.8 20,755.7 23,217.6 19,337.7	4.014764 4.317138 4.365817 4.286404
Gould	49 07 36.412 95 17 03.126	25 05 35.0 256 16 02.4 313 50 25.0	205 01 27.8 76 22 55.5 134 00 38.3	Warroad north base Stoney Gull Island	15,685.1 11,393.1 22,886.2	4.195487 4.056643 4.359574
Mon. 913	49 10 50.280 95 09 10.972	58 00 14.2 335 32 01.2	237 54 17.0 155 32 57.1	Gould Stoney	11,287.5 3,620.4	4.052596 3.558756
Lone tree	49 08 47.383 95 08 54.118	77 34 46.0 174 51 45.3 246 35 34.7	257 28 36.0 354 51 32.6 66 36 17.9	Gould Mon. 913 Stoney	10,152.0 3,811.9 1,261.7	4.006551 3.581146 3.100959
Long Point	48 59 08.574 94 58 54.380	88 06 36.6 93 05 25.2 149 07 40.2 240 52 57.0 278 22 24.0	268 03 07.6 272 47 36.6 329 00 50.2 61 04 45.2 98 38 58.0	Gull Island Warroad north base Stoney Big Burton	5,633.0 28,824.1 21,428.7 21,786.4 27,099.0	3.750736 4.459756 4.330995 4.338185 4.432953
Oak	48 52 36.333 94 41 43.693	120 07 03.2 175 15 19.0 215 45 24.3	299 54 06.1 355 14 09.0 35 49 00.6	Long Point Big Burton	24,226.5 22,763.8 9,992.6	4.384291 4.357245 3.999680
Zippel	48 52 24.251 94 51 27.161	203 20 53.9 244 20 33.3 268 08 27.2	23 27 04.1 64 31 29.3 88 15 46.7	Big Burton Oak	25,125.1 19,648.1 11,895.2	4.400107 4.293320 4.075370
Big Point	49 07 25.714 94 46 10.558	45 21 37.8 130 43 38.2 323 34 41.7	225 12 00.9 310 38 38.4 143 36 53.3	Long Point Garden Big	21,825.9 10,591.1 5,950.0	4.338972 4.024942 3.774515
Bigsby	49 01 35.784 94 37 50.180	15 56 14.0 132 17 57.0 352 45 18.1	195 53 17.9 312 13 50.5 172 45 58.4	Oak Big Burton	17,328.4 8,952.5 8,627.1	4.238758 3.951945 3.935865
Willow 1917	48 52 34.979 94 37 56.729	90 20 25.4 188 31 26.0	270 17 38.9 8 32 11.2	Ref. Mon. 48 Burton	4,502.9 8,239.0	3.653495 3.915875
Hungry 1917	48 51 03.261 94 40 43.956	159 01 55.0 202 49 49.8 230 14 49.4	339 01 14.5 22 52 41.0 50 16 55.4	Ref. Mon. 48 Burton Willow 1917	3,061.0 1,191.7 4,432.2	3.485861 3.076153 3.646618
Hungry 1913	48 51 02.996 94 40 44.767	157 23 33.7 202 53 17.7	337 22 49.3 22 56 09.5	Oak Burton	3,123.4 11,930.6	3.494629 4.076661
Ben	48 49 23.087 94 45 53.207	220 24 34.7 221 09 38.2 243 49 52.2 243 49 54.8	40 27 42.6 41 12 50.6 63 53 45.0 63 53 47.0	Oak Ref. Mon. 48 Hungry 1917 Hungry 1913	7,842.9 7,909.8 7,024.7 7,006.2	3.894478 3.898166 3.846625 3.845482
Ref. Mon. 55	48 49 27.548 94 41 59.203	88 22 14.9 184 18 23.4 207 13 55.7 207 25 14.0	268 19 18.8 4 18 39.6 27 14 51.8 27 26 10.7	Ben Ref. Mon. 48 Hungry 1913 Hungry 1917	4,775.2 5,831.3 3,316.2 3,331.1	3.678988 3.765767 3.520643 3.522588
Reed	48 46 40.476 94 41 17.079	131 44 35.8 170 32 52.7	311 41 08.0 350 32 21.0	Ben Ref. Mon. 55	7,548.9 5,232.0	3.877881 3.718671
Pitt	48 45 21.594 94 43 28.218	158 22 33.5 193 26 24.4 227 41 14.1	338 20 44.4 13 27 31.3 47 42 52.7	Ben Ref. Mon. 55 Reed	8,025.4 7,811.9 3,620.6	3.904468 3.892754 3.558784
Point	48 44 34.861 94 38 11.517	102 36 43.4 135 41 42.8	282 32 45.3 315 39 23.3	Pitt Reed	6,628.6 5,424.0	3.821425 3.734318
Engler	48 42 55.785 94 39 45.732	134 45 24.8 164 57 38.0 212 09 53.3	314 42 37.6 344 56 29.3 32 11 04.1	Pitt Reed Point	6,399.6 7,187.3 3,615.7	3.806151 3.856564 3.558198
Rainy	48 44 03.042 94 35 32.008	68 11 35.9 106 47 57.1	248 08 25.2 286 45 57.2	Engler Point	5,586.3 3,404.1	3.747122 3.532004

LAKE OF THE WOODS TO LAKE SUPERIOR, MAJOR SCHEME—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Spooner	48 40 16.723	130 02 18.0	309 58 43.0	Engler	7,642.6	3.883239
	94 34 59.490	153 48 23.2	333 45 58.9	Point	8,888.0	3.948803
		174 34 13.8	354 33 49.4	Rainy	7,022.5	3.846493
Clementson	48 41 25.803	79 30 37.8	259 23 37.1	Spooner	11,656.6	4.066572
	94 25 39.273	111 54 17.6	291 46 52.3	Rainy	13,054.5	4.115760
Sleeman	48 46 34.847	41 59 39.3	221 53 13.4	Spooner	15,702.7	4.195973
	94 26 25.992	67 15 07.6	247 08 17.1	Rainy	12,098.4	4.082729
		354 17 03.6	174 17 38.7	Clementson	9,594.0	3.982001
Pinewood	48 43 17.292	67 34 10.3	247 29 04.4	Clementson	9,009.6	3.954705
	94 18 52.075	123 23 49.2	303 18 08.0	Sleeman	11,100.6	4.045347
		295 47 10.2	115 49 29.5	Myrtle	4,210.6	3.624341
Darby	48 48 18.279	45 54 18.4	225 48 25.7	Pinewood	13,349.7	4.125472
	94 11 02.996	54 38 57.8	234 27 59.1	Clementson	21,972.6	4.341881
		80 28 15.5	260 16 41.2	Sleeman	19,108.5	4.281226
Stratton	48 42 06.627	50 34 22.9	230 33 23.7	Delf	2,083.7	3.318844
	94 10 01.010	92 52 13.6	272 47 53.9	Myrtle	7,075.7	3.849768
		101 25 25.1	281 18 46.1	Pinewood	11,073.9	4.044302
		173 42 46.7	353 42 00.1	Darby	11,550.0	4.062583
Partridge	48 43 19.788	67 52 51.2	247 49 27.1	Stratton	5,994.6	3.777763
	94 05 29.411	89 48 52.2	269 38 49.0	Pinewood	16,405.9	4.215000
		143 34 34.1	323 30 23.2	Darby	11,464.2	4.059343
Frontier	48 40 13.350	143 24 28.5	323 21 53.4	Pinewood	7,078.8	3.849957
	94 15 25.621	242 10 33.6	62 14 37.4	Stratton	7,505.1	3.875355
Soo	48 37 41.760	112 31 18.7	292 24 23.4	Frontier	12,254.6	4.088299
	94 06 12.345	123 46 34.6	303 37 04.1	Pinewood	18,681.4	4.271410
		150 15 33.6	330 12 41.9	Stratton	9,425.1	3.974286
		184 48 14.3	4 48 46.6	Partridge	10,478.5	4.020298
Manitou	48 35 47.328	107 31 15.2	287 24 23.7	Soo	11,778.6	4.071092
	93 57 03.821	143 32 25.7	323 26 06.1	Partridge	17,389.4	4.240284
Tillet	48 40 45.283	25 29 04.2	205 26 23.5	Manitou	10,193.9	4.008339
	93 53 29.760	70 07 03.3	249 57 30.8	Soo	16,605.2	4.220244
		108 02 41.2	287 53 40.5	Partridge	15,469.8	4.189484
Redford	48 33 19.692	108 06 33.5	287 58 01.2	Manitou	14,727.5	4.168128
	93 45 40.655	145 07 55.9	325 02 03.9	Tillet	16,785.8	4.224941
Cook	48 38 02.482	10 42 14.7	190 41 14.3	Redford	8,889.7	3.948886
	93 44 20.137	75 08 08.3	254 58 35.3	Manitou	16,189.5	4.209234
		114 08 44.4	294 01 51.8	Tillet	12,321.3	4.090656
Hill	48 43 24.922	17 27 03.9	197 25 01.8	Soo	11,110.6	4.045737
	94 03 29.627	86 18 22.3	266 16 52.4	Partridge	2,453.3	3.389759
		291 50 21.1	111 57 51.8	Tillet	13,219.9	4.121227
		330 46 26.0	150 51 15.7	Manitou	16,190.5	4.209259
Indus	48 37 23.843	70 29 07.6	250 24 00.3	Manitou	8,906.2	3.949690
	93 50 14.128	260 36 46.0	80 41 11.7	Cook	7,346.2	3.866063
		323 21 20.2	143 24 45.4	Redford	9,396.0	3.972941
Devlin	48 37.14.895	41 41 30.1	221 37 33.5	Redford	9,724.5	3.987866
	93 40 25.244	107 01 03.1	286 58 06.8	Cook	5,029.6	3.701532
Daw	48 33 12.094	91 56 50.2	271 52 33.2	Redford	7,035.1	3.847270
	93 39 57.786	149 05 32.1	329 02 15.3	Cook	10,457.5	4.019427
		175 42 43.4	355 42 22.8	Devlin	7,521.1	3.876279
Fort Frances west base	48 36 49.044	57 58 29.5	237 51 58.3	Daw	12,618.2	4.100996
	93 31 16.124	94 07 06.5	274 00 14.5	Devlin	11,275.1	4.052120
		180 08 36.4	0 08 36.4	Fort Frances west base ecc	61.97	1.792182
Johnson	48 32 07.677	97 50 26.3	277 41 33.2	Daw	14,724.1	4.168030
	93 28 06.501	122 09 09.7	301 59 55.7	Devlin	17,870.1	4.252128
		155 55 26.0	335 53 03.8	Fort Frances west base	9,520.9	3.978676
Fort Frances east base	48 36 48.182	25 46 42.6	205 44 09.7	Johnson	9,620.5	3.983196
	93 24 42.554	90 13 49.3	270 08 54.0	Fort Frances west base	8,061.52	3.906417
Frog	48 39 21.372	13 43 29.1	193 41 29.5	Johnson	13,789.4	4.139544
	93 25 27.022	56 40 45.1	236 36 23.1	Fort Frances west base	8,557.4	3.932341
		349 06 15.9	169 06 49.3	Fort Frances east base	4,818.8	3.682936
Squall Point	48 38 44.698	61 26 22.9	241 22 20.9	Fort Frances east base	7,520.1	3.876223
	93 19 20.093	98 36 58.5	278 32 23.0	Frog	7,595.2	3.880541
Birch Point	48 37 04.139	85 52 35.8	265 48 27.5	Fort Frances east base	6,798.0	3.832379
	93 19 11.532	118 54 44.1	298 50 02.3	Frog	8,778.9	3.943442
		176 46 15.2	356 46 08.8	Squall Point	3,111.2	3.492923
Lockhart	48 40 18.776	39 57 59.4	219 54 54.7	Birch Point	7,841.2	3.894383
	93 15 05.614	60 52 02.7	240 48 51.6	Squall Point	5,963.6	3.775509
Fransen	48 37 28.111	82 05 32.9	262 02 18.2	Birch Point	5,363.9	3.729480
	93 14 52.130	113 21 15.1	293 17 54.0	Squall Point	5,974.7	3.776316
		177 00 15.3	357 00 05.2	Lockhart	5,278.7	3.722527
Island View	48 35 55.255	126 45 48.0	306 43 27.3	Fransen	4,794.5	3.680744
	93 11 44.569	153 11 44.0	333 09 13.2	Lockhart	9,121.3	3.960058

LAKE OF THE WOODS TO LAKE SUPERIOR, MAJOR SCHEME—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Dunsmoore	48 38 48.821	9 11 30.9	189 10 59.1	Island View	5,431.0	3.734883
	93 11 02.226	62 06 56.8	242 04 04.3	Fransen	5,326.5	3.726443
		119 10 44.3	299 07 41.6	Lockhart	5,703.3	3.756125
Lumber Camp	48 39 01.185	39 31 06.0	219 28 12.6	Island View	7,442.5	3.871717
	93 07 53.429	84 22 32.7	264 20 11.0	Dunsmoore	3,883.3	3.589199
Bushyhead	48 36 04.993	86 18 14.4	266 15 25.0	Island View	4,636.7	3.666213
	93 07 58.735	143 25 26.3	323 23 08.6	Dunsmoore	6,303.1	3.799555
		181 08 36.1	1 08 40.0	Lumber Camp	5,443.6	3.735883
Sand Point	48 38 07.586	28 01 48.9	208 00 35.1	Bushyhead	4,289.6	3.632421
	93 06 20.342	58 25 10.9	238 21 07.6	Island View	7,797.9	3.891977
		102 28 35.7	282 25 04.1	Dunsmoore	5,909.6	3.771556
		130 59 42.9	310 58 33.0	Lumber Camp	2,524.4	3.402151
Berry	48 39 16.954	66 28 08.5	246 25 08.3	Sand Point	5,361.7	3.729300
	93 02 20.241	85 56 56.2	265 52 46.0	Lumber Camp	6,836.7	3.834849
Cranberry	48 36 37.684	81 17 23.7	261 13 23.3	Bushyhead	6,643.0	3.822362
	93 02 38.234	121 25 41.9	301 22 55.3	Sand Point	5,329.3	3.726669
		184 16 49.9	4 17 03.4	Berry	4,933.6	3.693160
Lost	48 35 25.697	115 46 35.3	295 43 46.6	Cranberry	5,117.8	3.709080
	92 58 53.254	149 20 10.9	329 17 35.6	Berry	8,306.5	3.919416
Baldy	48 38 12.074	23 30 37.2	203 29 15.4	Lost	5,604.0	3.748502
	92 57 04.162	66 57 07.9	246 52 57.2	Cranberry	7,436.8	3.871386
		107 14 36.2	287 10 38.9	Berry	6,773.4	3.830807
Swell	48 41 41.355	42 51 28.0	222 48 56.2	Berry	6,082.8	3.784105
	92 58 58.084	340 09 34.5	160 11 00.1	Baldy	6,872.1	3.837087
Scott	48 38 44.515	39 28 16.2	219 25 11.1	Lost	7,952.8	3.900519
	92 54 46.550	70 26 00.3	250 24 17.1	Baldy	2,990.1	3.475681
		96 12 22.0	276 06 41.4	Berry	9,340.1	3.970352
		136 44 00.0	316 40 51.1	Swell	7,505.0	3.875349
Saginaw	48 33 54.556	124 25 04.0	304 22 33.6	Lost	4,983.4	3.697530
	92 55 32.640	166 44 43.5	346 43 34.9	Baldy	8,172.6	3.912359
Brule	48 36 11.887	34 41 33.2	214 39 45.8	Saginaw	5,158.4	3.712511
	92 53 09.438	78 35 10.9	258 30 53.1	Lost	7,187.7	3.856591
		127 42 08.9	307 39 12.8	Baldy	6,073.9	3.783467
Big Island	48 32 45.771	110 46 06.7	290 42 41.6	Saginaw	5,999.8	3.778137
	92 50 59.018	157 14 08.8	337 12 31.0	Brule	6,905.3	3.839181
Manitowoc	48 35 05.168	29 26 19.7	209 24 50.9	Big Island	4,943.7	3.694049
	92 49 00.551	74 51 27.0	254 46 33.0	Saginaw	8,328.0	3.920539
		112 01 47.1	291 58 40.4	Brule	5,500.6	3.740407
		356 13 26.8	176 13 28.7	Manitou (U. S. C. & G. S.)	807.6	2.907181
Duck	48 31 37.284	131 48 37.3	311 47 10.9	Big Island	3,174.0	3.501609
	92 49 03.672	180 34 14.2	0 34 16.6	Manitowoc	6,421.7	3.807650
Whitewash	48 34 00.202	37 52 49.6	217 50 44.2	Duck	5,591.8	3.747550
	92 46 16.333	68 23 43.0	248 20 11.1	Big Island	6,236.0	3.794909
		109 56 27.5	289 54 26.3	Manitou (U. S. C. & G. S.)	3,524.2	3.547058
		120 49 07.2	300 47 04.1	Manitowoc	3,919.0	3.593172
Brown	48 31 51.715	73 10 21.5	253 09 27.7	Duck	1,539.1	3.187274
	92 47 51.870	206 15 54.4	26 17 06.0	Whitewash	4,426.2	3.646028
Lake	48 30 35.581	119 54 06.2	299 52 05.3	Duck	3,825.2	3.582658
	92 46 22.056	141 55 24.5	321 54 17.4	Brown	2,987.9	3.475361
		181 03 48.4	1 03 52.8	Whitewash	6,321.7	3.800831
Boundary=Late (U. S. C. & G. S.)	48 32 47.611	42 51 12.0	222 48 53.9	Lake	5,561.4	3.745181
	92 43 17.771	72 57 29.1	252 54 03.8	Brown	5,881.8	3.769507
		121 30 03.7	301 27 49.9	Whitewash	4,293.6	3.632822
Moose	48 30 37.520	89 10 46.3	269 08 17.4	Lake	4,080.9	3.610755
	92 43 03.249	175 45 39.5	355 45 28.7	Boundary	4,029.4	3.605241
Sand Narrows	48 31 34.482	62 40 22.9	242 38 18.6	Moose	3,830.5	3.583255
	92 40 17.448	121 25 44.5	301 23 29.3	Boundary	4,334.3	3.636923
Bear	48 29 53.053	99 02 14.5	278 56 57.8	Moose	8,786.7	3.943828
	92 36 00.456	120 44 13.1	300 41 00.6	Sand Narrows	6,134.8	3.787801
Snow	48 27 48.743	135 17 01.0	315 13 52.6	Moose	7,339.8	3.865687
	92 38 51.634	222 27 25.4	42 29 33.6	Bear	5,206.0	3.716501
Squaw	48 27 55.317	167 44 20.4	347 43 41.2	Lake	5,066.0	3.704667
	92 45 29.639	210 56 47.6	30 58 37.2	Moose	5,842.8	3.766622
		271 22 52.5	91 27 50.4	Snow	8,178.8	3.912690
Namakan	48 25 55.206	117 38 45.9	297 38 43.3	Grassy	81.24	1.909754
	92 34 59.148	126 18 18.0	306 15 24.0	Snow	5,926.6	3.772803
		170 16 44.1	350 15 58.2	Bear	7,453.9	3.872386
Bump	48 29 36.492	32 53 33.6	212 50 52.7	Namakan	8,138.1	3.910524
	92 31 24.151	95 10 54.3	275 07 27.4	Bear	5,695.7	3.755547
Bay	48 24 27.329	120 28 05.7	300 25 17.7	Namakan	5,356.9	3.728910
	92 31 14.539	123 33 31.0	303 27 49.0	Snow	11,268.6	4.051869
		149 44 52.5	329 41 18.5	Bear	11,650.8	4.066357

LAKE OF THE WOODS TO LAKE SUPERIOR, MAJOR SCHEME—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Tower	48 28 35.676	14 26 45.6	194 25 33.7	Bay	7,921.2	3.898789
	92 29 38.455	53 04 54.7	233 00 54.7	Namakan	8,245.5	3.916218
		82 47 12.7	262 40 18.6	Snow	11,454.9	4.058991
		130 53 14.3	310 51 55.1	Bump	2,870.5	3.457954
		211 45 39.8	31 45 40.8	Tower (U. S. C. & G. S.)	52.26	1.718169
Center I	48 22 54.003	109 26 28.1	289 21 30.7	Bay	8,678.6	3.938449
	92 24 36.615	149 34 40.4	329 30 54.7	Tower	12,242.7	4.087878
Vermilion	48 18 53.351	136 41 01.0	316 35 07.4	Bay	14,189.9	4.151980
	92 23 21.204	156 42 05.6	336 37 23.7	Tower	19,589.7	4.292027
		168 12 33.0	348 11 36.7	Center I	7,593.7	3.880453
Fish	48 23 25.602	24 55 40.6	204 53 18.8	Vermilion	9,271.7	3.967160
	92 20 11.536	79 52 52.8	259 49 34.6	Center I	5,540.6	3.743556
		98 01 39.2	277 53 23.5	Bay	13,770.3	4.138944
		129 28 29.9	309 21 25.8	Tower	15,084.2	4.178523
Center II	48 20 49.633	59 40 16.6	239 36 34.2	Vermilion	7,106.3	3.851643
	92 18 23.500	155 14 07.4	335 12 46.7	Fish	5,306.0	3.724766
Burnt	48 22 21.284	51 58 15.4	231 56 04.1	Center II	4,593.3	3.662126
	92 15 27.781	108 49 15.0	288 45 42.8	Fish	6,167.5	3.790107
La Croix	48 19 15.809	85 54 41.3	265 48 53.6	Vermilion	9,616.6	3.982994
	92 15 35.675	129 59 42.0	309 57 36.6	Center II	4,510.6	3.654237
		143 40 24.1	323 36 57.8	Fish	9,580.4	3.981383
		181 37 27.8	1 37 33.7	Burnt	5,731.2	3.758249
Ely	48 19 27.336	87 28 17.9	267 23 30.2	La Croix	7,944.3	3.900058
	92 09 10.422	124 42 12.9	304 37 30.9	Burnt	9,446.6	3.975277
Village	48 22 38.629	4 54 23.1	184 54 04.7	Ely	5,930.4	3.773083
	92 08 45.799	53 27 18.1	233 22 11.9	La Croix	10,510.3	4.021615
		86 20 11.3	266 15 10.8	Burnt	8,289.8	3.918546
Winton	48 15 14.745	137 44 38.1	317 40 21.1	Ely	10,547.0	4.023130
	92 03 26.131	154 22 29.4	334 18 30.7	Village	15,210.5	4.182143
Shortiss	48 17 00.978	69 09 39.9	249 04 28.6	Winton	9,205.5	3.964049
	91 56 29.058	106 09 06.4	285 59 37.9	Ely	16,328.4	4.212942
		124 34 34.8	304 25 24.5	Village	18,413.2	4.265129
Center III	48 14 02.063	110 58 13.5	290 54 41.4	Winton	6,281.3	3.798051
	91 58 41.793	206 20 27.0	26 22 06.0	Shortiss	6,167.3	3.790093
Falls	48 12 02.999	123 59 18.0	303 54 00.1	Winton	10,606.5	4.025573
	91 56 19.795	141 27 27.7	321 25 41.9	Center III	4,702.8	3.672357
		178 48 40.9	358 48 34.0	Shortiss	9,205.8	3.964061
Curtain II	48 14 50.257	29 09 28.3	209 07 44.2	Falls	5,914.9	3.771951
	91 54 00.233	93 45 56.9	273 38 54.7	Winton	11,698.5	4.068132
		142 46 29.4	322 44 38.3	Shortiss	5,071.8	3.705163
Curtain	48 14 34.237	30 04 14.5	210 02 36.8	Falls	5,397.1	3.732159
	91 54 08.832	80 01 19.1	259 57 55.5	Center III	5,719.4	3.757347
		199 43 24.2	19 43 30.6	Curtain II	525.7	2.720705
Lister	48 10 58.466	129 32 32.8	309 31 05.6	Falls	3,131.6	3.495771
	91 54 22.843	182 29 01.5	2 29 11.9	Curtain	6,670.8	3.824179
Tree	48 12 57.457	17 06 28.0	197 05 47.2	Lister	3,845.3	3.584935
	91 53 28.082	64 38 07.3	244 35 59.3	Falls	3,924.0	3.593733
		164 17 26.8	344 16 56.4	Curtain	3,105.3	3.492102
Mutt	48 12 49.360	45 55 53.4	225 53 45.8	Lister	4,923.1	3.692238
	91 51 31.600	95 57 00.4	275 55 33.6	Tree	2,417.6	3.383381
		134 57 58.9	314 56 01.7	Curtain	4,585.1	3.661351
Jeff	48 11 13.164	75 28 02.2	255 26 59.1	Lister	1,808.1	3.257228
	91 52 58.111	211 00 25.1	31 01 29.6	Mutt	3,466.9	3.539940
Hargo	48 10 41.080	93 00 49.7	272 54 35.3	Lister	10,392.5	4.016719
	91 46 00.430	96 35 43.0	276 30 31.7	Jeff	8,684.6	3.938751
		120 07 11.2	300 03 04.3	Mutt	7,903.9	3.897843
Gape	48 13 48.410	58 56 09.1	238 51 22.1	Jeff	9,282.2	3.967651
	91 46 33.164	61 37 21.4	241 31 31.3	Lister	11,027.0	4.042457
		353 20 02.3	173 20 26.7	Hargo	5,825.4	3.765328
Gorge	48 12 39.413	49 02 42.4	229 00 10.5	Hargo	5,573.8	3.746151
	91 42 36.665	113 36 30.3	293 33 33.9	Gape	5,326.6	3.726447
Fave	48 09 27.898	133 43 04.8	313 41 39.5	Hargo	3,271.4	3.514727
	91 44 05.980	159 19 13.8	339 17 24.1	Gape	8,601.5	3.934572
		197 18 44.7	17 19 51.3	Gorge	6,196.4	3.792137
Glint	48 12 04.678	53 12 06.7	233 08 13.5	Fave	8,078.2	3.907312
	91 38 52.983	73 44 29.1	253 39 10.5	Hargo	9,198.2	3.963705
		103 06 05.3	283 03 18.6	Gorge	4,741.4	3.675905
Flag	48 07 50.740	149 38 37.2	329 37 33.8	Fave	3,478.0	3.541335
	91 42 40.929	210 57 43.5	31 00 33.2	Glint	9,149.0	3.961372
German	48 08 50.320	65 45 02.5	245 42 35.5	Flag	4,477.2	3.651002
	91 39 23.510	101 16 23.7	281 12 53.3	Fave	5,952.5	3.774703
		185 59 39.4	6 00 02.1	Glint	6,036.2	3.780761

LAKE OF THE WOODS TO LAKE SUPERIOR, MAJOR SCHEME—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Gosh	48 09 48.170	72 59 30.8	252 56 00.8	German	6,098.5	3.785220
	91 34 41.386	129 04 38.7	309 01 31.3	Glint	6,692.4	3.825581
Gill	48 07 00.158	103 33 56.6	283 30 02.9	Flag	6,676.2	3.824530
	91 37 27.063	144 43 38.5	324 42 11.8	German	4,168.3	3.619959
		213 24 32.4	33 26 35.6	Gosh	6,217.8	3.793637
Have	48 05 05.012	125 12 10.8	305 07 49.3	Flag	8,887.4	3.948777
	91 36 49.722	167 44 53.2	347 44 25.4	Gill	3,639.4	3.561034
Fluke	48 03 49.793	146 45 06.7	326 42 11.0	Flag	8,901.2	3.949449
	91 38 44.912	195 18 51.9	15 19 49.8	Gill	6,096.4	3.785076
		225 43 58.8	45 45 24.5	Have	3,329.1	3.522330
Fear	48 04 24.808	175 55 02.4	355 54 46.0	Flag	6,376.7	3.804598
	91 42 18.973	259 38 21.9	79 42 26.9	Have	6,927.1	3.840551
		283 41 33.3	103 44 12.6	Fluke	4,561.6	3.659119
Fote	48 01 04.427	199 18 34.9	19 19 52.8	Fear	6,558.4	3.816797
	91 44 03.738	232 14 55.4	52 18 52.5	Fluke	8,348.6	3.921616
Finn	48 01 05.669	89 38 34.7	269 35 10.2	Fote	5,700.3	3.755894
	91 39 28.671	150 11 05.5	330 08 58.8	Fear	7,090.3	3.850664
		190 07 59.4	10 08 31.9	Fluke	5,149.6	3.711772
Handy	48 01 07.983	88 15 06.4	268 13 43.0	Finn	2,327.7	3.366930
	91 37 36.396	164 09 14.9	344 08 23.9	Fluke	5,195.3	3.715610
Fagin	48 03 54.630	29 38 54.0	209 37 07.4	Finn	6,003.9	3.778431
	91 37 05.351	85 51 52.2	265 50 38.1	Fluke	2,066.7	3.315284
Frump	48 01 00.219	92 32 04.8	272 29 47.4	Finn	3,835.2	3.583793
	91 36 23.777	99 03 43.2	279 02 49.2	Handy	1,523.9	3.182945
		150 50 43.7	330 48 58.7	Fluke	5,998.2	3.778019
		170 55 18.9	350 54 48.0	Fagin	5,455.3	3.736821
English	48 03 51.999	35 01 21.1	214 59 07.7	Frump	6,477.3	3.811395
	91 33 24.397	91 02 26.8	270 59 42.4	Fagin	4,575.3	3.660423
Fate	48 01 15.193	83 45 02.1	263 42 31.1	Frump	4,234.4	3.626795
	91 33 00.658	134 12 03.0	314 09 01.0	Fagin	7,066.6	3.849212
		174 12 19.3	354 12 01.7	English	4,868.1	3.687356
Emily	48 04 01.610	30 56 59.4	210 55 08.8	Fate	5,992.4	3.777600
	91 30 31.933	85 15 55.5	265 13 47.3	English	3,582.9	3.554238
Found	48 00 51.105	99 46 03.6	279 43 28.2	Fate	4,395.0	3.642957
	91 29 31.635	139 13 52.8	319 10 59.8	English	7,379.9	3.868050
		168 01 19.3	348 00 34.5	Emily	6,015.1	3.779242
Gone	48 05 03.800	14 56 14.6	194 54 59.9	Found	8,077.4	3.907272
	91 27 51.170	60 01 19.2	239 59 19.5	Emily	3,842.3	3.584592
Fang	48 01 41.335	74 07 44.9	254 04 29.5	Found	5,663.6	3.753093
	91 25 08.768	122 56 58.4	302 52 58.1	Emily	7,972.9	3.901618
		151 44 48.0	331 42 47.2	Gone	7,100.3	3.851278
Echo	48 03 47.065	2 00 07.7	182 00 02.8	Fang	3,885.7	3.589470
	91 25 02.216	45 47 16.1	225 43 55.8	Found	7,789.9	3.891532
		93 47 57.4	273 43 52.1	Emily	6,841.2	3.835130
Ensign	47 59 41.916	119 09 29.6	299 05 32.2	Fang	7,578.1	3.879558
	91 19 49.358	139 28 00.0	319 24 07.4	Echo	9,967.2	3.998575
Higher	48 03 50.528	1 14 26.9	181 14 20.9	Ensign	7,680.5	3.885389
	91 19 41.336	59 33 40.5	239 29 37.0	Fang	7,868.5	3.895890
		89 06 38.7	269 02 40.0	Echo	6,644.5	3.822463
Ewing (Geodetic Survey of Canada)	48 02 48.894	45 52 06.3	225 48 32.9	Ensign	8,289.4	3.918522
	91 15 02.377	80 37 51.4	260 30 20.4	Fang	12,733.4	4.104946
		108 16 05.9	288 12 38.4	Higher	6,082.2	3.784058
Paddy (Geodetic Survey of Canada)	48 06 04.584	6 22 54.5	186 22 30.2	Ewing	6,081.8	3.784035
	91 14 29.737	29 17 04.8	209 13 06.9	Ensign	13,546.7	4.131833
		57 19 49.1	237 15 57.2	Higher	7,663.8	3.884447
Saunders (Geodetic Survey of Canada)	48 04 52.141	62 02 01.1	241 57 43.9	Ewing	8,107.9	3.908907
	91 09 16.618	81 41 36.0	261 33 51.1	Higher	13,071.4	4.116323
		109 04 59.9	289 01 06.9	Paddy	6,854.9	3.836001
Dorothy (Geodetic Survey of Canada)	48 10 21.477	10 23 35.3	190 22 28.2	Saunders	10,341.5	4.014584
	91 07 46.480	46 27 33.9	226 22 33.6	Paddy	11,509.5	4.061058
Poly (Geodetic Survey of Canada)	48 05 09.235	87 30 13.7	267 23 08.3	Saunders	11,842.5	4.073443
	90 59 44.988	134 08 14.5	314 02 15.9	Dorothy	13,861.4	4.141807
Helga (Geodetic Survey of Canada)	48 10 51.551	43 57 27.8	223 51 03.0	Saunders	15,407.4	4.187730
	91 00 39.900	84 01 37.4	263 56 19.5	Dorothy	8,861.5	3.947509
		353 51 54.6	173 52 35.5	Poly	10,633.9	4.026691
Mabel (Geodetic Survey of Canada)	48 10 43.114	40 36 09.9	220 30 52.0	Poly	13,573.7	4.132697
	90 52 38.138	91 32 59.6	271 27 00.6	Helga	9,955.6	3.998065
Paulsen (Geodetic Survey of Canada)	48 05 28.541	87 00 04.1	266 53 22.3	Poly	11,189.8	4.048821
	90 50 45.043	129 06 37.2	308 59 14.2	Helga	15,836.6	4.199662
		166 28 48.0	346 27 23.8	Mabel	9,993.6	3.999722

LAKE OF THE WOODS TO LAKE SUPERIOR, MAJOR SCHEME—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Vera (Geodetic Survey of Canada)	48 14 08.350	29 30 12.0	209 28 07.9	Helga	6,983.0	3.844045
	90 57 53.423	314 12 26.4	134 16 21.4	Mabel	9,086.3	3.958386
		331 05 07.1	151 10 26.3	Paulsen	18,334.0	4.263258
Driggs	48 12 59.682	123 18 55.9	303 16 59.3	Vera	3,863.3	3.586958
	90 55 16.973	322 06 54.1	142 08 52.5	Mabel	5,343.4	3.727816
Dunlap	48 12 08.351	22 06 17.2	202 05 38.6	Mabel	2,841.4	3.453538
	90 51 46.380	110 03 24.1	290 00 47.1	Driggs	4,628.0	3.665389
Domino	48 12 02.965	169 14 55.2	349 14 43.2	Driggs	1,783.1	3.251182
	90 55 00.860	267 36 29.8	87 38 54.8	Dunlap	4,019.3	3.604146
		309 54 15.7	129 56 02.1	Mabel	3,843.4	3.584721
Norway	48 12 28.471	185 30 38.0	5 30 48.9	Vera	3,099.4	3.491271
	90 58 07.845	254 41 52.2	74 43 59.6	Driggs	3,657.0	3.563121
		281 30 47.4	101 33 06.8	Domino	3,940.4	3.595543
Dixie	48 12 28.019	254 27 09.8	74 29 16.9	Driggs	3,652.7	3.562618
	90 58 07.446	295 26 25.8	115 30 31.3	Mabel	7,533.4	3.876993
Ref. Mon. 961	48 13 42.317	287 33 56.6	107 36 26.7	Driggs	4,358.4	3.639332
	90 58 38.263	306 37 31.7	126 42 00.2	Mabel	9,269.9	3.967073
		344 30 13.3	164 30 36.3	Dixie	2,381.4	3.376831
		344 36 22.3	164 36 44.9	Norway	2,365.8	3.373969
Dicker	48 13 07.753	133 49 01.2	313 48 21.0	Ref. Mon. 961	1,542.2	3.188129
	90 57 44.346	174 17 07.0	354 17 00.3	Vera	1,881.1	3.274407
		274 40 08.8	94 41 58.7	Driggs	3,052.3	3.484634
Dubois	48 11 54.354	51 43 28.8	231 41 48.2	Mabel	3,551.0	3.550354
	90 50 23.193	104 08 10.6	284 07 08.6	Dunlap	1,771.3	3.248297
Dye	48 10 16.557	107 34 48.3	287 33 14.8	Mabel	2,718.0	3.434243
	90 50 32.714	183 43 26.9	3 43 34.0	Dubois	3,027.1	3.481022
Champ	48 11 10.581	51 06 14.5	231 05 00.0	Dye	2,656.9	3.424372
	90 48 52.631	125 52 17.9	305 51 10.5	Dubois	2,307.8	3.363205
Droit	48 10 03.754	102 22 40.7	282 21 35.7	Dye	1,846.2	3.266277
	90 49 05.435	154 49 34.1	334 48 36.2	Dubois	3,774.9	3.576905
		187 18 04.0	7 18 13.5	Champ	2,081.0	3.318271
Dimple	48 06 44.468	158 32 17.9	338 30 50.7	Droit	6,614.5	3.820497
	90 47 08.310	165 18 39.4	345 17 21.7	Champ	8,497.6	3.929297
Chris	48 06 59.669	66 55 34.7	246 51 37.3	Paulsen	7,172.1	3.855644
	90 45 26.182	77 28 48.6	257 27 32.6	Dimple	2,164.0	3.335250
		141 27 42.8	321 24 59.6	Droit	7,271.4	3.861619
		151 11 03.0	331 08 29.3	Champ	8,847.1	3.946799
Carlos	48 09 20.616	17 30 39.7	197 29 45.0	Dimple	5,057.0	3.703897
	90 45 54.748	108 42 06.8	288 39 44.9	Droit	4,159.7	3.619065
		352 16 15.6	172 16 36.9	Chris	4,393.3	3.642791
Ref. Mon. 1059	48 09 22.470	9 57 49.4	189 57 18.6	Dimple	4,954.8	3.695030
	90 46 26.864	111 16 46.7	291 14 48.7	Droit	3,516.2	3.546077
		274 55 38.6	94 56 02.5	Carlos	666.2	2.823610
		344 06 55.4	164 07 40.6	Chris	4,585.7	3.661401
Dotty	48 04 48.934	161 11 00.7	341 10 17.0	Dimple	3,770.1	3.576352
	90 46 09.523	192 30 59.5	12 31 31.8	Chris	4,136.3	3.616617
Dulce	48 05 29.267	65 07 36.7	245 06 00.1	Dotty	2,960.3	3.471338
	90 43 59.764	89 53 19.0	269 48 17.4	Paulsen	8,386.6	3.923585
		120 47 26.2	300 45 05.9	Dimple	4,540.0	3.657054
		147 22 39.9	327 21 35.6	Chris	3,315.5	3.520553
West Dotty	48 04 49.249	102 32 30.0	282 29 13.4	Paulsen	5,600.7	3.748245
	90 46 20.848	195 40 41.6	15 41 22.3	Chris	4,184.0	3.621593
		247 02 28.2	67 04 13.2	Dulce	3,170.6	3.501147
Gunflint (Geodetic Survey of Canada)	48 08 22.877	63 57 42.9	243 51 08.8	Dulce	12,191.7	4.086065
	90 35 10.399	64 37 33.2	244 29 14.1	West Dotty	15,358.4	4.186345
		74 31 55.3	254 20 19.5	Paulsen	20,067.7	4.302498
Caddie	48 05 52.221	37 03 48.5	217 02 55.4	Dotty	2,449.4	3.389058
	90 44 58.199	300 22 42.8	120 23 26.3	Dulce	1,401.7	3.146641
Dam	48 05 45.663	16 43 15.5	196 42 56.6	Dotty	1,829.5	3.262332
	90 45 44.092	257 57 12.5	77 57 46.7	Caddie	970.9	2.987190
		283 11 26.5	103 12 44.2	Dulce	2,217.4	3.345842
Clamp	48 05 57.913	63 21 07.9	243 20 04.5	Dulce	1,972.1	3.294938
	90 42 34.583	86 37 42.6	266 35 55.7	Caddie	2,976.7	3.473728
Ref. Mon. 1116	48 05 30.790	88 52 21.5	268 50 56.4	Dulce	2,366.9	3.374185
	90 42 05.404	100 30 21.5	280 28 12.9	Caddie	3,636.2	3.560647
		144 13 20.3	324 12 58.6	Clamp	1,032.6	3.013943
Dough	48 05 35.376	82 07 13.4	262 06 36.6	Ref. Mon. 1116	1,032.5	3.013883
	90 41 15.980	113 10 43.8	293 09 45.3	Clamp	1,769.1	3.247753
Chowder	48 06 02.547	307 28 18.6	127 28 58.0	Dough	1,379.3	3.139653
	90 42 08.881	355 48 14.2	175 48 16.8	Ref. Mon. 1116	983.5	2.992771
Ref. Mon. 1121	48 06 29.537	8 17 14.1	188 17 05.3	Dough	1,690.5	3.228012
	90 41 04.204	34 54 53.7	214 54 08.1	Ref. Mon. 1116	2,212.6	3.344903
		58 04 58.8	238 04 10.6	Chowder	1,576.5	3.197687

LAKE OF THE WOODS TO LAKE SUPERIOR, MAJOR SCHEME—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Den	48 05 41.542	78 22 43.3	258 22 10.0	Dough	944.9	2.975398
	90 40 31.250	155 18 18.2	335 17 53.7	Ref. Mon. 1121	1,631.7	3.212636
Denby	48 05 50.779	75 43 30.2	255 42 49.9	Den	1,156.6	3.063190
	90 39 37.079	123 35 55.7	303 34 50.9	Ref. Mon. 1121	2,163.8	3.335220
Gunflint west base	48 06 35.690	7 01 12.2	187 01 04.8	Den	1,685.1	3.226619
	90 40 21.297	31 16 33.7	211 15 53.0	Dough	2,179.5	3.338355
		326 35 27.6	146 36 00.5	Denby	1,661.6	3.220536
Gunflint east base	48 06 46.255	0 05 20.5	180 05 20.4	Denby	1,713.5	3.233875
	90 39 36.950	29 20 35.0	209 19 54.6	Den	2,292.8	3.360370
		70 25 21.4	250 24 48.4	Gunflint west base	973.64	2.988400
Cult	48 06 26.661	14 03 20.3	194 03 10.3	Denby	1,142.5	3.057846
	90 39 23.669	45 06 07.8	225 05 17.5	Den	1,974.1	3.295369
		62 44 13.4	242 42 13.0	Ref. Mon. 1116	3,765.0	3.575768
		77 20 59.3	257 18 37.2	Clamp	4,048.3	3.607272
		77 43 27.3	257 41 24.3	Chowder	3,498.1	3.543837
		92 27 23.1	272 26 08.3	Ref. Mon. 1121	2,081.6	3.318404
Drone	48 05 52.739	94 54 23.9	274 52 16.5	Chowder	3,554.7	3.550800
	90 39 17.700	117 17 48.1	297 16 28.9	Ref. Mon. 1121	2,479.3	3.394325
		173 16 43.8	353 16 39.4	Cult	1,055.0	3.023244
Ref. Mon. 1120	48 05 52.384	90 37 47.5	270 37 11.3	Drone	1,004.8	3.002086
	90 38 29.139	133 11 10.8	313 10 30.2	Cult	1,547.1	3.189520
Crump	48 06 34.319	37 50 46.3	217 50 10.3	Drone	1,626.3	3.211191
	90 38 29.476	78 05 25.1	258 04 44.7	Cult	1,145.7	3.059084
		359 41 30.1	179 41 30.3	Ref. Mon. 1120	1,295.3	3.112357
Cutts	48 06 56.286	23 01 41.9	203 01 11.8	Ref. Mon. 1120	2,144.6	3.331340
	90 37 48.593	43 12 43.9	223 11 37.6	Drone	2,692.7	3.430183
		51 15 47.8	231 15 17.5	Crump	1,084.2	3.035106
Card	48 06 09.714	85 33 08.9	265 29 08.2	Drone	6,711.0	3.826786
	90 33 54.328	86 37 28.8	266 24 56.5	Paulsen	20,951.3	4.321212
		106 33 24.8	286 30 30.4	Cutts	5,055.0	3.703722
		159 04 32.7	339 03 36.0	Gunflint	4,403.6	3.643809
Dally	48 06 21.748	78 40 59.0	258 38 18.3	Drone	4,557.1	3.658685
	90 35 41.734	112 08 10.4	292 06 36.0	Cutts	2,832.7	3.452196
		279 29 06.2	99 30 26.2	Card	2,252.9	3.352742
Double	48 05 20.188	130 11 47.4	310 09 41.0	Cutts	4,600.5	3.662807
	90 34 58.697	154 54 32.5	334 54 00.5	Dally	2,099.6	3.322129
		177 32 42.1	357 32 33.4	Gunflint	5,647.9	3.751885
		221 02 21.4	41 03 09.4	Card	2,028.3	3.307125
Divide	48 05 56.067	10 00 43.9	190 00 36.8	Double	1,125.3	3.051276
	90 34 49.243	249 38 24.9	69 39 05.8	Card	1,211.8	3.083440
Dime	48 05 19.487	90 53 21.4	270 52 30.7	Double	1,407.1	3.148334
	90 33 50.709	133 00 57.5	313 00 13.9	Divide	1,656.4	3.219159
		177 14 12.7	357 14 10.0	Card	1,553.2	3.191215
Crane	48 06 01.670	65 52 09.8	245 50 27.0	Double	3,132.3	3.495857
	90 32 40.565	86 17 39.6	266 16 03.9	Divide	2,668.0	3.426180
Dandy	48 05 45.893	36 31 08.2	216 30 47.0	Double	987.9	2.994693
	90 34 30.290	128 42 33.3	308 42 19.2	Divide	502.5	2.701164
		257 52 27.0	77 53 48.6	Crane	2,322.0	3.365860
Dade	48 05 32.802	99 31 53.7	279 30 27.0	Dandy	2,444.8	3.388238
	90 32 33.768	171 02 13.9	351 02 08.8	Crane	902.7	2.955521
Ref. Mon. 1160	48 05 38.633	81 18 03.0	261 17 20.7	Dade	1,190.0	3.075538
	90 31 36.923	118 23 27.1	298 22 39.7	Crane	1,496.8	3.175152
Ref. Mon. 1163	48 06 09.272	41 02 35.7	221 02 00.4	Dade	1,493.4	3.174175
	90 31 46.379	78 10 35.8	258 09 55.4	Crane	1,145.4	3.058950
		348 19 02.5	168 19 09.5	Ref. Mon. 1160	966.3	2.985129
Ref. Mon. 1162	48 05 46.031	74 09 03.8	254 08 34.8	Ref. Mon. 1160	836.5	2.922449
	90 30 58.035	125 40 12.9	305 39 36.9	Ref. Mon. 1163	1,231.2	3.090315
Ref. Mon. 1165	48 06 09.819	35 56 44.6	215 56 19.5	Ref. Mon. 1160	1,189.7	3.075454
	90 31 03.171	88 55 16.3	268 54 44.2	Ref. Mon. 1163	894.1	2.951381
		351 46 13.6	171 46 17.5	Ref. Mon. 1162	742.4	2.870623
Back	48 05 41.304	98 05 45.9	278 03 06.3	Crane	4,478.8	3.651160
	90 29 06.248	104 37 47.6	284 35 48.4	Ref. Mon. 1163	3,423.9	3.534526
		110 01 01.4	289 59 34.3	Ref. Mon. 1165	257.5	2.410693
Blatz	48 06 05.545	49 12 15.2	229 11 44.0	Back	1,145.9	3.059137
	90 28 24.324	88 43 59.3	268 40 48.5	Crane	5,302.8	3.724506
		91 35 53.1	271 33 22.7	Ref. Mon. 1163	4,181.9	3.621373
Cap	48 06 09.158	17 07 09.9	197 07 00.4	Back	900.2	2.954348
	90 28 53.441	280 29 32.5	100 29 54.2	Blatz	612.7	2.787213
Agile	48 06 41.810	30 33 11.4	210 32 47.6	Blatz	1,300.6	3.114159
	90 27 52.366	39 17 11.8	219 16 16.8	Back	2,414.3	3.382790
		51 24 31.6	231 23 46.1	Cap	1,616.6	3.208599

LAKE OF THE WOODS TO LAKE SUPERIOR, MAJOR SCHEME—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Bully	48 06 06.685	72 31 37.6	252 31 33.6	Blatz	1,172.8	3.069226
	90 28 18.915	80 11 32.1	260 06 34.5	Double	8,395.9	3.924067
		116 20 44.5	296 15 38.1	Gunflint	9,493.0	3.977402
		206 50 56.0	26 51 15.8	Agile	1,216.0	3.084929
Bold	48 06 07.494	88 56 52.7	268 56 04.1	Bully	1,351.6	3.130851
	90 27 13.597	113 01 43.5	292 55 48.5	Gunflint	10,710.9	4.029826
		142 53 23.6	322 52 54.8	Agile	1,329.1	3.123571
Balsam	48 05 33.983	111 49 24.4	291 47 51.3	Bold	2,785.8	3.444953
	90 25 08.595	121 44 43.1	301 42 41.2	Agile	3,983.6	3.600275
Arthur	48 06 12.144	78 33 40.1	258 33 14.6	Bold	724.0	2.859717
	90 26 39.300	302 07 15.6	122 08 23.2	Balsam	2,216.2	3.345601
Ref. Mon. 1193	48 06 26.142	288 54 09.4	108 54 54.8	Arthur	1,334.12	3.125195
	90 27 40.308	297 09 10.1	117 11 03.1	Balsam	3,528.2	3.547552
		316 11 01.3	136 11 21.2	Bold	798.2	2.902100
Antrim	48 06 16.526	81 00 58.8	260 59 55.3	Bold	1,784.7	3.251563
	90 25 48.392	327 55 20.1	147 55 49.7	Balsam	1,550.7	3.190522
Atom	48 06 37.057	19 48 20.2	199 47 55.0	Balsam	2,070.6	3.316093
	90 24 34.690	67 25 25.4	247 24 30.6	Antrim	1,651.3	3.217822
		74 29 35.0	254 27 36.7	Bold	3,411.8	3.532986
Belt	48 06 04.282	91 52 35.6	271 50 45.7	Bold	3,054.7	3.484968
	90 24 46.027	106 20 32.8	286 19 46.4	Antrim	1,344.5	3.128567
		193 02 36.3	13 02 44.7	Atom	1,039.1	3.016674
Argot	48 06 26.403	67 18 27.0	247 17 28.2	Belt	1,770.5	3.248095
	90 23 27.077	84 03 24.5	264 01 39.3	Antrim	2,939.3	3.468247
		103 14 46.0	283 13 55.6	Atom	1,436.9	3.157413
West Bone	48 05 50.682	138 05 12.0	318 04 25.7	Atom	1,925.0	3.284430
	90 23 32.526	185 50 01.4	5 50 05.5	Argot	1,109.0	3.044946
Bay	48 05 27.794	107 43 22.1	287 42 02.5	West Bone	2,323.7	3.366180
	90 21 45.550	121 27 21.6	301 25 15.7	Atom	4,101.5	3.612946
Best	48 05 55.220	69 29 00.4	249 27 39.0	Bay	2,415.7	3.383038
	90 19 56.218	88 13 43.3	268 11 02.4	West Bone	4,477.7	3.651058
		92 00 07.7	271 53 53.6	Bully	10,406.7	4.017313
		103 39 21.4	283 28 00.8	Gunflint	19,449.4	4.288907
Addie (Geodetic Survey of Canada)	48 10 20.288	12 45 28.4	192 44 20.6	West Bone	8,537.8	3.931344
	90 22 01.403	39 36 41.4	219 32 48.9	Bold	10,130.5	4.005631
		44 56 12.0	224 51 30.9	Bully	11,057.8	4.043668
		77 32 36.3	257 22 48.5	Gunflint	16,704.8	4.222842
		342 26 35.9	162 28 09.1	Best	8,586.5	3.933817
		357 55 13.4	177 55 25.2	Bay	9,040.2	3.956176
Angus	48 06 31.153	45 07 34.2	225 06 23.5	Bay	2,773.2	3.442974
	90 20 10.581	345 00 35.5	165 00 46.2	Best	1,148.9	3.060296
Aborn	48 06 41.720	63 14 15.4	243 12 33.0	Best	3,188.0	3.503519
	90 17 38.642	65 56 31.0	245 53 27.2	Bay	5,595.4	3.747833
		84 05 12.9	264 03 19.8	Angus	3,159.9	3.499672
Blow	48 06 03.210	112 18 17.4	292 17 01.7	Angus	2,275.0	3.356983
	90 18 28.834	221 06 52.1	41 07 29.5	Aborn	1,578.9	3.198356
Bronx	48 05 57.083	93 28 52.8	273 27 00.3	Blow	3,130.5	3.495612
	90 15 57.805	101 24 12.4	281 21 04.2	Angus	5,334.3	3.727080
		123 28 16.1	303 27 01.0	Aborn	2,500.5	3.398028
Abner	48 07 04.095	27 24 33.1	207 23 54.5	Bronx	2,331.4	3.367616
	90 15 05.933	65 53 12.0	245 50 40.9	Blow	4,599.3	3.662688
Burke	48 06 18.239	83 07 07.1	263 03 53.1	Bronx	5,432.4	3.734990
	90 11 37.137	95 34 36.8	275 30 07.7	Aborn	7,513.3	3.875833
		108 10 40.7	288 08 05.3	Abner	4,545.3	3.657562
Amber	48 07 22.232	33 29 35.9	213 28 48.8	Burke	2,369.9	3.374731
	90 10 33.921	68 36 03.9	248 32 02.8	Bronx	7,197.4	3.857174
		84 20 30.2	264 17 07.7	Abner	5,653.5	3.752315
Nell	48 06 25.190	86 32 04.9	266 29 57.8	Burke	3,534.1	3.548276
	90 08 46.620	113 55 26.9	293 45 35.0	Addie	17,934.3	4.254410
		128 27 17.9	308 25 57.9	Amber	2,833.7	3.452350
Bluffer	48 06 24.750	82 43 23.2	262 42 26.5	Burke	1,586.0	3.200300
	90 10 21.092	171 30 02.7	351 29 53.1	Amber	1,795.2	3.254101
		269 35 29.8	89 36 40.2	Nell	1,954.4	3.291009
Devilfish (Geodetic Survey of Canada)	47 58 48.840	137 34 44.7	317 23 00.8	Addie	28,975.2	4.462027
	90 06 15.367	167 29 04.4	347 27 11.9	Nell	14,439.0	4.159536
Whitefish (Geodetic Survey of Canada)	48 09 40.036	31 07 04.5	210 59 49.2	Devilfish	23,478.9	4.370377
	89 56 30.258	68 30 29.6	248 21 21.2	Nell	16,371.4	4.214086
		92 24 31.7	272 05 30.8	Addie	31,662.5	4.500545
Alfred	48 06 25.219	16 40 54.1	196 38 22.7	Devilfish	14,713.6	4.167718
	90 02 51.701	90 01 47.9	239 57 23.7	Nell	7,342.2	3.865827
		100 29 03.4	280 23 19.2	Amber	9,721.3	3.987723

LAKE OF THE WOODS TO LAKE SUPERIOR, MAJOR SCHEME—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Arrow	48 07 03.480	77 58 54.3	257 55 34.8	Nell	3,666.8	3.753341
	90 04 18.692	94 18 25.4	274 13 45.9	Amber	7,781.9	3.891088
		303 17 11.6	123 18 16.3	Alfred	2,152.8	3.332969
Alta	48 02 29.025	122 19 31.3	302 12 36.0	Nell	13,663.0	4.135545
	89 59 28.513	150 03 19.8	330 00 48.6	Alfred	8,420.9	3.925356
		195 27 58.5	15 30 11.1	Whitefish	13,813.9	4.140317
Seven	48 02 45.323	61 37 01.3	241 28 57.9	Devilfish	15,332.0	4.185598
	89 55 24.917	84 19 40.2	264 16 39.1	Alta	5,070.5	3.705052
		112 20 18.5	292 10 22.0	Nell	17,930.4	4.253590
		126 20 23.3	306 14 50.9	Alfred	11,474.2	4.059721
Pete	48 02 04.521	73 31 31.6	253 19 23.6	Devilfish	21,185.5	4.326039
	89 49 55.717	100 30 17.3	280 26 12.5	Seven	6,934.4	3.841010
Spike	47 59 56.686	137 31 37.1	317 29 02.6	Alta	6,381.3	3.804910
	89 56 00.486	188 03 01.1	8 03 27.6	Seven	5,260.5	3.721023
		242 22 59.0	62 27 30.2	Pete	8,528.2	3.930856
Partridge	47 59 18.134	102 48 18.6	282 45 10.4	Spike	5,383.2	3.731039
	89 51 47.267	144 50 43.3	324 48 01.5	Seven	7,829.1	3.893710
		204 12 35.2	24 13 58.2	Pete	5,635.1	3.750904
Pigeon (Geodetic Survey of Canada)	47 58 33.851	91 07 47.4	270 51 55.0	Devilfish	26,592.0	4.424751
	89 44 53.317	99 05 45.0	279 00 37.4	Partridge	8,692.4	3.939138
		120 44 52.1	300 37 02.6	Seven	15,221.0	4.182444
		136 06 06.2	316 02 21.4	Pete	9,034.8	3.955918
		145 01 59.3	324 53 20.8	Whitefish	25,130.7	4.400205
Butte	48 02 17.238	55 40 44.0	235 35 53.8	Partridge	9,801.1	3.991274
	89 45 16.873	86 08 19.2	266 04 51.8	Pete	5,789.7	3.762656
		355 56 59.3	175 57 16.8	Pigeon	6,916.8	3.839908
Auto	48 01 23.215	61 38 45.1	241 32 59.3	Pigeon	10,997.5	4.041294
	89 37 06.664	99 22 50.3	279 16 45.8	Butte	10,292.1	4.012505
Mount Josephine (U. S. Lake Survey)	47 58 34.714	89 49 07.9	269 44 55.0	Pigeon	7,058.5	3.848712
	89 39 12.978	132 22 42.3	312 18 11.8	Butte	10,204.2	4.008779
		206 41 43.6	26 43 17.4	Auto	5,826.0	3.765369
Morris	47 59 45.387	70 26 33.4	250 22 53.7	Mount Josephine	6,511.0	3.813646
	89 34 17.148	130 42 47.8	310 40 41.8	Auto	4,634.0	3.665954
Between	48 00 43.126	28 59 14.1	208 58 38.7	Morris	2,038.6	3.309335
	89 33 29.494	60 55 11.6	240 50 56.5	Mount Josephine	8,151.2	3.911221
		105 24 22.0	285 21 40.6	Auto	4,667.6	3.669096
West End	48 01 52.628	9 28 39.3	189 28 26.4	Between	2,176.4	3.337730
	89 33 12.202	50 46 28.1	230 42 00.0	Mount Josephine	9,658.8	3.984921
Danger	48 00 00.924	43 05 11.1	223 03 41.9	Mount Josephine	3,645.2	3.561717
	89 37 12.916	182 55 03.8	2 55 08.4	Auto	2,545.0	3.405685
		254 15 25.1	74 18 11.1	Between	4,810.9	3.682227
		277 29 03.2	97 31 13.8	Morris	3,675.3	3.565287
Mollie	48 03 34.767	45 37 32.6	225 34 18.2	Between	7,576.9	3.879489
	89 29 08.176	53 34 54.2	233 27 24.6	Mount Josephine	15,587.4	4.192773
		58 03 13.7	238 00 12.2	West End	5,957.9	3.775096
Rock of Ages Lighthouse	47 51 59.406	115 51 39.1	295 36 33.6	Mount Josephine	28,118.4	4.448991
	89 18 52.953	127 36 24.5	307 22 52.3	Auto	28,613.6	4.456573
		135 52 08.3	315 41 30.3	West End	25,565.6	4.407656
		149 20 33.4	329 12 56.5	Mollie	24,982.8	4.397641
N. W. Royal	47 54 35.838	57 10 00.5	237 05 33.5	Rock of Ages Lighthouse	8,902.0	3.949490
	89 12 53.051	102 50 39.6	282 31 06.5	Mount Josephine	33,607.5	4.526436
		118 12 20.0	297 57 14.4	West End	28,660.8	4.457288
		129 33 43.3	309 21 38.9	Mollie	26,190.2	4.418138
Knob (U. S. Lake Survey)	48 04 49.143	64 06 02.2	243 51 52.0	Mount Josephine	26,364.6	4.421021
	89 20 09.423	71 29 27.3	251 19 45.1	West End	17,101.7	4.233040
		78 25 02.2	258 18 21.4	Mollie	11,387.3	4.056421
		334 25 34.7	154 30 58.9	N. W. Royal	20,992.1	4.322055
		356 10 31.5	176 11 28.3	Rock of Ages Lighthouse	23,826.9	4.377068

GEOGRAPHIC POSITIONS OF TRIANGULATION STATIONS, LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Mon. 924	49 22 13.60					
	95 09 11.31					
Mon. 925	49 22 39.26	179 58 53	359 58 53	Mon. 924	792.7	2.89913
	95 09 11.32					
Northwest Angle=Boundary Turning Point 1.*	49 23 04.14	359 58 53	179 58 53	Mon. 924	1,561.5	3.19355
	95 09 11.34	359 58 53	179 58 53	Mon. 925	768.8	2.88581
Ref. Mon. 1	49 23 04.15	31 09 24	211 09 06	Mon. 925	898.6	2.95355
	95 08 48.28	89 58 48	269 58 31	Northwest Angle	465.1	2.66753
Ref. Mon. 2	49 23 04.13	269 58 16	89 58 48	Ref. Mon. 1	851.7	2.93029
	95 09 30.50	269 58 16	89 58 31	Northwest Angle	386.6	2.58729
		333 16 42	153 16 57	Mon. 925	860.5	2.93475
New Loon	49 22 54.54	211 51 36	31 51 43	Northwest Angle	349.2	2.54310
	95 09 20.48	338 38 45	158 38 51	Mon. 925	507.0	2.70500
New Rice	49 23 16.05	8 24 59	188 24 53	Mon. 925	1,149.1	3.06034
	95 09 02.99	27 57 46	207 57 33	New Loon	752.3	2.87640
Ref. Mon. 3	49 22 48.89	69 42 14	249 41 43	Mon. 925	858.2	2.93361
	95 08 31.42	100 00 09	279 59 32	New Loon	1,004.7	3.00206
		142 48 27	322 48 03	New Rice	1,053.2	3.02250
Goulet	49 22 37.04	131 42 37	311 42 14	New Loon	812.4	2.90978
	95 08 50.41	168 06 40	348 06 30	New Rice	1,231.5	3.09042
		226 17 28	46 17 43	Ref. Mon. 3	529.8	2.72414
Ref. Mon. 5	49 22 32.25	96 19 54	276 19 04	Goulet	1,343.0	3.12808
	95 07 44.24	118 22 41	298 22 05	Ref. Mon. 3	1,081.7	3.03412
Ref. Mon. 4	49 22 02.04	142 50 32	322 50 01	Goulet	1,357.1	3.13261
	95 08 09.77	163 12 55	343 12 38	Ref. Mon. 3	1,512.0	3.17956
		208 53 24	28 53 43	Ref. Mon. 5	1,066.3	3.02787
Ref. Mon. 7	49 22 06.78	85 45 44	265 44 30	Ref. Mon. 4	1,977.4	3.29609
	95 06 32.04	118 23 34	298 22 39	Ref. Mon. 5	1,655.6	3.21896
Ref. Mon. 6	49 21 45.92	105 07 40	285 06 31	Ref. Mon. 4	1,909.0	3.28082
	95 06 38.43	137 09 46	317 08 56	Ref. Mon. 5	1,952.3	3.29055
		191 19 37	11 19 42	Ref. Mon. 7	657.2	2.81768
Ref. Mon. 9	49 22 03.44	70 25 02	250 24 05	Ref. Mon. 6	1,614.0	3.20792
	95 05 23.07	94 14 53	274 14 01	Ref. Mon. 7	1,395.3	3.14466
Ref. Mon. 8	49 21 32.65	104 53 59	284 53 01	Ref. Mon. 6	1,595.4	3.20287
	95 05 22.03	126 44 41	306 43 48	Ref. Mon. 7	1,762.7	3.24618
		178 43 55	358 43 54	Ref. Mon. 9	951.4	2.97837
Moose	49 21 49.61	76 13 02	256 11 41	Ref. Mon. 8	2,197.9	3.34201
	95 03 36.25	101 13 14	281 11 53	Ref. Mon. 9	2,197.3	3.34189
Ref. Mon. 10	49 20 58.46	112 19 58	292 18 21	Ref. Mon. 8	2,780.7	3.44416
	95 03 14.56	127 45 15	307 43 37	Ref. Mon. 9	3,279.3	3.51578
		164 31 26	344 31 09	Moose	1,639.5	3.21472
Ref. Mon. 11	49 21 34.21	41 18 50	221 18 13	Ref. Mon. 10	1,470.1	3.16735
	95 02 26.48	108 40 52	288 39 59	Moose	1,486.0	3.17203
Ref. Mon. 12	49 20 44.60	112 52 26	292 51 48	Ref. Mon. 10	1,101.9	3.04213
	95 02 24.27	144 07 40	324 06 45	Moose	2,478.6	3.39421
		178 19 49	358 19 47	Ref. Mon. 11	1,533.1	3.18558
Ref. Mon. 13	49 21 47.39	43 24 48	223 23 39	Ref. Mon. 12	2,669.6	3.42645
	95 00 53.37	77 47 05	257 45 54	Ref. Mon. 11	1,922.4	3.28384
Deer	49 20 47.89	87 04 25	267 03 11	Ref. Mon. 12	1,981.4	3.29698
	95 00 46.23	125 16 53	305 15 37	Ref. Mon. 11	2,478.1	3.39412
		175 31 04	355 30 59	Ref. Mon. 13	1,843.7	3.26569
Ref. Mon. 14 ecc	49 20 46.93	125 38 40	305 37 24	Ref. Mon. 11	2,506.8	3.39913
	95 00 45.53	175 09 17	355 09 11	Ref. Mon. 13	1,874.3	3.27283
Ref. Mon. 14	49 20 47.27	175 09 17	355 09 11	Ref. Mon. 13	1,863.9	3.27042
	95 00 45.57	355 09	175 09	Ref. Mon. 14 ecc	10.38	1.01620
Ref. Mon. 15	49 22 27.93	28 11 59	208 10 57	Deer	3,506.4	3.54486
	94 59 24.14	55 11 00	235 09 52	Ref. Mon. 13	2,193.1	3.34105
Ref. Mon. 16	49 21 44.93	46 32 48	226 31 38	Deer	2,561.9	3.40856
	94 59 14.09	92 10 34	272 09 19	Ref. Mon. 13	2,004.7	3.30204
		171 19 23	351 19 15	Ref. Mon. 15	1,343.6	3.12826
Tree	49 21 50.59	77 35 48	257 35 18	Ref. Mon. 16	812.6	2.90987
	94 58 34.76	139 11 31	319 10 53	Ref. Mon. 15	1,524.2	3.18305

* This is the point adopted in lieu of the original Northwesternmost Point of Lake of the Woods in accordance with the provisions of the treaty of 1925.

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 17	49 22 10.19	13 00 42	193 00 37	Tree	621.5	2.79346
	94 58 27.83	50 07 05	230 06 30	Ref. Mon. 16	1,216.6	3.08514
		115 45 29	295 44 46	Ref. Mon. 15	1,261.4	3.10084
Ref. Mon. 18	49 21 56.19	129 29 14	309 28 29	Ref. Mon. 15	1,542.1	3.18811
	94 58 25.15	172 52 02	352 52 00	Ref. Mon. 17	435.8	2.63933
Ref. Mon. 19	49 22 18.81	57 17 49	237 17 08	Ref. Mon. 18	1,293.5	3.11176
	94 57 31.20	76 52 33	256 51 50	Ref. Mon. 17	1,173.1	3.06934
Ref. Mon. 21	49 22 22.92	65 46 53	245 45 15	Ref. Mon. 16	2,859.3	3.45626
	94 57 04.86	76 46 56	256 45 53	Ref. Mon. 17	1,719.4	3.23538
Cliff	49 22 23.86	64 02 34	244 01 15	Tree	2,347.3	3.37058
	94 56 50.16	65 58 16	245 57 04	Ref. Mon. 18	2,098.3	3.32186
		77 54 49	257 53 35	Ref. Mon. 17	2,015.1	3.30429
		79 20 49	259 20 18	Ref. Mon. 19	842.4	2.92553
Ref. Mon. 20	49 22 01.43	149 44 10	329 43 58	Ref. Mon. 19	621.8	2.79365
	94 57 15.67	216 35 50	36 36 09	Cliff	863.0	2.93601
Isle 1	49 21 26.53	129 57 53	309 56 52	Ref. Mon. 17	2,100.1	3.32224
	94 57 08.05	171 52 59	351 52 53	Ref. Mon. 20	1,089.0	3.03705
		191 30 51	11 31 04	Cliff	1,807.4	3.25704
Ref. Mon. 23	49 22 12.02	6 50 43	186 50 37	Isle 1	1,415.5	3.15090
	94 56 59.69	44 34 36	224 34 24	Ref. Mon. 20	459.4	2.66220
Beach	49 22 01.62	58 55 43	238 54 35	Isle 1	2,099.9	3.32220
	94 55 38.92	115 32 58	295 32 04	Cliff	1,593.1	3.20224
Ref. Mon. 24	49 21 18.05	97 49 09	277 47 57	Isle 1	1,928.2	3.28516
	94 55 33.39	142 41 57	322 40 59	Cliff	2,556.0	3.40755
		175 15 34	355 15 30	Beach	1,350.7	3.13056
Point	49 21 21.30	87 16 56	267 15 37	Ref. Mon. 24	2,109.7	3.32422
	94 53 48.97	119 19 22	299 17 58	Beach	2,544.4	3.40559
Stump	49 20 55.63	115 07 48	295 06 53	Ref. Mon. 24	1,631.7	3.21264
	94 54 20.19	142 04 48	322 03 48	Beach	2,584.8	3.41242
		218 27 41	38 28 05	Point	1,013.0	3.00561
Wind	49 20 32.08	109 57 18	289 56 02	Stump	2,132.5	3.32889
	94 52 40.88	137 54 01	317 53 10	Point	2,049.6	3.31167
Ref. Mon. 30	49 19 53.80	133 18 40	313 17 24	Stump	2,785.2	3.44486
	94 52 39.78	152 41 08	332 40 16	Point	3,042.8	3.48327
		178 55 37	358 55 36	Wind	1,183.0	3.07297
Ref. Mon. 25	49 20 54.96	234 51 55	54 51 56	Stump	35.8	1.55348
	94 54 21.64	312 34 15	132 35 32	Ref. Mon. 30	2,792.6	3.44601
Ref. Mon. 26	49 20 58.96	115 47 47	295 47 01	Ref. Mon. 24	1,355.4	3.13205
	94 54 32.92	145 28 41	325 27 50	Beach	2,349.7	3.37101
Ref. Mon. 27	49 20 49.65	122 40 05	302 39 54	Stump	342.3	2.53440
	94 54 05.91	314 46 10	134 47 15	Ref. Mon. 30	2,449.6	3.38909
Ref. Mon. 28	49 20 25.16	132 36 25	312 34 23	Beach	4,403.3	3.64378
	94 52 58.29	338 54 36	158 54 50	Ref. Mon. 30	1,038.6	3.01645
Ref. Mon. 29	49 20 06.53	127 28 21	307 27 06	Stump	2,493.6	3.39683
	94 52 42.14	353 06 19	173 06 21	Ref. Mon. 30	396.3	2.59804
Cyclone	49 19 59.71	85 36 06	265 34 37	Ref. Mon. 30	2,376.7	3.37597
	94 50 42.42	112 42 13	292 40 43	Wind	2,592.2	3.41366
Ref. Mon. 32	49 19 20.30	119 40 35	299 39 27	Ref. Mon. 30	2,090.5	3.32026
	94 51 09.82	140 20 53	320 19 44	Wind	2,880.5	3.45946
		204 26 24	24 26 45	Cyclone	1,337.4	3.12625
Ref. Mon. 33	49 19 31.81	58 34 09	238 33 47	Ref. Mon. 32	681.8	2.83366
	94 50 41.02	105 49 29	285 47 59	Ref. Mon. 30	2,492.5	3.39663
Ref. Mon. 31	49 19 36.55	280 55 37	100 56 06	Ref. Mon. 33	772.1	2.88766
	94 51 18.56	340 38 32	160 38 39	Ref. Mon. 32	532.1	2.72596
Center	49 19 39.38	49 17 09	229 16 44	Ref. Mon. 32	903.7	2.95600
	94 50 35.91	168 10 36	348 10 31	Cyclone	641.6	2.80729
Chop	49 19 50.96	64 56 29	244 56 00	Center	844.0	2.92632
	94 49 58.04	106 48 22	286 47 48	Cyclone	935.9	2.97122
Leaf	49 19 21.54	88 42 27	268 41 24	Ref. Mon. 32	1,686.5	3.22700
	94 49 46.33	118 50 28	298 49 51	Center	1,142.8	3.05798
		136 09 45	316 09 03	Cyclone	1,635.0	3.21351
		165 24 37	345 24 29	Chop	939.0	2.97265
Blaze	49 19 37.97	71 25 05	251 24 09	Leaf	1,592.1	3.20198
	94 48 31.60	102 57 06	282 56 00	Chop	1,791.0	3.25309
Cut	49 19 13.03	145 27 44	325 27 14	Chop	1,422.5	3.15304
	94 49 18.10	230 37 30	50 38 06	Blaze	1,214.8	3.08449

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Cedar	49 19 12.34	91 16 18	271 15 42	Cut	959.4	2.98201
	94 48 30.61	100 32 11	280 31 13	Leaf	1,555.4	3.19184
		124 03 11	304 02 04	Chop	2,130.8	3.32855
		178 33 03	358 33 03	Blaze	792.0	2.89874
Buoy	49 18 32.14	194 23 31	14 23 44	Cut	1,304.2	3.11534
	94 49 34.15	225 56 02	45 56 50	Cedar	1,786.1	3.25190
Ref. Mon. 34	49 19 13.42	24 37 10	204 36 48	Buoy	1,402.7	3.14698
	94 49 05.22	272 43 02	92 43 28	Cedar	699.9	2.84504
Ref. Mon. 35	49 19 16.47	30 54 41	210 54 10	Buoy	1,595.9	3.20299
	94 48 53.57	68 14 05	248 13 56	Ref. Mon. 34	253.5	2.40390
Hornet	49 18 33.83	84 32 27	264 32 07	Buoy	548.7	2.73934
	94 49 07.11	169 36 55	349 36 47	Cut	1,231.2	3.09032
		211 47 00	31 47 27	Cedar	1,399.8	3.14605
Center 2	48 18 05.77	157 38 53	337 38 41	Buoy	880.8	2.94490
	94 49 17.57	193 41 41	13 41 49	Hornet	892.2	2.95049
Cherry	49 17 38.88	190 52 51	10 53 03	Buoy	1,675.5	3.22414
	94 49 49.81	206 55 59	26 56 31	Hornet	1,904.2	3.27970
		218 05 57	38 06 21	Center 2	1,055.6	3.02351
Lighthouse	49 17 41.28	84 28 41	264 28 12	Cherry	770.4	2.88672
	94 49 11.86	164 00 25	344 00 08	Buoy	1,634.4	3.21337
		171 19 46	351 19 42	Center 2	765.2	2.88380
		183 22 50	3 22 54	Hornet	1,626.2	3.21117
Ref. Mon. 36	49 18 32.74	38 19	218 19	Buoy	23.62	1.37332
	94 49 33.43					
Ref. Mon. 37	49 18 31.72	20 15 57	200 15 34	Cherry	1,740.1	3.24058
	94 49 19.98	92 34 56	272 34 45	Buoy	286.6	2.45724
Ref. Mon. 38	49 17 38.37	140 33	320 33	Cherry	20.48	1.31138
	94 49 49.17					
Ref. Mon. 39	49 17 41.05	83 36 12	263 35 44	Ref. Mon. 38	743.4	2.87122
	94 49 12.61	84 54 21	264 53 53	Cherry	754.8	2.87780
Gore	49 20 28.39	146 41 02	326 39 59	Tree	3,039.2	3.48276
	94 57 12.03	187 03 01	7 03 17	Cliff	3,594.5	3.55564
Brush	49 20 41.57	76 46 13	256 45 08	Gore	1,778.0	3.24993
	94 55 46.30	122 06 42	302 04 34	Tree	4,013.3	3.60350
		157 49 07	337 48 18	Cliff	3,412.8	3.53312
Gold	49 19 14.72	119 29 08	299 26 36	Gore	4,627.0	3.66530
	94 53 52.51	139 26 30	319 25 04	Brush	3,532.2	3.54805
Green	49 19 00.28	136 36 10	316 34 33	Gore	3,747.1	3.57369
	94 55 04.50	164 54 48	344 54 16	Brush	3,241.0	3.51068
		252 56 05	72 57 00	Gold	1,520.8	3.18208
Dawson	49 18 02.46	128 06 37	308 05 12	Green	2,894.6	3.46158
	94 53 11.74	159 45 02	339 44 31	Gold	2,379.2	3.37643
Sugar	49 17 17.52	180 00 24	0 00 24	Green	3,174.5	3.50168
	94 55 04.52	201 52 55	21 53 50	Gold	3,902.0	3.59128
		238 38 03	58 39 29	Dawson	2,668.6	3.42629
Sandy	49 16 24.87	202 11 11	22 11 36	Sugar	1,756.7	3.24469
	94 55 37.35	224 17 16	44 19 06	Dawson	4,213.1	3.62460
Mass	49 16 32.70	0 15 00	180 14 58	Big Point	16,898.2	4.22784
	94 46 06.92	39 02 30	218 57 28	Garden	12,859.3	4.10922
		97 19 03	277 12 16	Sugar	10,953.4	4.03955
		107 56 42	287 51 20	Dawson	9,021.8	3.95529
		114 26 01	294 23 12	Cherry	4,946.8	3.69433
		119 33 53	299 31 33	Lighthouse	4,296.3	3.63309
		135 48 03	315 45 47	Hornet	5,221.1	3.71776
Target	49 15 49.34	5 25 20	185 24 49	Garden	8,692.8	3.93916
	94 52 06.34	104 26 58	284 24 18	Sandy	4,404.7	3.64392
		127 07 11	307 04 56	Sugar	4,515.8	3.65473
		162 11 24	342 10 34	Dawson	4,319.7	3.63546
		219 10 59	39 12 43	Cherry	4,366.6	3.64014
		225 32 38	45 34 50	Lighthouse	4,939.3	3.69366
		259 30 59	79 35 31	Mass	7,388.6	3.86856
		335 07 05	155 11 34	Big Point	17,145.2	4.23414
Little	49 14 51.88	132 49 58	312 48 46	Target	2,611.5	3.41689
	94 50 31.62	197 06 59	17 07 59	Lighthouse	5,476.0	3.73847
		239 46 29	59 49 49	Mass	6,192.5	3.79187
Bear	49 13 13.88	124 18 01	304 15 15	Little	5,375.5	3.73042
	94 46 52.06	161 07 23	341 05 38	Lighthouse	8,731.0	3.94107
		188 26 59	8 27 33	Mass	6,209.7	3.79307
Camp	49 14 11.75	43 18 28	223 17 25	Bear	2,456.2	3.39026
	94 45 28.81	145 09 34	325 06 45	Lighthouse	7,889.1	3.89703
		169 58 02	349 57 33	Mass	4,422.3	3.64565

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Fred	49 12 04.41	172 40 50	352 39 59	Lighthouse	10,492.6	4.02088
	94 48 05.70	196 09 17	16 10 47	Mass	8,629.7	3.93599
		344 49 38	164 51 05	Big Point	8,920.1	3.95037
Wanagan	49 07 30.42	44 40 53	224 40 48	Big Point	204.4	2.31044
	94 46 03.47	163 42 18	343 40 45	Fred	8,819.1	3.94542
		325 30 47	145 32 54	Big	5,985.0	3.77706
Black	49 06 21.92	153 42 41	333 42 05	Big Point	2,198.2	3.34207
	94 45 22.54	317 45 41	137 47 17	Big	3,805.7	3.58043
Log	49 05 51.40	162 50 28	342 49 54	Big Point	3,049.2	3.48418
	94 45 26.19	184 29 21	4 29 24	Black	945.5	2.97568
Ref. Mon. 40	49 12 54.08	0 31 17	180 31 17	Fred	1,534.6	3.18598
	94 48 05.01	171 20 38	351 19 48	Lighthouse	8,974.9	3.95303
Ref. Mon. 41	49 12 49.56	23 11 29	203 11 07	Fred	1,517.5	3.18114
	94 47 36.18	103 27 09	283 26 47	Ref. Mon. 40	599.9	2.77811
Ref. Mon. 42	49 12 00.36	174 23 43	354 23 37	Ref. Mon. 40	1,667.7	3.22212
	94 47 56.97	195 27 58	15 28 14	Ref. Mon. 41	1,577.3	3.19792
Ref. Mon. 43	49 11 36.37	150 51 24	330 51 06	Fred	991.8	2.99644
	94 47 41.84	182 54 01	2 54 06	Ref. Mon. 41	2,264.1	3.35490
Ref. Mon. 44	49 07 25.42	257 59 51	78 00 18	Wanagan	741.9	2.87032
	94 46 39.26	269 07 15	89 07 36	Big Point	582.0	2.76494
		332 57 39	152 58 34	Log	3,260.7	3.51331
Ref. Mon. 45	49 07 27.85	78 00 04	257 59 51	Ref. Mon. 44	359.8	2.55600
	94 46 21.90	258 00 04	78 00 18	Wanagan	382.1	2.58219
Ref. Mon. 47	49 06 06.26	117 08 13	297 07 38	Black	1,060.9	3.02567
	94 44 36.00	325 20 32	145 21 32	Big	2,837.6	3.45295
Ref. Mon. 46	49 05 49.68	233 11 46	53 12 12	Ref. Mon. 47	854.9	2.93194
	94 45 09.74	308 23 56	128 25 22	Big	2,932.9	3.46729
Ref. Mon. 49	48 53 23.50	3 45 28	183 45 18	Hungry 1913	4,349.7	3.63846
	94 40 30.78	45 33 33	225 32 38	Oak	2,080.8	3.31822
Mouth	48 53 24.16	4 00 39	184 00 28	Hungry 1913	4,371.3	3.64061
	94 40 29.77	45 33 34	225 32 38	Oak	2,109.7	3.32422
		45 34	225 34	Ref. Mon. 49	28.94	1.46150
Ref. Mon. 52	48 50 18.46	178 28 12	358 28 08	Ref. Mon. 48	4,243.5	3.62773
	94 41 32.15	215 22 26	35 23 02	Hungry 1917	1,697.3	3.22975
Ref. Mon. 51	48 51 19.15	26 31 11	206 30 37	Ref. Mon. 52	2,095.0	3.32119
	94 40 46.28	156 07 19	336 06 40	Ref. Mon. 48	2,589.1	3.41314
Ref. Mon. 50	48 50 44.30	185 22 54	5 23 06	Ref. Mon. 48	3,459.2	3.53898
	94 41 53.63	231 53 43	51 54 34	Ref. Mon. 51	1,744.9	3.24177
		331 14 10	151 14 26	Ref. Mon. 52	910.4	2.95921
Ref. Mon. 53	48 50 05.34	134 15 05	314 14 50	Ref. Mon. 52	581.1	2.76424
	94 41 11.74	144 38 14	324 37 42	Ref. Mon. 50	1,475.9	3.16905
		197 33 58	17 34 19	Hungry 1917	1,876.9	3.27343
Ski	48 50 44.33	183 10 16	3 10 23	Oak	3,465.1	3.53972
	94 41 53.10	198 58 24	18 59 26	Mouth	5,221.1	3.71776
		247 30 40	67 31 31	Hungry 1913	1,507.7	3.17832
Wheeler	48 50 15.12	7 19 18	187 19 11	Ref. Mon. 55	1,481.7	3.17076
	94 41 49.95	175 55 29	355 55 27	Ski	904.6	2.95644
		221 56 18	41 57 07	Hungry 1913	1,988.2	3.29847
Owl	48 50 05.36	39 39 31	219 38 55	Ref. Mon. 55	1,517.2	3.18104
	94 41 11.73	111 09 26	291 08 57	Wheeler	835.6	2.92198
		144 59 09	324 58 38	Ski	1,469.9	3.16729
		197 09 35	17 09 56	Hungry 1913	1,863.3	3.27029
Pent	48 49 56.47	220 45 32	40 45 50	Wheeler	760.5	2.88112
	94 42 14.30	257 51 00	77 51 48	Owl	1,305.1	3.11564
		340 59 26	160 59 38	Ref. Mon. 55	945.1	2.97548
Benson	48 49 26.98	198 05 55	18 06 05	Pent	958.4	2.98154
	94 42 28.89	208 06 23	28 06 52	Wheeler	1,685.9	3.22683
		233 00 05	53 01 03	Owl	1,970.3	3.29453
		268 21 12	88 21 34	Ref. Mon. 55	605.9	2.78237
Mail	48 48 53.85	157 02 00	337 01 44	Benson	1,111.8	3.04603
	94 42 07.62	189 22 13	9 22 19	Ref. Mon. 55	1,055.1	3.02330
Ref. Mon. 57	48 49 01.17	64 04 03	244 03 46	Mail	517.5	2.71387
	94 41 44.82	131 34 15	311 33 42	Benson	1,201.8	3.07982
		160 11 26	340 11 15	Ref. Mon. 55	866.0	2.93751
Ref. Mon. 54	48 49 56.35	18 13 44	198 13 33	Benson	955.0	2.98001
	94 42 14.25	340 58 11	160 58 22	Ref. Mon. 55	941.1	2.97365
Ref. Mon. 56	48 49 26.99	88 21	268 21	Benson	4.95	0.69487
	94 42 28.65	268 21 12	88 21 34	Ref. Mon. 55	600.9	2.77881
Ref. Mon. 58	48 48 54.30	244 03 47	64 04 03	Ref. Mon. 57	485.7	2.68639
	94 42 06.23	298 55 45	118 56 15	Ref. Mon. 59	931.7	2.96929

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Dick	48 48 24.83	170 56 43	350 56 38	Mail	907.5	2.95785
	94 42 00.62	196 01 48	16 02 00	Ref. Mon. 57	1,167.9	3.06742
Ref. Mon. 59	48 48 39.70	56 46 34	236 46 08	Dick	838.2	2.92336
	94 41 26.26	117 22 23	297 21 52	Mail	950.3	2.97788
		150 16 54	330 16 40	Ref. Mon. 57	763.6	2.88289
Ref. Mon. 62	48 47 57.29	169 49 30	349 49 25	Dick	864.5	2.93679
	94 41 53.14	202 42 44	22 43 04	Ref. Mon. 59	1,420.4	3.15242
Ref. Mon. 60	48 48 26.12	56 46 10	236 46 08	Dick	72.54	1.86058
	94 41 57.65	236 46 10	56 46 34	Ref. Mon. 59	765.7	2.88405
Dock	48 48 01.79	74 42 07	254 41 48	Ref. Mon. 62	527.5	2.72222
	94 41 28.21	137 05 56	317 05 32	Dick	971.7	2.98752
		181 56 39	1 56 41	Ref. Mon. 59	1,171.7	3.06883
Ref. Mon. 61	48 48 00.97	74 42 03	254 41 48	Ref. Mon. 62	430.6	2.63404
	94 41 32.79	254 42 03	74 42 07	Dock	96.93	1.98646
Ref. Mon. 64	48 47 23.86	180 59 02	0 59 03	Ref. Mon. 62	1,032.8	3.01402
	94 41 54.01	204 11 40	24 11 59	Dock	1,284.7	3.10881
Ref. Mon. 63	48 47 30.58	65 15 21	245 15 04	Ref. Mon. 64	496.0	2.69552
	94 41 31.94	152 19 31	332 19 15	Ref. Mon. 62	931.6	2.96923
		184 30 51	4 30 54	Dock	967.2	2.98552
Moore	48 46 55.68	166 30 51	346 30 43	Ref. Mon. 64	895.0	2.95181
	94 41 43.78	192 38 32	12 38 41	Ref. Mon. 63	1,104.7	3.04325
Bush	48 47 04.44	57 19 33	237 19 18	Moore	501.2	2.70000
	94 41 23.12	133 33 58	313 33 35	Ref. Mon. 64	870.2	2.93962
		167 25 48	347 25 42	Ref. Mon. 63	827.2	2.91760
Ref. Mon 66	48 47 15.75	172 05 39	352 05 32	Ref. Mon. 62	1,295.3	3.11238
	94 41 44.41	209 03 52	29 04 01	Ref. Mon. 63	524.0	2.71932
Church	48 46 34.12	159 56 48	339 56 39	Moore	709.1	2.85069
	94 41 31.87	190 48 12	10 48 18	Bush	953.6	2.97935
Ref. Mon. 65	48 46 38.82	70 57 38	250 57 23	Church	444.4	2.64775
	94 41 11.30	128 09 41	308 09 17	Moore	843.4	2.92604
		163 03 05	343 02 56	Bush	827.6	2.91784
Ref. Mon. 70	48 46 17.80	128 39 06	308 38 43	Church	807.2	2.90699
	94 41 01.00	162 02 50	342 02 42	Ref. Mon. 65	682.3	2.83400
Poplar	48 46 29.82	29 29 19	209 29 11	Ref. Mon. 70	426.7	2.63007
	94 40 50.71	98 58 51	278 58 20	Church	850.8	2.92984
		123 27 27	303 27 11	Ref. Mon. 65	503.8	2.70225
Ref. Mon. 68	48 46 34.02	250 40 34	70 40 50	Ref. Mon. 65	448.0	2.65124
	94 41 32.01	308 20 52	128 21 15	Ref. Mon. 70	807.3	2.90703
Ref. Mon. 72	48 46 07.42	118 29 06	298 28 44	Ref. Mon. 70	672.5	2.82772
	94 40 32.05	151 09 47	331 09 33	Poplar	790.1	2.89768
Mud	48 46 18.02	35 59 50	215 59 41	Ref. Mon. 72	404.7	2.60715
	94 40 20.40	89 32 25	269 31 54	Ref. Mon. 70	829.0	2.91856
		120 30 34	300 30 11	Poplar	718.4	2.85635
Ref. Mon. 67	48 46 18.17	35 59 50	215 59 41	Ref. Mon. 72	410.4	2.61318
	94 40 20.24	36 00	216 00	Mud	5.66	0.75259
Creek	48 45 52.93	131 41 21	311 41 02	Ref. Mon. 72	673.0	2.82802
	94 40 07.44	161 08 38	341 08 28	Mud	819.0	2.91327
Ivy	48 46 01.06	53 18 09	233 17 57	Creek	420.1	2.62338
	94 39 50.94	103 10 49	283 10 18	Ref. Mon. 72	862.1	2.93556
		131 03 36	311 03 14	Mud	797.7	2.90185
Ref. Mon. 74	48 45 31.80	139 50 50	319 50 30	Creek	854.0	2.93144
	94 39 40.47	150 16 23	330 15 53	Mud	1,644.1	3.21594
		166 41 27	346 41 19	Ivy	928.7	2.96788
Cook	48 45 44.17	25 28 12	205 28 05	Ref. Mon. 74	423.2	2.62652
	94 39 31.56	110 16 39	290 16 12	Creek	781.0	2.89266
		142 49 05	322 48 50	Ivy	654.8	2.81613
Ref. Mon. 76	48 45 17.66	134 31 44	314 31 28	Ref. Mon. 74	622.8	2.79433
	94 39 18.74	162 15 26	342 15 16	Cook	859.7	2.93433
Squaw	48 45 24.90	60 38 05	240 37 50	Ref. Mon. 76	455.8	2.65876
	94 38 59.29	104 13 35	284 13 04	Ref. Mon. 74	867.8	2.93841
		132 05 10	312 04 46	Cook	888.2	2.94849
Sun	48 44 50.87	148 09 05	328 08 46	Ref. Mon. 76	974.2	2.98865
	94 38 53.57	173 39 25	353 39 21	Squaw	1,057.5	3.02428
		299 55 40	119 56 12	Point	991.4	2.99623
Bay	48 45 00.68	52 54 01	232 53 46	Sun	502.1	2.70075
	94 38 33.97	119 50 54	299 50 20	Ref. Mon. 76	1,054.3	3.02296
		145 20 45	325 20 26	Squaw	909.6	2.95883
		330 05 39	150 05 56	Point	920.0	2.96379

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 80	48 44 22.39	155 30 02	335 29 47	Sun	966.9	2.98540
	94 38 33.94	179 58 26	359 58 26	Bay	1,182.7	3.07288
		229 56 32	49 56 49	Point	598.6	2.77712
Ref. Mon. 69 ecc	48 46 01.06	103 08 04	283 07 33	Ref. Mon. 72	864.7	2.93687
	94 39 50.81	130 55 45	310 55 23	Mud	799.7	2.90292
		346 51 04	166 51 12	Ref. Mon. 74	928.2	2.96762
Ref. Mon. 69	48 46 01.36	60 26	240 26	Ref. Mon. 69 ecc	18.82	1.27465
	94 39 50.01					
Sub	48 45 46.54	7 40 34	187 40 32	Ref. Mon. 74	459.5	2.66227
	94 39 37.47	148 43 09	328 42 59	Ref. Mon. 69 ecc	524.8	2.71996
Ref. Mon. 71 ecc	48 45 44.19	25 47 35	205 47 28	Ref. Mon. 74	424.9	2.62833
	94 39 31.42	120 29 59	300 29 54	Sub	143.4	2.15640
Ref. Mon. 71	48 45 44.42	342 46	162 46	Ref. Mon. 71 ecc	7.42	0.87016
	94 39 31.53					
Ref. Mon. 73 ecc	48 45 24.83	60 59 37	240 59 22	Ref. Mon. 76	456.5	2.65943
	94 38 59.19	104 19 52	284 19 21	Ref. Mon. 74	870.3	2.93964
		132 15 18	312 14 54	Ref. Mon. 71 ecc	889.3	2.94905
Ref. Mon. 73	48 45 25.00	31 15	211 15	Ref. Mon. 73 ecc	6.24	0.79492
	94 38 59.03					
Ref. Mon. 75	48 44 42.03	1 08 43	181 08 43	Ref. Mon. 80	606.8	2.78305
	94 38 33.35	123 28 37	303 28 22	Sun	495.3	2.69483
		139 53 40	319 53 06	Ref. Mon. 76	1,439.2	3.15811
		158 14 06	338 13 47	Ref. Mon. 73 ecc	1,423.5	3.15337
Ref. Mon. 77	48 44 34.72	33 24 46	213 24 37	Ref. Mon. 80	456.4	2.65931
	94 38 21.64	127 24 56	307 24 32	Sun	821.2	2.91445
Ref. Mon. 78	48 44 50.75	173 59 50	353 59 46	Ref. Mon. 73 ecc	1,058.6	3.02475
	94 38 53.77	302 49 42	122 49 57	Ref. Mon. 75	496.5	2.69595
Clover	48 44 03.57	126 56 42	306 56 14	Ref. Mon. 80	967.3	2.98554
	94 37 56.11	161 57 26	341 57 14	Point	1,016.5	3.00711
Ref. Mon. 79	48 44 26.33	19 07 23	199 07 14	Clover	744.0	2.87158
	94 37 44.18	83 10 57	263 10 20	Ref. Mon. 80	1,024.0	3.01030
		115 15 48	295 15 27	Point	617.6	2.79071
Pile	48 43 54.79	112 38 52	292 38 28	Clover	705.0	2.84818
	94 37 24.27	157 20 19	337 20 04	Ref. Mon. 79	1,055.9	3.02363
Boom	48 44 17.83	33 24 18	213 24 01	Pile	852.6	2.93074
	94 37 01.30	68 32 32	248 31 51	Clover	1,203.4	3.08041
		106 41 25	286 40 53	Ref. Mon. 79	914.7	2.96127
Ref. Mon. 82	48 44 14.44	202 31 49	22 31 55	Ref. Mon. 79	397.6	2.59941
	94 37 51.63	264 11 17	84 11 55	Boom	1,033.8	3.01446
Ref. Mon. 81	48 44 17.98	51 57	231 57	Boom	7.35	0.86612
	94 37 01.01					
Ref. Mon. 84	48 44 09.19	134 41 48	314 41 28	Ref. Mon. 79	752.9	2.87675
	94 37 17.98	231 56 32	51 56 45	Boom	433.0	2.63650
Ref. Mon. 86	48 43 48.38	104 05 07	284 04 38	Pile	813.2	2.91017
	94 36 45.67	160 39 33	340 39 21	Boom	964.0	2.98408
Ref. Mon. 83	48 43 59.05	40 57 52	220 57 41	Ref. Mon. 86	436.5	2.63997
	94 36 31.67	83 01 00	263 00 20	Pile	1,082.9	3.03458
		133 46 31	313 46 08	Boom	838.4	2.92345
Ref. Mon. 88	48 43 30.70	120 20 23	300 19 49	Ref. Mon. 86	1,081.5	3.03402
	94 36 00.00	143 32 19	323 31 55	Ref. Mon. 83	1,089.0	3.03703
Ref. Mon. 85	48 43 43.84	23 27 35	203 27 28	Ref. Mon. 88	442.4	2.64586
	94 35 51.38	97 12 52	277 12 11	Ref. Mon. 86	1,118.3	3.04857
		119 43 16	299 42 46	Ref. Mon. 83	948.0	2.97681
Spooner water tank	48 42 57.33	175 38 33	355 38 27	Rainy	2,035.7	3.30871
	94 35 24.44	283 14 04	103 21 24	Clementson	12,294.2	4.08970
		354 07 32	174 07 51	Spooner	4,987.3	3.69787
Baudette water tank	48 42 46.35	195 27 04	15 27 28	Rainy	2,457.9	3.39056
	94 36 04.05	280 57 22	101 05 11	Clementson	13,015.2	4.11445
		344 03 00	164 03 48	Spooner	4,806.8	3.68186
Rainy River water tank	48 43 03.77	21 35 30	201 34 15	Spooner	5,549.0	3.74422
	94 33 19.68	124 06 48	304 05 09	Rainy	3,265.9	3.51400
		287 46 22	107 52 08	Clementson	9,888.1	3.99511
Ref. Mon. 89	48 43 07.82	182 10 06	2 10 08	Rainy	1,707.1	3.23226
	94 35 35.17	163 25 18	343 25 06	Ref. Mon. 85	1,161.1	3.06486
		325 53 51	145 53 59	Spooner water tank	391.2	2.59240
Ref Mon. 87	48 43 13.54	7 19 26	187 19 24	Spooner water tank	504.8	2.70311
	94 35 21.29	58 04 38	238 04 28	Ref. Mon. 89	334.22	2.52403
		123 49 59	303 49 30	Ref. Mon. 88	952.3	2.97880
		146 42 00	326 41 38	Ref. Mon. 85	1,120.0	3.04921
		171 50 59	351 50 51	Rainy	1,544.7	3.18886
		234 09 32	54 09 46	Toad	448.1	2.65136

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance; (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Furman	48 42 57.81	87 05 15	267 05 04	Spooner water tank	289.2	2.46123
	94 35 10.31	121 19 25	301 19 07	Ref. Mon. 89	594.9	2.77442
		155 12 23	335 12 15	Ref. Mon. 87	535.3	2.72861
		167 35 24	347 35 08	Rainy	2,063.3	3.31457
Creamery	48 42 53.67	180 32 47	0 32 48	Rainy	2,142.9	3.33101
	94 35 33.01	201 19 08	21 19 17	Ref. Mon. 87	658.8	2.81873
		237 10 14	57 10 21	Spooner water tank	208.5	2.31904
Empress	48 43 06.56	38 46 52	218 46 43	Furman	346.8	2.54005
	94 34 59.68	60 36 56	240 36 37	Spooner water tank	580.8	2.76402
		93 04 34	273 04 07	Ref. Mon. 89	726.4	2.86119
Emma	48 42 55.55	94 23 26	274 23 00	Spooner water tank	718.4	2.85635
	94 34 49.40	99 15 28	279 15 12	Furman	433.1	2.63654
		148 16 25	328 16 18	Empress	399.7	2.60176
		157 20 00	337 19 28	Rainy	2,259.3	3.35398
Ashes	48 43 04.54	27 09 49	207 09 44	Emma	312.2	2.49446
	94 34 42.43	69 56 28	249 56 07	Furman	606.8	2.78301
		100 00 08	279 59 55	Empress	358.2	2.55409
Brooks	48 43 05.79	55 52 46	235 52 29	Emma	563.6	2.75097
	94 34 26.57	83 14 52	263 14 40	Ashes	326.3	2.51360
		142 54 46	322 53 57	Rainy	2,217.3	3.34582
Rydberg	48 42 51.92	104 37 42	284 37 26	Emma	443.9	2.64726
	94 34 28.39	143 38 54	323 38 43	Ashes	484.1	2.68492
		149 23 11	329 22 23	Rainy	2,552.8	3.40702
		184 56 58	4 56 59	Brooks	429.8	2.63331
Baraba	48 42 50.11	97 02 34	277 02 17	Rydberg	457.0	2.65987
	94 34 06.20	139 18 36	319 18 21	Brooks	638.7	2.80527
Pounder	48 43 02.36	1 28 53	181 28 53	Baraba	378.5	2.57803
	94 34 05.72	55 10 25	235 10 08	Rydberg	564.4	2.75157
		103 57 30	283 57 14	Brooks	439.1	2.64260
Ref. Mon. 90	48 43 02.32	235 10	55 10	Pounder	1.84	0.26435
	94 34 05.80					
Carson	48 43 01.75	41 02 33	221 02 21	Baraba	476.8	2.67830
	94 33 50.89	93 32 22	273 32 11	Pounder	303.8	2.48262
		264 24 49	84 25 12	Rainy River water tank	640.9	2.80679
Bachtel	48 42 49.75	92 12 12	272 12 01	Baraba	289.6	2.46181
	94 33 52.05	144 19 36	324 19 26	Pounder	479.4	2.68073
		183 39 03	3 39 04	Carson	371.5	2.56993
Ref. Mon. 91	48 42 49.73	183 39	3 39	Bachtel	0.66	9.82086–10
	94 33 52.05					
Fuzzy	48 42 53.71	79 09 22	259 08 59	Bachtel	649.8	2.81281
	94 33 20.82	112 00 49	292 00 26	Carson	662.9	2.82143
		184 17 28	4 17 28	Rainy River water tank	311.7	2.49367
Ref. Mon. 92	48 43 02.95	18 54 19	198 54 15	Fuzzy	301.7	2.47961
	94 33 16.04	61 01 00	241 00 33	Bachtel	841.4	2.92499
		87 01 44	267 01 18	Carson	713.3	2.85325
		108 47 49	288 47 45	Rainy River water tank	78.6	1.89558
Phone	48 42 57.25	80 22 51	260 22 27	Fuzzy	654.2	2.81569
	94 32 49.27	107 50 32	287 50 12	Ref. Mon. 92	574.8	2.75954
		107 57 27	287 57 04	Rainy River water tank	653.4	2.81521
Steam	48 42 49.05	147 00 19	327 00 09	Ref. Mon. 92	512.0	2.70927
	94 33 02.40	226 39 06	46 39 16	Phone	369.1	2.56709
Crow	48 42 48.42	92 03 46	272 03 26	Steam	542.4	2.73432
	94 32 35.89	134 54 47	314 54 37	Phone	386.4	2.58706
Ref. Mon. 93	48 42 41.42	184 21 16	4 21 17	Phone	490.2	2.69037
	94 32 51.09	235 12 44	55 12 55	Crow	378.5	2.57812
Tunnel	48 42 33.71	114 31 19	294 31 00	Ref. Mon. 93	574.4	2.75925
	94 32 25.53	155 00 55	335 00 47	Crow	501.3	2.70008
Tent	48 42 27.60	185 03 13	5 03 15	Crow	645.4	2.80984
	94 32 38.67	234 55 55	54 56 05	Tunnel	328.2	2.51611
Branch	48 42 16.76	124 16 41	304 16 23	Tent	594.6	2.77421
	94 32 14.64	156 57 07	336 56 59	Tunnel	568.8	2.75496
Ref. Mon. 94	48 42 13.54	191 14 29	11 14 34	Tunnel	635.2	2.80289
	94 32 31.59	253 57 56	73 58 09	Branch	360.6	2.55699
Object	48 42 00.01	127 35 21	307 35 01	Ref. Mon. 94	684.8	2.83559
	94 32 05.05	159 14 14	339 14 07	Branch	553.2	2.74292
Level	48 42 11.32	13 24 39	193 24 36	Object	359.1	2.55518
	94 32 00.97	96 14 37	276 14 14	Ref. Mon. 94	629.7	2.79912
		121 01 26	301 01 16	Branch	326.04	2.51327
Ref. Mon. 95	48 42 11.35	13 25	193 25	Level	0.81	9.90848–10
	94 32 00.96					

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Palm	48 41 59.96	90 10 28	270 10 06	Object	588.2	2.76953
	94 31 36.28	124 48 42	304 48 23	Level	614.9	2.78884
Arrow	48 42 09.81	61 04 31	241 04 10	Object	625.8	2.79645
	94 31 38.26	352 25 55	172 25 56	Palm	307.1	2.48735
Derrick	48 41 59.77	90 58 39	270 58 26	Palm	347.0	2.54028
	94 31 19.31	128 42 24	308 42 10	Arrow	496.4	2.69580
Ref. Mon. 96	48 42 00.05	21 44	201 44	Derrick	9.49	0.97740
	94 31 19.14					
Five Roses	48 42 09.75	21 44 05	201 44 01	Derrick	332.1	2.52121
	94 31 13.30	57 13 30	237 13 13	Palm	558.8	2.74729
		90 13 10	270 12 51	Arrow	510.3	2.70783
Stewart	48 42 06.77	70 06 42	250 06 20	Derrick	635.9	2.80337
	94 30 50.07	100 58 37	280 58 19	Five Roses	483.8	2.68467
Ref. Mon. 97	48 41 56.77	97 28 31	277 28 05	Derrick	711.7	2.85228
	94 30 44.81	124 32 22	304 32 01	Five Roses	707.3	2.84961
		160 46 52	340 46 48	Stewart	327.1	2.51471
Picnic	48 42 05.71	61 30 41	241 30 22	Ref. Mon. 97	579.2	2.76282
	94 30 19.91	93 01 47	273 01 24	Stewart	617.6	2.79069
Roof	48 41 54.04	101 44 33	281 44 18	Ref. Mon. 97	414.7	2.61771
	94 30 24.95	127 26 26	307 26 07	Stewart	646.9	2.81086
		195 56 46	15 56 50	Picnic	375.1	2.57414
Calf	48 41 47.82	109 35 14	289 34 54	Roof	573.0	2.75819
	94 29 58.55	141 41 02	321 40 46	Picnic	704.5	2.84789
Ref. Mon. 98	48 41 58.27	5 20 45	185 20 44	Calf	324.4	2.51106
	94 29 57.07	77 04 20	257 03 59	Roof	584.9	2.76710
Board	48 41 47.50	91 19 25	271 19 09	Calf	430.1	2.63358
	94 29 37.52	129 47 13	309 46 58	Ref. Mon. 98	520.2	2.71619
Dean	48 41 57.98	19 35 54	199 35 50	Board	343.9	2.53641
	94 29 31.88	90 59 45	270 59 26	Ref. Mon. 98	515.2	2.71195
Company	48 41 47.15	91 58 11	271 58 00	Board	312.2	2.49450
	94 29 22.26	149 33 21	329 33 14	Dean	388.2	2.58907
Walk	48 41 58.83	35 19 58	215 19 49	Company	442.4	2.64586
	94 29 09.75	58 20 29	238 20 08	Board	667.2	2.82428
		86 40 47	266 40 31	Dean	453.3	2.65642
Ref. Mon. 99	48 41 58.07	215 20	35 20	Walk	28.96	1.46172
	94 29 10.57					
Tassel	48 41 55.62	72 02 47	252 02 18	Company	849.0	2.92892
	94 28 42.76	100 11 39	280 11 19	Walk	560.6	2.74867
Roberts	48 41 43.65	134 33 22	314 33 05	Walk	668.4	2.82504
	94 28 46.45	191 32 23	11 32 26	Tassel	377.4	2.57677
Ray	48 41 53.47	64 58 13	244 57 49	Roberts	716.8	2.85540
	94 28 14.69	96 36 18	276 35 57	Tassel	577.8	2.76177
Van	48 42 00.47	27 47 09	207 47 06	Tassel	169.2	2.22847
	94 28 38.90	293 35 01	113 35 19	Ray	540.19	2.73255
Solid	48 41 42.87	122 42 00	302 41 38	Tassel	729.3	2.86289
	94 28 12.75	173 04 57	353 04 56	Ray	329.9	2.51841
Ref. Mon. 100	48 41 42.69	173 05	353 05	Solid	5.52	0.74155
	94 28 12.72					
Buffy	48 41 48.65	72 31 16	252 30 55	Solid	594.9	2.77447
	94 27 45.00	103 46 24	283 46 02	Ray	625.1	2.79598
Ref. Mon. 101	48 41 48.68	72 31	252 31	Buffy	3.31	0.51983
	94 27 44.85					
Lid	48 41 37.49	132 31 37	312 31 17	Ray	730.1	2.86341
	94 27 48.38	191 19 56	11 19 58	Buffy	351.6	2.54600
Wilson	48 41 43.39	65 21 13	245 20 59	Lid	437.0	2.64053
	94 27 28.96	116 20 17	296 20 05	Buffy	366.1	2.56364
Gus	48 41 30.92	146 23 44	326 23 31	Buffy	657.7	2.81803
	94 27 27.20	174 40 47	354 40 46	Wilson	387.0	2.58773
Ref. Mon. 102	48 41 30.83	174 41	354 41	Gus	2.62	0.41913
	94 27 27.19					
Scotch	48 41 39.11	49 10 53	229 10 42	Gus	387.1	2.58783
	94 27 12.88	111 55 07	291 54 55	Wilson	354.4	2.54954
Cane	48 41 28.06	103 13 54	283 13 40	Gus	385.6	2.58609
	94 27 08.85	166 25 54	346 25 51	Scotch	351.1	2.54541
Pasture	48 41 37.95	34 14 06	214 13 58	Cane	369.4	2.56749
	94 26 58.69	97 03 10	277 02 59	Scotch	292.4	2.46595

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 103	48 41 38.13	34 14	214 14	Pasture	6.80	0.83238
	94 26 58.50					
Sand	48 41 32.93	78 20 07	258 19 40	Cane	744.0	2.87157
	94 26 33.22	106 34 08	286 33 49	Pasture	543.3	2.73508
Sutherland	48 41 40.96	59 22 23	239 21 58	Cane	782.1	2.89328
	94 26 35.94	347 21 47	167 21 49	Sand	254.2	2.40513
Rapid	48 41 39.39	63 59 15	243 59 00	Sand	454.6	2.65764
	94 26 13.24	95 58 58	275 58 41	Sutherland	466.7	2.66903
Ref. Mon. 104	48 41 39.45	43 29	223 29	Rapid	2.82	0.44979
	94 26 13.15					
Second	48 41 49.32	33 44 22	213 44 10	Sand	608.7	2.78441
	94 26 16.69	313 30 19	133 30 47	Clementson	1,055.1	3.02328
		347 03 50	167 03 53	Rapid	314.8	2.49803
Lucy	48 41 55.02	43 29 03	223 28 46	Rapid	665.8	2.82333
	94 25 50.84	71 33 34	251 33 14	Second	557.2	2.74602
Billy	48 41 57.74	15 30 53	195 30 47	Rapid	588.5	2.76974
	94 26 05.55	41 12 21	221 12 13	Second	345.9	2.53895
		285 35 52	105 36 03	Lucy	312.2	2.49447
		331 25 29	151 25 49	Clementson	1,123.5	3.05055
Billy west base	48 41 58.62	276 31 11	96 31 20	Billy	237.89	2.37637
	94 26 17.11	322 38 35	142 39 03	Clementson	1,275.2	3.10557
		358 18 27	178 18 27	Second	287.4	2.45846
Williams	48 42 05.77	38 52 02	218 51 52	Lucy	426.4	2.62982
	94 25 37.75	66 25 20	246 24 59	Billy	620.1	2.79243
Mill	48 42 13.40	15 24 13	195 24 07	Lucy	588.6	2.76985
	94 25 43.19	334 43 12	154 43 16	Williams	260.4	2.41570
Lunch	48 42 17.06	45 18 28	225 18 15	Williams	495.9	2.69538
	94 25 20.51	76 16 34	256 16 17	Mill	477.3	2.67883
Ref. Mon. 105	48 42 25.39	17 24 20	197 24 13	Williams	635.1	2.80286
	94 25 28.46	327 43 11	147 43 17	Lunch	304.3	2.48332
McCutcheon	48 42 39.95	15 19 22	195 19 15	Lunch	733.0	2.86512
	94 25 11.04	38 23 05	218 22 52	Ref. Mon. 105	573.7	2.75866
Milne	48 42 33.37	62 50 24	242 50 06	Ref. Mon. 105	540.0	2.73240
	94 25 04.96	148 33 15	328 33 10	McCutcheon	238.1	2.37684
Ref. Mon. 106	48 42 33.31	148 33	328 33	Milne	2.17	0.33586
	94 25 04.91					
Kearney	48 42 43.83	51 45 43	231 45 28	Milne	521.6	2.71735
	94 24 44.92	77 22 02	257 21 42	McCutcheon	547.2	2.73812
Ref. Mon. 107	48 42 43.28	182 46	2 46	Kearney	16.93	1.22866
	94 24 44.96					
Fender	48 42 34.98	106 26 31	286 26 12	McCutcheon	542.9	2.73475
	94 24 45.57	182 45 43	2 45 44	Kearney	273.7	2.43722
Pitch	48 42 33.75	94 14 55	274 14 36	Fender	511.6	2.70896
	94 24 20.61	122 03 22	302 03 04	Kearney	586.4	2.76823
Steffenson	48 42 45.47	26 21 16	206 21 09	Pitch	404.1	2.60644
	94 24 11.84	64 49 29	244 49 03	Fender	762.0	2.88194
South	48 42 35.01	84 03 04	264 02 50	Pitch	374.1	2.57298
	94 24 02.41	149 12 10	329 12 03	Steffenson	376.4	2.57559
Ref. Mon. 108	48 42 34.94	189 04	9 04	South	1.98	0.29776
	94 24 02.43					
Steffenson east base	48 42 46.59	9 04 13	189 04 11	South	362.3	2.55902
	94 23 59.62	47 15 55	227 15 39	Pitch	584.3	2.76663
		82 08 53	262 08 44	Steffenson	252.16	2.40168
Clean	48 42 37.72	81 55 02	261 54 30	Pitch	870.6	2.93980
	94 23 38.45	109 20 48	289 20 23	Steffenson	723.3	2.85934
Broad	48 42 47.66	10 54 50	190 54 48	Clean	313.0	2.49554
	94 23 35.55	84 47 07	264 46 40	Steffenson	744.8	2.87206
Lipkie	48 42 46.60	70 11 58	250 11 30	Clean	810.0	2.90848
	94 23 01.17	92 41 02	272 40 36	Broad	703.6	2.84731
Ref. Mon. 109	48 42 46.63	30 21	210 21	Lipkie	0.94	9.97220–10
	94 23 01.15					
Turnquist	48 42 38.59	116 41 18	296 40 57	Broad	624.4	2.79546
	94 23 08.26	210 21 07	30 21 12	Lipkie	286.8	2.45761
Robinson	48 42 35.73	104 22 18	284 22 06	Turnquist	356.1	2.55153
	94 22 51.39	149 13 54	329 13 47	Lipkie	390.9	2.59207
Ref. Mon. 110	48 42 35.05	149 14	329 14	Robinson	24.40	1.38732
	94 22 50.78					

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Straw	48 42 39.08	73 45 26	253 45 13	Robinson	370.2	2.56840
	94 22 34.01	112 42 15	292 41 55	Lipkie	602.0	2.77959
Horse	48 42 35.15	91 45 16	271 44 55	Robinson	582.9	2.76559
	94 22 22.89	118 06 32	298 06 24	Straw	257.61	2.41096
Trap	48 42 27.19	167 54 21	347 54 18	Straw	375.6	2.57475
	94 22 30.16	211 07 54	31 07 59	Horse	287.3	2.45832
Ref. Mon. 111	48 42 27.60	88 39 22	268 39 02	Trap	540.1	2.73249
	94 22 03.75	120 47 21	300 47 06	Horse	455.6	2.65862
Limb	48 42 19.46	151 26 02	331 25 52	Horse	551.8	2.74182
	94 22 09.98	206 53 46	26 53 51	Ref. Mon. 111	281.9	2.45017
Reef	48 42 16.45	100 56 56	280 56 38	Limb	488.8	2.68911
	94 21 46.51	134 20 20	314 20 07	Ref. Mon. 111	492.6	2.69248
Ref. Mon. 112	48 42 24.66	1 00 33	181 00 33	Reef	253.5	2.40404
	94 21 46.30	71 38 55	251 38 37	Limb	510.3	2.70782
Smart	48 42 19.48	83 05 09	263 04 41	Reef	777.2	2.89055
	94 21 08.78	101 46 38	281 46 10	Ref. Mon. 112	783.6	2.89408
King	48 42 10.35	123 42 09	303 41 45	Ref. Mon. 112	796.6	2.90122
	94 21 13.88	200 18 27	20 18 31	Smart	300.8	2.47825
Ref. Mon. 114	48 42 06.65	98 02 26	278 01 56	King	818.6	2.91308
	94 20 34.24	110 41 53	290 40 58	Ref. Mon. 112	1,574.8	3.19724
		119 19 08	299 18 42	Smart	809.9	2.90842
Ref. Mon. 113	48 42 19.47	101 48 14	281 47 46	Ref. Mon. 112	783.3	2.89395
	94 21 08.79	299 16 59	119 17 25	Ref. Mon. 114	810.0	2.90848
McGee	48 42 17.58	74 20 32	254 20 03	King	827.5	2.91779
	94 20 34.91	357 40 20	177 40 21	Ref. Mon. 114	338.1	2.52908
Central	48 42 07.77	86 26 42	266 26 22	Ref. Mon. 114	559.62	2.74789
	94 20 06.92	117 54 45	297 54 24	McGee	647.6	2.81129
Shade	48 42 18.00	49 13 47	229 13 32	Ref. Mon. 114	536.9	2.72989
	94 20 14.35	334 18 50	154 18 55	Central	350.5	2.54473
Ref. Mon. 115	48 42 10.48	81 14 11	261 13 51	Central	548.6	2.73925
	94 19 40.41	108 30 25	288 30 00	Shade	731.9	2.86447
Colvin	48 42 19.69	40 25 30	220 25 18	Central	483.4	2.68434
	94 19 51.59	321 11 52	141 12 00	Ref. Mon. 115	365.0	2.56224
Bee	48 42 19.03	67 04 41	247 04 18	Ref. Mon. 115	677.9	2.83119
	94 19 09.87	91 22 14	271 21 43	Colvin	853.3	2.93110
Treau	48 42 27.78	41 26 50	221 26 33	Ref. Mon. 115	712.9	2.85301
	94 19 17.33	198 38 57	18 39 16	Pinewood	1,614.3	3.20798
		330 33 52	150 33 58	Bee	310.4	2.49185
Poisson	48 42 34.05	31 15 13	211 15 03	Bee	542.7	2.73454
	94 18 56.10	65 57 34	245 57 18	Treau	475.3	2.67695
		183 31 27	3 31 30	Pinewood	1,338.4	3.12658
Pargie	48 42 26.53	93 38 01	273 37 39	Treau	607.0	2.78315
	94 18 47.70	143 30 32	323 30 26	Poisson	288.7	2.46040
		176 44 17	356 44 14	Pinewood	1,570.5	3.19603
Camp	48 42 41.63	48 43 09	228 42 49	Pargie	707.0	2.84944
	94 18 21.71	71 33 42	251 33 16	Poisson	741.0	2.86982
		150 36 18	330 35 55	Pinewood	1,264.2	3.10183
Fuel	48 42 31.62	97 20 04	277 19 43	Poisson	588.5	2.76973
	94 18 27.55	160 26 31	340 26 13	Pinewood	1,497.4	3.17533
		201 04 40	21 04 44	Camp	331.7	2.52075
Pine	48 42 41.24	34 53 44	214 53 32	Pargie	553.8	2.74339
	94 18 32.20	159 57 54	339 57 39	Pinewood	1,185.4	3.07387
		266 44 22	86 44 30	Camp	214.8	2.33204
		342 14 58	162 15 01	Fuel	312.2	2.49437
Ref. Mon. 116	48 42 41.29	342 15	162 15	Pine	1.64	0.21405
	94 18 32.23					
Tank	48 42 37.55	73 43 48	253 43 25	Fuel	654.7	2.81606
	94 17 56.81	103 54 23	283 54 04	Camp	524.6	2.71979
Stoltze	48 42 26.04	130 57 33	310 57 13	Camp	735.1	2.86632
	94 17 54.56	143 24 34	323 23 51	Pinewood	1,972.0	3.29492
		172 38 43	352 38 41	Tank	358.7	2.55476
Bend	48 42 33.87	65 04 08	245 03 49	Stoltze	574.0	2.75888
	94 17 29.10	101 21 56	281 21 35	Tank	577.7	2.76169
John	48 42 21.91	104 10 59	284 10 40	Stoltze	520.4	2.71635
	94 17 29.88	182 27 57	2 27 57	Bend	369.8	2.56796
Ref. Mon. 117	48 42 22.00	51 33	231 33	John	4.53	0.65639
	94 17 29.71					

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Gilson	48 42 30.56	51 33 24	231 33 12	John	430.0	2.63343
	94 17 13.41	107 39 27	287 39 15	Bend	336.7	2.52723
Flynn	48 42 16.63	113 03 59	293 03 45	John	416.47	2.61958
	94 17 11.14	173 50 46	353 50 44	Gilson	433.0	2.63648
Ref. Mon. 118	48 42 24.71	48 56 55	228 56 45	Flynn	380.3	2.58010
	94 16 57.12	118 28 50	298 28 38	Gilson	379.0	2.57869
Terrace	48 42 16.21	91 12 17	271 11 54	Flynn	620.7	2.79289
	94 16 40.79	128 12 45	308 12 33	Ref. Mon. 118	424.8	2.62819
Lost	48 42 07.02	159 09 15	339 09 07	Ref. Mon. 118	584.8	2.76700
	94 16 46.94	203 53 23	23 53 28	Terrace	310.3	2.49183
Trail	48 41 57.68	141 07 17	321 07 09	Lost	370.9	2.56924
	94 16 35.55	169 24 11	349 24 07	Terrace	582.4	2.76522
Ref. Mon. 120	48 42 02.28	69 05 08	249 04 54	Trail	398.7	2.60061
	94 16 17.34	103 36 06	283 35 44	Lost	622.6	2.79424
Kerosene	48 41 54.65	101 17 45	281 17 28	Trail	477.9	2.67934
	94 16 12.63	135 36 11	315 35 38	Ref. Mon. 118	1,299.9	3.11392
		157 48 27	337 48 24	Ref. Mon. 120	254.8	2.40619
Norland	48 42 01.89	47 20 04	227 19 55	Kerosene	330.0	2.51857
	94 16 00.76	92 04 09	272 03 57	Ref. Mon. 120	339.1	2.53038
Ref. Mon. 119	48 42 01.83	268 21 08	88 21 26	Ref. Mon. 120	486.6	2.68715
	94 16 41.12	269 52 33	89 53 03	Norland	825.3	2.91661
		290 51 06	110 51 27	Kerosene	623.5	2.79481
Albert	48 41 53.02	126 16 23	306 16 09	Ref. Mon. 120	483.7	2.68455
	94 15 58.27	169 26 54	349 26 52	Norland	278.6	2.44501
Birch	48 41 53.33	88 39 11	268 38 56	Albert	410.0	2.61279
	94 15 38.22	119 49 46	299 49 29	Norland	531.3	2.72533
Kavanagh	48 41 45.49	148 26 11	328 26 00	Norland	594.6	2.77425
	94 15 45.54	211 41 17	31 41 22	Birch	284.9	2.45466
Ref. Mon. 121	48 41 49.08	149 14 19	329 14 10	Norland	460.5	2.66320
	94 15 49.24	239 45 15	59 45 23	Birch	260.9	2.41650
		325 41 03	145 41 06	Kavanagh	134.4	2.12832
Craigen	48 41 33.98	128 01 12	308 00 55	Kavanagh	577.3	2.76143
	94 15 23.30	152 57 52	332 57 41	Birch	671.4	2.82696
Ref. Mon. 122	48 41 33.78	200 38	20 38	Craigen	6.46	0.81030
	94 15 23.41					
Trulson	48 41 22.68	155 19 59	335 19 47	Kavanagh	775.1	2.88938
	94 15 29.72	200 37 53	20 37 58	Craigen	372.7	2.57139
Hart	48 41 24.50	80 37 42	260 37 29	Trulson	344.9	2.53772
	94 15 13.08	144 28 15	324 28 07	Craigen	359.6	2.55581
Lock	48 41 18.97	105 03 27	285 03 11	Trulson	441.9	2.64537
	94 15 08.85	153 10 38	333 10 35	Hart	191.59	2.28257
Ref. Mon. 123	48 41 09.19	146 32 18	326 32 08	Trulson	499.7	2.69873
	94 15 16.25	206 35 35	26 35 41	Lock	337.8	2.52871
Pearson	48 41 02.05	119 40 12	299 39 58	Ref. Mon. 123	445.3	2.64861
	94 14 57.33	155 43 37	335 43 28	Lock	573.2	2.75828
Ref. Mon. 121	48 41 02.05	258 56	78 56	Pearson	1.32	0.12057
	94 14 57.40					
End	48 41 00.12	186 53 14	6 53 16	Lock	586.5	2.76830
	94 15 12.29	258 56 08	78 56 19	Pearson	311.8	2.49385
Window	48 40 47.67	172 44 28	352 44 26	End	387.5	2.58823
	94 15 09.90	210 03 20	30 03 29	Pearson	513.2	2.71028
Ref. Mon. 125	48 40 41.10	122 02 56	302 02 44	Window	382.5	2.58262
	94 14 54.05	174 04 34	354 04 32	Pearson	650.6	2.81332
Earl	48 40 27.35	158 37 53	338 37 44	Window	674.0	2.82868
	94 14 57.89	190 29 08	10 29 11	Ref. Mon. 125	431.9	2.63543
Leave	48 40 35.45	241 59 50	62 00 02	Ref. Mon. 125	372.4	2.57097
	94 15 10.12	314 58 03	134 58 12	Earl	353.6	2.54853
Loyd	48 40 23.25	190 24 50	10 24 53	Leave	383.1	2.58326
	94 15 13.51	248 20 27	68 20 39	Earl	343.7	2.53617
Raft	48 40 16.59	78 59 38	258 59 19	Frontier	523.6	2.71897
	94 15 00.50	127 43 31	307 43 21	Loyd	336.4	2.52681
		189 07 04	9 07 06	Earl	336.9	2.52751
Cut	48 40 11.95	103 21 29	283 21 22	Frontier	187.1	2.27217
	94 15 16.72	190 40 33	10 40 35	Loyd	355.2	2.55043
		246 39 21	66 39 33	Raft	361.4	2.55804

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 126	48 40 11.93	246 39	66 39	Cut	1.69	0.22789
	94 15 16.80					
Wave	48 40 01.27	133 18 12	313 17 57	Frontier	544.3	2.73582
	94 15 06.26	147 02 24	327 02 16	Cut	393.4	2.59480
		193 58 56	13 59 00	Raft	487.7	2.68817
Bark	48 39 57.06	172 54 14	352 54 12	Frontier	507.1	2.70506
	94 15 22.56	194 33 26	14 33 30	Cut	475.2	2.67688
		248 43 03	68 43 15	Wave	357.9	2.55374
Ref. Mon. 127	48 39 51.07	127 13 55	307 13 46	Bark	305.6	2.48518
	94 15 10.67	195 58 49	15 58 52	Wave	327.5	2.51515
Malone	48 39 46.86	185 44 40	5 44 41	Bark	316.7	2.50060
	94 15 24.11	244 40 20	64 40 30	Ref. Mon. 127	304.3	2.48328
Arnold	48 39 44.27	104 41 42	284 41 31	Malone	314.9	2.49817
	94 15 09.22	171 59 24	351 59 23	Ref. Mon. 127	212.1	2.32656
Ref. Mon. 128	48 39 34.74	165 24 22	345 24 18	Malone	386.8	2.58743
	94 15 19.35	215 07 53	35 08 00	Arnold	360.0	2.55628
Vacant	48 39 35.05	88 21 12	268 21 00	Ref. Mon. 128	326.5	2.51388
	94 15 03.40	157 18 17	337 18 12	Arnold	308.93	2.48986
Ref. Mon. 129	48 39 22.73	149 08 05	329 07 57	Ref. Mon. 128	432.3	2.63579
	94 15 08.51	195 22 12	15 22 16	Vacant	394.6	2.59613
Slough	48 39 20.31	99 57 39	279 57 23	Ref. Mon. 129	432.7	2.63622
	94 14 47.68	124 32 12	304 31 48	Ref. Mon. 128	786.6	2.89575
Spruce	48 39 12.06	133 41 07	313 40 54	Ref. Mon. 129	477.1	2.67857
	94 14 51.65	197 41 32	17 41 35	Slough	267.3	2.42700
Ref. Mon. 130	48 39 16.48	64 08 38	244 08 28	Spruce	313.0	2.49549
	94 14 37.89	120 31 36	300 31 29	Slough	232.6	2.36667
Son	48 39 05.29	107 34 56	287 34 32	Spruce	692.9	2.84068
	94 14 19.38	132 23 00	312 22 46	Ref. Mon. 130	513.0	2.71008
Hugh	48 39 17.01	5 49 24	185 49 23	Son	363.9	2.56097
	94 14 17.58	87 45 54	267 45 39	Ref. Mon. 130	416.1	2.61923
Meadow	48 39 07.28	85 58 17	265 57 45	Son	875.8	2.94239
	94 13 36.70	109 45 22	289 44 51	Hugh	888.9	2.94888
Ref. Mon. 132	48 39 07.35	64 15	244 15	Meadow	4.57	0.65992
	94 13 36.50					
Ref. Mon. 131	48 39 01.21	137 27 21	317 27 05	Hugh	662.3	2.82105
	94 13 55.69	244 15 06	64 15 21	Meadow	431.7	2.63517
Clear	48 38 50.80	110 27 37	290 27 05	Ref. Mon. 131	920.7	2.96411
	94 13 13.55	137 04 18	317 04 01	Meadow	845.6	2.84235
Ref. Mon. 133	48 38 50.70	110 28	290 28	Clear	8.60	0.93465
	94 13 13.16					
Arbor	48 39 02.49	22 29 11	202 29 06	Clear	391.0	2.59214
	94 13 06.25	103 21 54	283 21 32	Meadow	640.6	2.80660
Tie	48 38 52.94	76 37 46	256 37 36	Clear	286.4	2.45704
	94 12 59.94	156 21 26	336 21 21	Arbor	322.0	2.50789
Nose	48 39 02.38	27 42 25	207 42 19	Tie	329.4	2.51766
	94 12 52.46	90 41 33	270 41 22	Arbor	282.3	2.45069
Snag	48 38 54.11	85 59 55	265 59 36	Tie	519.4	2.71554
	94 12 34.62	124 58 20	304 58 07	Nose	445.5	2.64882
Hay	48 39 05.04	27 37 55	207 37 49	Snag	380.9	2.58081
	94 12 25.99	81 22 50	261 22 31	Nose	547.9	2.73867
Blossom	48 38 56.19	80 08 47	260 08 34	Snag	373.9	2.57279
	94 12 16.62	144 57 43	324 57 36	Hay	334.0	2.52373
Ref. Mon. 134	48 39 07.73	30 03 59	210 03 51	Blossom	411.9	2.61478
	94 12 06.54	78 13 21	258 13 06	Hay	406.7	2.60922
Cameron	48 39 06.16	70 20 30	250 19 58	Blossom	915.7	2.96177
	94 11 34.49	94 13 06	274 12 42	Ref. Mon. 134	657.7	2.81805
Ref. Mon. 135	48 38 58.38	104 46 19	284 45 50	Hay	807.6	2.90717
	94 11 47.84	127 02 30	307 02 16	Ref. Mon. 134	479.6	2.68084
		228 38 06	48 38 16	Cameron	364.0	2.56108
Blank	48 38 56.06	98 35 58	278 35 41	Ref. Mon. 135	478.6	2.68000
	94 11 24.72	147 20 18	327 20 11	Cameron	370.7	2.56902
Ref. Mon. 136	48 39 06.24	24 17 21	204 17 16	Blank	345.1	2.53797
	94 11 17.78	89 35 03	269 34 51	Cameron	342.02	2.53405
Joe	48 39 03.16	71 10 50	251 10 27	Blank	679.7	2.83229
	94 10 53.29	100 45 50	280 45 32	Ref. Mon. 136	510.3	2.70784

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Weed	48 38 54.36	142 25 41	322 25 31	Ref. Mon. 136	463.0	2.66562
	94 11 03.99	218 52 03	38 52 11	Joe	349.0	2.54280
Fire	48 38 52.05	102 04 07	282 03 55	Weed	341.3	2.53313
	94 10 47.68	161 30 24	341 30 20	Joe	361.7	2.55840
Farm	48 39 01.76	39 00 04	218 59 55	Fire	385.9	2.58649
	94 10 35.82	96 52 54	276 52 41	Joe	360.2	2.55654
Brindle	48 38 48.69	102 53 15	282 52 58	Fire	466.2	2.66854
	94 10 25.48	152 21 21	332 21 13	Farm	455.9	2.65888
Mullen	48 38 59.16	41 57 24	221 57 13	Brindle	435.0	2.63848
	94 10 11.27	99 05 36	279 05 17	Farm	508.7	2.70649
Bilyew	48 38 47.70	94 15 33	274 15 18	Brindle	412.4	2.61528
	94 10 05.39	161 13 16	341 13 12	Mullen	374.0	2.57288
Ref. Mon. 137	48 38 47.91	304 54	124 54	Bilyew	11.64	1.06625
	94 10 05.86					
Vipont	48 38 52.98	72 43 02	252 42 43	Bilyew	549.0	2.73960
	94 09 39.78	106 30 16	286 29 53	Mullen	672.3	2.82758
Charlie	48 38 44.46	103 22 03	283 21 48	Bilyew	432.4	2.63589
	94 09 44.84	201 29 08	21 29 12	Vipont	282.7	2.45139
Bare	48 38 40.29	111 10 05	291 09 53	Charlie	356.4	2.55198
	94 09 28.60	149 42 55	329 42 47	Vipont	453.7	2.65678
Del	48 38 49.04	19 05 22	199 05 18	Bare	285.8	2.45607
	94 09 24.04	71 38 05	251 37 49	Charlie	448.7	2.65196
Ref. Mon. 138	48 38 49.11	19 05	199 05	Del	2.19	0.34025
	94 09 24.00					
Ref. Mon. 139	48 38 39.35	93 55 25	273 55 09	Bare	427.5	2.63098
	94 09 07.77	131 56 55	311 56 43	Del	447.8	2.65109
Muldoon	48 38 48.29	48 57 12	228 57 02	Bare	376.3	2.57549
	94 09 14.74	332 40 34	152 40 40	Ref. Mon. 139	311.0	2.49280
Oster	48 38 46.96	44 38 59	224 38 51	Ref. Mon. 139	330.5	2.51923
	94 08 56.42	96 15 58	276 15 44	Muldoon	377.3	2.57669
Obil	48 38 40.45	88 11 33	268 10 54	Ref. Mon. 139	1,078.1	3.03265
	94 08 15.13	103 23 04	283 22 33	Oster	868.8	2.93892
Isle	48 38 47.51	70 18 49	250 18 23	Ref. Mon. 139	748.6	2.87426
	94 08 33.33	300 20 22	120 20 35	Obil	431.8	2.63529
Ref. Mon. 140	48 38 47.50	269 25	89 25	Isle	39.79	1.59975
	94 08 35.28					
McLoud	48 38 50.18	71 53 13	251 53 04	Isle	655.2	2.42352
	94 08 21.02	338 07 54	158 07 58	Obil	323.9	2.51038
Boy	48 38 47.91	55 58 51	235 58 38	Obil	411.5	2.61433
	94 07 58.47	98 40 07	278 39 50	McLoud	467.0	2.66930
Curve	48 38 38.95	97 24 36	277 24 23	Obil	360.58	2.55700
	94 07 57.66	125 58 27	305 58 10	McLoud	590.9	2.77149
		176 34 53	356 34 53	Boy	277.2	2.44279
Ref. Mon. 141	48 38 38.91	176 35	356 35	Curve	1.24	0.09342
	94 07 57.66					
Peal	48 38 34.52	102 30 49	282 30 26	Curve	631.6	2.80046
	94 07 27.54	123 09 10	303 08 47	Boy	756.2	2.87865
Storm	48 38 44.22	73 35 56	253 35 35	Curve	576.4	2.76070
	94 07 30.65	347 59 37	167 59 39	Peal	306.3	2.48614
Ref. Mon. 142	48 38 44.35	348 00	168 00	Storm	4.20	0.62325
	94 07 30.69					
Break	48 38 34.91	87 59 44	267 59 31	Peal	341.8	2.53376
	94 07 10.85	125 21 54	305 21 39	Storm	497.0	2.69634
Ref. Mon. 143	48 38 34.64	173 25	353 25	Break	8.36	0.92195
	94 07 10.80					
Nito	48 38 43.78	63 01 11	243 00 52	Break	604.2	2.78118
	94 06 44.55	90 49 24	270 48 50	Storm	943.8	2.97488
Howard	48 38 35.61	87 40 17	267 39 58	Break	533.3	2.72693
	94 06 44.82	181 16 39	1 16 39	Nito	252.5	2.40228
Ref. Mon. 144	48 38 35.60	181 17	1 17	Howard	0.20	9.29666–10
	94 06 44.82					
Birchdale west base	48 38 37.41	83 45 54	263 45 35	Howard	512.7	2.70983
	94 06 19.93	111 19 38	291 19 19	Nito	541.0	2.73322
Parson	48 38 50.40	31 15 16	211 15 07	Birchdale west base	469.3	2.67143
	94 06 08.03	58 45 34	238 45 06	Howard	880.8	2.94490

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 145	48 38 50.69 94 06 08.04	359 08	179 08	Parson	9.11	0.95952
Birchdale east base	48 38 38.88 94 06 07.77	79 39 21 179 08 16	259 39 12 359 08 16	Birchdale west base Parson	252.95 355.8	2.40303 2.55120
Nybo	48 38 38.26 94 05 59.23	96 13 48 154 19 22	276 13 41 334 19 15	Birchdale east base Parson	175.9 415.9	2.24530 2.61901
Tar	48 38 42.76 94 05 24.34	79 00 10 82 20 02 104 47 22	258 59 44 262 19 30 284 46 49	Nybo Birchdale east base Parson	727.5 879.0 924.9	2.86181 2.95279 2.96610
Cave	48 38 33.16 94 05 24.17	102 23 22 120 40 25 179 19 02	282 22 56 300 39 52 359 19 02	Nybo Parson Tar	734.7 1,043.9 296.4	2.86613 3.01864 2.47193
Ref. Mon. 146	48 38 32.54 94 05 24.16	179 19	359 19	Cave	19.11	1.28126
Ref. Mon. 147	48 38 41.66 94 05 12.18	43 05 47 97 45 48	223 05 38 277 45 39	Cave Tar	359.4 251.4	2.55561 2.40035
Spawn	48 38 36.51 94 05 04.65	75 29 37 115 34 41 135 54 02	255 29 22 295 34 26 315 53 56	Cave Tar Ref. Mon. 147	412.8 447.0 221.5	2.61579 2.65029 2.34528
Linn	48 38 40.81 94 04 47.47	69 19 07 92 58 40	249 18 54 272 58 21	Spawn Ref. Mon. 147	375.8 506.4	2.57500 2.70450
Lean	48 38 36.43 94 04 46.87	90 24 08 107 19 26 174 48 24	270 23 55 287 19 07 354 48 24	Spawn Ref. Mon. 147 Linn	363.9 542.6 135.5	2.56101 2.73449 2.13305
Ref. Mon. 148	48 38 36.23 94 04 47.22	229 35	49 35	Lean	9.35	0.97063
Ref. Mon. 149	48 38 41.75 94 04 37.44	49 35 22 81 57 38	229 35 15 261 57 31	Lean Linn	253.4 207.3	2.40383 2.31657
Russell	48 38 40.93 94 04 25.20	72 35 18 95 43 40	252 35 02 275 43 31	Lean Ref. Mon. 149	464.9 251.9	2.66740 2.40129
Rough	48 38 47.42 94 04 13.66	49 41 23 63 27 50 70 12 14	229 41 14 243 27 25 250 11 56	Russell Lean Ref. Mon. 149	309.8 760.0 517.5	2.49108 2.88080 2.71391
Cochran	48 38 43.06 94 04 15.75	71 16 20 72 11 15 83 53 48 84 48 00 197 37 02	251 16 13 252 10 52 263 53 25 264 47 43 17 37 04	Russell Lean Linn Ref. Mon. 149 Rough	204.2 669.2 653.1 445.9 141.5	2.31012 2.82554 2.81495 2.64927 2.15071
Tom	48 38 43.61 94 04 08.90	83 01 28 140 21 55	263 01 22 320 21 51	Cochran Rough	141.3 152.8	2.15028 2.18415
Ref. Mon. 150	48 38 43.60 94 04 08.87	140 22	320 22	Tom	0.71	9.85003–10
Ref. Mon. 151	48 38 50.33 94 03 57.76	47 42 07 58 37 23 74 35 20	227 41 59 238 37 10 254 35 08	Tom Cochran Rough	308.1 431.3 337.5	2.48876 2.63477 2.52831
Muck	48 38 42.98 94 04 00.03	96 08 22 116 11 38 191 34 37	276 08 16 296 11 28 11 34 39	Tom Rough Ref. Mon. 151	182.5 310.8 231.6	2.26123 2.49247 2.36476
Ref. Mon. 152	48 38 42.92 94 04 00.05	191 35	11 35	Muck	2.03	0.30750
Right	48 38 38.47 94 03 37.33	106 42 09 131 12 49	286 41 52 311 12 34	Muck Ref. Mon. 151	485.3 556.0	2.68598 2.74511
Ref. Mon. 153	48 38 38.53 94 03 37.30	14 27	194 27	Right	2.05	0.31175
Left	48 38 33.31 94 03 39.33	125 11 51 144 20 37 194 26 38	305 11 36 324 20 23 14 26 40	Muck Ref. Mon. 151 Right	518.5 647.1 164.6	2.71478 2.81097 2.21649
Ref. Mon. 154	48 38 33.18 94 03 39.51	221 14	41 14	Left	5.40	0.73199
Cat	48 38 36.05 94 03 09.16	82 11 54 97 23 17	262 11 31 277 22 56	Left Right	623.5 581.5	2.79486 2.76455
Ref. Mon. 156	48 38 35.90 94 03 08.97	140 59	320 59	Cat	6.02	0.77981
Dog	48 38 41.12 94 03 15.35	63 50 11 79 41 56 320 59 21	243 49 53 259 41 40 140 59 26	Left Right Cat	547.0 457.2 201.4	2.73799 2.66015 2.30415
Ref. Mon. 155	48 38 41.31 94 03 15.58	320 59	140 59	Dog	7.60	0.88053
Burr	48 38 36.48 94 03 05.85	78 55 44 126 22 45	258 55 42 306 22 38	Cat Dog	69.0 241.6	1.83874 2.38305

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Colt	48 38 39.60	70 53 15	250 53 05	Burr	294.6	2.46925
	94 02 52.25	72 24 40	252 24 27	Cat	363.1	2.55997
		95 39 22	275 39 05	Dog	475.2	2.67685
Ref. Mon. 157	48 38 39.68	302 15	122 15	Colt	4.78	0.67988
	94 02 52.45					
Frame	48 38 35.65	95 08 49	275 08 39	Burr	284.5	2.45402
	94 02 52.01	109 27 28	289 27 11	Dog	506.7	2.70478
		177 40 45	357 40 45	Colt	122.1	2.08665
Rod	48 38 41.48	51 15 03	231 14 55	Frame	287.8	2.45911
	94 02 41.04	75 46 23	255 46 15	Colt	236.7	2.37412
Ogren	48 38 31.64	108 00 32	288 00 18	Frame	400.6	2.60275
	94 02 33.40	122 29 36	302 29 22	Colt	457.6	2.66045
		152 45 16	332 45 10	Rod	341.9	2.53394
Ref. Mon. 158	48 38 31.45	201 29	21 29	Ogren	6.29	0.79886
	94 02 33.51					
Plumb	48 38 33.55	82 30 46	262 30 30	Ogren	451.2	2.65438
	94 02 11.54	112 06 01	292 05 39	Rod	651.8	2.81410
Ref. Mon. 159	48 38 33.89	24 26	204 26	Plumb	11.69	1.06763
	94 02 11.31					
Olsen	48 38 22.01	109 15 17	289 14 46	Ogren	902.4	2.95541
	94 01 51.78	120 49 09	300 48 32	Rod	1,174.2	3.06976
		131 22 26	311 22 11	Plumb	539.1	2.73170
Ref. Mon. 160	48 38 21.56	185 17	5 17	Olsen	14.13	1.15014
	94 01 51.85					
Gun	48 38 32.13	5 16 50	185 16 49	Olsen	313.9	2.49673
	94 01 50.37	89 01 45	269 01 13	Ogren	881.0	2.94496
Pistol	48 38 32.40	33 20 47	213 20 39	Olsen	384.2	2.58451
	94 01 41.47	87 21 55	267 21 48	Gun	182.5	2.26118
Ref. Mon. 161	48 38 32.94	350 31	170 31	Pistol	16.78	1.22469
	94 01 41.60					
Muir	48 38 37.53	65 59 37	245 58 58	Olsen	1,178.4	3.07132
	94 00 59.20	79 36 57	259 36 26	Pistol	879.7	2.94434
Plow	48 38 30.46	79 57 41	259 56 47	Olsen	1,495.7	3.17484
	94 00 39.84	92 03 17	272 02 24	Gun	1,444.7	3.15979
		92 43 49	272 43 03	Pistol	1,263.0	3.10139
		118 53 27	298 53 12	Muir	452.6	2.65567
Square	48 38 40.16	36 30 18	216 30 10	Plow	373.1	2.57179
	94 00 29.00	82 30 56	262 30 33	Muir	623.5	2.79482
Ref. Mon. 162	48 38 40.14	175 29	355 29	Square	0.74	9.86629–10
	94 00 29.00					
Dan	48 38 31.42	83 02 26	263 02 17	Plow	245.1	2.38932
	94 00 27.96	106 27 49	286 27 26	Muir	666.8	2.82402
		175 28 59	355 28 58	Square	271.0	2.43300
Westover	48 38 39.33	63 44 57	243 44 39	Dan	552.4	2.74226
	94 00 03.76	92 51 49	272 51 30	Square	517.4	2.71383
Hansen	48 38 29.58	122 13 25	302 13 06	Square	613.3	2.78765
	94 00 03.66	179 36 34	359 36 34	Westover	301.2	2.47881
Ref. Mon. 163	48 38 29.53	179 37	359 37	Hansen	1.49	0.17435
	94 00 03.65					
Hartley	48 38 35.06	75 34 51	255 34 27	Hansen	679.3	2.83207
	93 59 31.52	101 18 42	281 18 18	Westover	673.0	2.82802
Ref. Mon. 164	48 38 35.14	11 21	191 21	Hartley	2.67	0.42716
	93 59 31.49					
Rondo	48 38 23.55	107 36 48	287 36 27	Hansen	615.4	2.78915
	93 59 35.01	129 37 35	309 37 13	Westover	764.1	2.88317
		191 21 21	11 21 24	Hartley	362.5	2.55928
Dick	48 38 19.32	101 09 17	281 08 53	Rondo	676.1	2.83000
	93 59 02.61	129 23 57	309 23 35	Hartley	766.0	2.88420
Watts	48 38 23.49	75 33 37	255 33 19	Dick	517.2	2.71368
	93 58 38.14	90 05 33	270 04 50	Rondo	1,164.2	3.06602
		108 06 14	288 05 34	Hartley	1,149.6	3.06056
Ref. Mon. 166	48 38 23.53	9 20	189 20	Watts	1.14	0.05500
	93 58 38.13					
Office	48 38 18.04	101 43 43	281 43 36	Dick	194.5	2.28894
	93 58 53.30	123 54 05	303 53 36	Hartley	942.6	2.97431
		241 30 05	61 30 16	Watts	353.2	2.54806
Ref. Mon. 165	48 38 17.72	241 30	61 30	Office	20.59	1.31366
	93 58 54.19					

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Bat	48 38 14.14	114 36 14	294 36 05	Office	289.2	2.46125
	93 58 40.46	121 43 28	301 42 49	Hartley	1,228.9	3.08951
		189 19 44	9 19 46	Watts	292.8	2.46660
Feron	48 38 22.92	57 20 01	237 19 45	Bat	502.7	2.70130
	93 58 19.79	92 41 05	272 40 51	Watts	376.11	2.57531
Wick	48 38 14.25	89 43 46	269 43 19	Bat	718.8	2.85660
	93 58 05.35	113 02 41	293 02 16	Watts	729.5	2.86301
		132 11 20	312 11 09	Feron	398.9	2.60090
Ref. Mon. 167	48 38 13.86	168 49	348 49	Wick	12.28	1.08913
	93 58 05.23					
Bar	48 38 23.16	67 15 26	247 15 01	Bat	720.4	2.85755
	93 58 08.01	88 17 27	268 17 18	Feron	241.3	2.38250
		348 48 36	168 48 38	Wick	280.4	2.44783
Back	48 38 13.41	96 00 35	276 00 26	Wick	247.0	2.39275
	93 57 53.35	135 05 05	315 04 54	Bar	425.0	2.62840
Fern	48 38 18.77	53 34 13	233 34 05	Back	278.8	2.44530
	93 57 42.39	104 28 46	284 28 27	Bar	541.6	2.73368
Ref. Mon. 168	48 38 19.21	69 50	249 50	Fern	39.44	1.59593
	93 57 40.58					
Bow	48 38 12.10	101 59 12	281 59 05	Back	196.2	2.29267
	93 57 43.98	124 46 58	304 46 40	Bar	599.0	2.77744
		188 55 45	8 55 46	Fern	208.8	2.31982
Lock	48 38 10.54	109 46 14	289 46 09	Bow	141.9	2.15189
	93 57 37.45	158 19 17	338 19 13	Fern	273.7	2.43720
Ref. Mon. 169	48 38 09.51	158 46	338 46	Lock	34.37	1.53613
	93 57 36.85					
Beaver	48 38 08.35	96 31 44	276 31 23	Lock	594.6	2.77420
	93 57 08.60	99 04 10	279 03 44	Bow	733.4	2.86533
		114 57 18	294 56 53	Fern	763.0	2.88252
Ref. Mon. 170	48 38 09.00	356 05	176 05	Beaver	20.12	1.30374
	93 57 08.67					
Know	48 37 57.77	122 46 27	302 46 05	Lock	729.1	2.86281
	93 57 07.51	132 15 48	312 15 22	Fern	965.0	2.98451
		176 05 21	356 05 20	Beaver	327.9	2.51569
Ref. Mon. 171	48 37 56.98	220 40	40 40	Know	31.96	1.50455
	93 57 08.53					
Stimson	48 38 06.17	40 18 41	220 18 33	Know	340.6	2.53225
	93 56 56.75	99 12 01	279 11 31	Lock	844.3	2.92648
		105 30 51	285 30 42	Beaver	251.9	2.40119
Woodward	48 37 53.64	95 52 55	275 52 10	Know	1,243.8	3.09475
	93 56 07.08	110 50 36	290 49 59	Stimson	1,088.1	3.03666
Deer	48 38 01.79	26 25 30	206 25 25	Woodward	281.1	2.44886
	93 56 00.97	84 47 23	264 46 34	Know	1,368.0	3.13609
		96 45 51	276 45 09	Stimson	1,149.9	3.06068
Lewis	48 37 50.52	102 26 49	282 26 33	Woodward	448.4	2.65166
	93 55 45.70	138 05 02	318 04 51	Deer	468.2	2.67039
Ref. Mon. 173	48 37 50.27	185 58	5 58	Lewis	7.47	0.87355
	93 55 45.74					
Up	48 37 59.29	5 58 28	185 58 27	Lewis	272.5	2.43541
	93 55 44.31	69 29 26	249 29 09	Woodward	497.8	2.69704
		102 46 18	282 46 06	Deer	349.8	2.54378
Ref. Mon. 172	48 38 02.16	26 26 11	206 26 06	Woodward	293.7	2.46796
	93 56 00.70	284 47 38	104 47 50	Up	346.9	2.54026
		319 30 24	139 30 35	Lewis	472.9	2.67478
Ref. Mon. 174	48 38 01.51	64 59 34	244 59 07	Lewis	803.5	2.90500
	93 55 10.13	90 28 51	270 28 13	Deer	1,040.9	3.01742
Paddle	48 37 54.14	80 45 31	260 45 05	Lewis	696.5	2.84293
	93 55 12.12	190 08 04	10 08 05	Ref. Mon. 174	231.4	2.36462
Over	48 37 54.00	90 41 12	270 40 59	Paddle	361.8	2.55841
	93 54 54.46	125 52 32	305 52 20	Ref. Mon. 174	396.1	2.59785
Ref. Mon. 175	48 37 53.55	178 15	358 15	Over	13.84	1.14101
	93 54 54.44					
Canoe	48 38 04.40	47 54 37	227 54 24	Paddle	472.8	2.67464
	93 54 54.99	73 58 46	253 58 35	Ref. Mon. 174	322.6	2.50871
		358 03 27	178 03 28	Over	321.4	2.50701
Ref. Mon. 176	48 38 04.40	358 03	178 03	Canoe	0.08	8.88649–10
	93 54 54.99					

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Man	48 38 02.71	21 13 32	201 13 29	Over	288.8	2.46056
	93 54 49.35	114 15 03	294 14 59	Canoe	126.6	2.10246
Mound	48 38 09.29	9 03 41	189 03 38	Over	478.2	2.67959
	93 54 50.78	29 43 13	209 43 10	Canoe	173.9	2.24026
		351 48 23	171 48 24	Man	205.1	2.31198
Rapid	48 38 03.25	64 51 18	244 51 17	Man	39.2	1.59349
	93 54 47.62	103 10 44	283 10 39	Canoe	155.0	2.19034
		160 50 40	340 50 38	Mound	197.3	2.29506
Ref. Mon. 177	48 38 03.23	103 11	283 11	Rapid	3.79	0.57864
	93 54 47.44					
Flint	48 38 03.32	88 19 59	268 19 56	Rapid	68.0	1.83226
	93 54 44.30	144 15 50	324 15 45	Mound	227.1	2.35629
Ref. Mon. 178	48 38 09.91	62 12 45	242 12 31	Flint	436.5	2.64001
	93 54 25.44	65 38 37	245 38 21	Rapid	498.5	2.69766
		87 53 21	267 53 02	Mound	519.2	2.71532
McGauley	48 37 55.85	104 24 45	284 24 12	Flint	927.0	2.96710
	93 54 00.45	130 19 07	310 18 48	Ref. Mon. 178	671.1	2.82677
Hunt	48 38 03.91	21 49 22	201 49 18	McGauley	268.0	2.42815
	93 53 55.58	88 57 37	268 57 00	Flint	997.7	2.99898
		106 52 25	286 52 02	Ref. Mon. 178	638.8	2.80536
Flat	48 38 00.56	71 16 07	251 15 51	McGauley	452.7	2.65581
	93 53 39.51	107 26 49	287 26 37	Hunt	344.9	2.53775
Ref. Mon. 179	48 38 01.39	357 57	177 57	Flat	25.68	1.40959
	93 53 39.55					
Donovan	48 37 49.79	113 04 34	293 04 18	McGauley	477.4	2.67891
	93 53 39.00	142 04 58	322 04 45	Hunt	552.6	2.74239
		178 11 27	358 11 27	Flat	332.7	2.52202
Lang	48 37 49.02	91 57 01	271 56 35	Donovan	707.3	2.84960
	93 53 04.47	116 25 53	296 25 27	Flat	801.1	2.90367
Spring	48 37 58.51	4 35 42	184 35 41	Lang	294.2	2.46868
	93 53 03.32	69 46 12	249 45 45	Donovan	778.5	2.89124
		94 53 01	274 52 34	Flat	743.6	2.87134
Ref. Mon. 180	48 37 58.95	3 58	183 58	Spring	13.57	1.13261
	93 53 03.28					
Yellow	48 37 58.42	41 37 13	221 37 04	Lang	388.4	2.58928
	93 52 51.88	90 42 54	270 42 46	Spring	234.4	2.36997
George	48 37 50.47	83 04 45	263 04 32	Lang	373.5	2.57227
	93 52 46.37	125 34 09	305 33 56	Spring	426.8	2.63024
		155 18 42	335 18 38	Yellow	270.0	2.43141
Ref. Mon. 181	48 37 50.11	155 19	335 19	George	12.26	1.08835
	93 52 46.12					
Linden	48 37 50.27	92 02 35	272 02 29	George	176.0	2.24554
	93 52 37.78	131 04 37	311 04 27	Yellow	382.9	2.58314
Shut	48 37 56.60	70 45 37	250 45 16	Linden	592.9	2.77298
	93 52 10.44	75 35 09	255 34 42	George	759.6	2.88059
		93 47 42	273 47 11	Yellow	850.3	2.92957
Ref. Mon. 182	48 37 57.58	9 52	189 52	Shut	30.70	1.48719
	93 52 10.18					
Steel	48 37 46.36	102 26 21	282 26 01	Linden	560.5	2.74855
	93 52 11.05	114 00 37	294 00 07	Yellow	915.1	2.96149
		182 15 39	2 15 40	Shut	316.3	2.50016
Sunder	48 37 46.72	89 14 47	269 14 17	Steel	823.7	2.91575
	93 51 30.83	110 37 31	290 37 02	Shut	866.6	2.93782
Ref. Mon. 183	48 37 46.28	180 54	00 54	Sunder	13.35	1.12542
	93 51 30.84					
Rail	48 37 55.36	1 03 46	181 03 46	Sunder	267.0	2.42655
	93 51 30.58	71 27 47	251 27 16	Steel	873.9	2.94145
		92 41 12	272 40 43	Shut	816.9	2.91217
Snyder	48 37 46.82	89 38 37	269 38 19	Sunder	504.4	2.70280
	93 51 06.19	117 50 46	297 50 28	Rail	564.8	2.75193
Thompson	48 37 54.85	26 40 06	206 40 01	Snyder	277.5	2.44330
	93 51 00.11	68 13 57	248 13 34	Sunder	677.3	2.83076
		91 27 19	271 26 56	Rail	624.2	2.79532
Ash	48 37 45.41	96 27 46	276 27 32	Snyder	385.6	2.58612
	93 50 47.48	109 11 45	289 11 13	Rail	934.5	2.97058
		138 24 59	318 24 50	Thompson	389.6	2.59058
Emo west base	48 37 51.58	60 22 14	240 22 02	Ash	385.0	2.58546
	93 50 31.14	99 40 09	279 39 48	Thompson	601.7	2.77942
		104 52 18	284 51 27	Walt	1,449.0	3.16107
		302 22 25	122 23 26	Pine	1,952.5	3.29058

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 184	48 37 51.55 93 50 31.20	240 22	60 22	Emo west base	1.49	0.17377
Land	48 37 44.18 93 50 39.17	102 38 58 127 33 05 215 44 12	282 38 52 307 32 49 35 44 18	Ash Thompson Emo west base	174.4 540.8 281.6	2.24163 2.73304 2.44957
Emo east base	48 37 44.91 93 50 08.14	87 57 28 113 36 36	267 57 05 293 36 19	Land Emo west base	635.9 514.02	2.80337 2.71098
Indus	48 37 23.84 93 50 14.13	125 05 30 157 52 27 190 40 26 278 15 39	305 04 26 337 52 14 10 40 30 98 16 27	Walt Emo west base Emo east base Pine	2,137.3 924.8 662.3 1,314.3	3.32986 2.96605 2.82106 3.11868
Crook	48 37 26.60 93 49 48.54	80 45 51 131 29 39 144 38 52	260 45 32 311 29 07 324 38 37	Indus Emo west base Emo east base	530.9 1,164.5 693.5	2.72500 3.06614 2.84105
Ref. Mon. 185	48 37 33.43 93 50 11.39	144 11 49 190 38 34 294 15 34	324 11 34 10 38 36 114 15 52	Emo west base Emo east base Crook	691.2 360.9 513.3	2.83959 2.55740 2.71037
Ref. Mon. 186	48 37 26.60 93 49 48.60	270 55	90 55	Crook	1.12	0.04766
Boucher	48 37 05.88 93 49 36.50	125 46 00 158 56 25	305 45 32 338 56 16	Indus Crook	949.6 686.0	2.97755 2.83635
Ref. Mon. 187	48 37 05.89 93 49 36.41	78 42	258 42	Boucher	2.01	0.30363
Shanks	48 37 26.76 93 50 03.08	270 54 34 319 50 22	90 54 45 139 50 42	Crook Boucher	297.7 843.9	2.47377 2.92628
Durand	48 37 03.96 93 49 51.01	160 40 06 184 08 06 258 42 09	340 39 57 4 08 08 78 42 20	Shanks Crook Boucher	746.4 701.4 303.0	2.87296 2.84596 2.48145
Extra	48 36 55.35 93 49 26.79	118 11 20 148 32 30	298 11 02 328 32 23	Durand Boucher	562.9 381.3	2.75041 2.58122
Vega	48 36 33.27 93 49 24.64	150 19 49 176 18 52	330 19 29 356 18 50	Durand Extra	1,091.0 683.5	3.03782 2.83472
Extra ecc	48 36 56.10 93 49 26.86	356 18 50 356 18 50	176 18 50 176 18 52	Extra Vega	23.15 706.6	1.36449 2.84918
Ref. Mon. 189	48 36 33.06 93 49 25.14	177 10 02 238 23 51	357 10 01 58 23 52	Extra ecc Vega	712.3 12.0	2.85267 1.07925
Ref. Mon. 188 ecc	48 36 45.86 93 49 28.73	186 53 55 347 51 21 349 28 08	6 53 56 167 51 24 169 28 10	Extra ecc Vega Ref. Mon. 189	318.5 397.8 402.0	2.50316 2.59969 2.60421
Ref. Mon. 188	48 36 46.40 93 49 29.10	336 00	156 00	Ref. Mon. 188 ecc	18.45	1.26602
Shortrede	48 36 38.63 93 49 14.30	51 56 51 153 39 09	231 56 43 333 38 59	Vega Extra	269.0 576.1	2.42968 2.76052
Steer	48 36 09.28 93 49 00.42	146 11 32 162 35 12	326 11 14 342 35 02	Vega Shortrede	891.8 950.3	2.95025 2.97786
McComb	48 36 08.32 93 49 17.40	183 52 50 265 06 20	3 52 53 85 06 33	Shortrede Steer	938.7 349.2	2.97252 2.54313
Ref. Mon. 190	48 36 08.23 93 49 18.92	265 12	85 12	McComb	31.07	1.49233
Boat	48 35 52.56 93 48 54.59	136 10 19 166 59 27	316 10 02 346 59 23	McComb Steer	674.9 530.2	2.82921 2.72446
Ref. Mon. 191	48 35 52.82 93 48 53.55	68 51	248 51	Boat	23.02	1.36220
Taylor	48 35 32.18 93 49 01.43	163 39 48 181 02 14 192 32 56	343 39 36 1 02 15 12 33 01	McComb Steer Boat	1,163.3 1,146.3 644.9	3.06570 3.05931 2.80951
Brown	48 35 35.32 93 48 44.41	74 26 09 146 26 41 158 35 33	254 25 56 326 26 16 338 35 25	Taylor McComb Boat	362.1 1,223.0 571.8	2.55888 3.08744 2.75723
Ref. Mon. 192	48 35 17.54 93 48 43.25	140 29 57 177 31 22	320 29 43 357 31 21	Taylor Brown	585.8 549.7	2.76775 2.74012
Dock	48 35 00.15 93 48 24.46	144 22 55 159 23 16	324 22 41 339 23 01	Ref. Mon. 192 Brown	661.0 1,160.8	2.82017 3.06476
Green	48 34 51.86 93 48 33.81	155 33 25 166 17 45 216 46 50	335 33 04 346 17 38 36 46 57	Taylor Ref. Mon. 192 Dock	1,368.0 816.7 319.8	3.13610 2.91204 2.50486
Morceau	48 34 42.72 93 48 30.30	165 43 37 192 31 43	345 43 34 12 31 47	Green Dock	291.3 551.6	2.46436 2.74161

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 193	48 34 40.36	153 34	333 34	Morceau	81.30	1.91011
	93 48 28.54					
Mill	48 34 32.75	129 28 38	309 28 25	Morceau	484.2	2.68500
	93 48 12.07	142 56 58	322 56 42	Green	739.4	2.86890
		163 17 27	343 17 18	Dock	883.6	2.94624
Cow	48 34 31.17	164 37 58	344 37 55	Morceau	370.1	2.56827
	93 48 25.52	181 22 54	1 22 55	Dock	895.5	2.95208
		259 55 00	79 55 10	Mill	280.0	2.44715
Uncle	48 34 13.70	145 47 58	325 47 45	Cow	652.3	2.81443
	93 48 07.63	171 12 48	351 12 45	Mill	595.5	2.77486
Ref. Mon. 194	48 34 13.89	76 33	256 33	Uncle	25.34	1.40388
	93 48 06.43					
Paul	48 34 13.63	173 15 39	353 15 37	Cow	545.4	2.73671
	93 48 22.40	199 42 58	19 43 06	Mill	627.4	2.79756
		269 35 22	89 35 33	Uncle	302.7	2.48097
Francois	48 33 52.77	184 39 56	4 39 58	Paul	646.4	2.81050
	93 48 24.96	208 47 27	28 47 40	Uncle	737.6	2.86782
Ref. Mon. 195	48 33 52.58	261 16	81 16	Francois	39.93	1.60131
	93 48 26.89					
Edge	48 33 41.66	146 38 16	326 38 08	Francois	411.1	2.61390
	93 48 13.94	170 02 19	350 02 13	Paul	1,002.7	3.00117
		187 26 17	7 26 22	Uncle	998.1	2.99919
Nassau	48 33 43.18	189 17 36	9 17 38	Francois	300.3	2.47761
	93 48 27.33	203 10 54	23 11 09	Uncle	1,025.6	3.01099
		279 41 46	99 41 56	Edge	278.5	2.44490
Hard	48 33 30.07	192 08 09	12 08 12	Nassau	414.1	2.61714
	93 48 31.57	225 17 32	45 17 45	Edge	508.8	2.70658
Ref. Mon. 196	48 33 23.48	135 54 11	315 54 04	Hard	283.3	2.45226
	93 48 21.96	169 44 38	349 44 34	Nassau	618.2	2.79114
		196 19 52	16 19 58	Edge	585.0	2.76717
Moe	48 32 59.56	198 28 46	18 28 58	Hard	993.8	2.99729
	93 48 46.94	214 43 13	34 43 32	Ref. Mon. 196	899.2	2.95386
Swan	48 32 55.99	115 34 09	295 34 00	Moe	255.5	2.40744
	93 48 35.70	184 35 26	4 35 29	Hard	1,056.2	3.02374
		198 20 53	18 21 03	Ref. Mon. 196	894.8	2.95175
Ref. Mon. 197	48 32 55.70	153 29	333 29	Swan	9.96	0.99848
	93 48 35.48					
Leaf	48 32 40.24	167 29 40	347 29 35	Moe	611.2	2.78615
	93 48 40.48	191 24 40	11 24 44	Swan	496.2	2.69564
Linquist	48 32 40.16	90 46 31	270 46 24	Leaf	189.6	2.27782
	93 48 31.24	151 45 22	331 45 10	Moe	680.2	2.83264
		169 24 45	349 24 42	Swan	497.4	2.69671
Ref. Mon. 198	48 32 40.19	38 25	218 25	Linquist	1.14	0.05576
	93 48 31.21					
Red	48 32 36.41	185 40 07	5 40 07	Leaf	119.0	2.07571
	93 48 41.06	240 04 19	60 04 25	Linquist	232.3	2.36608
Luttrell	48 32 25.52	152 11 13	332 11 07	Red	380.1	2.57989
	93 48 32.41	159 59 17	339 59 11	Leaf	483.9	2.68472
		183 02 16	3 02 17	Linquist	452.7	2.65583
DeGraw	48 32 29.16	197 33 20	17 33 23	Red	234.9	2.37081
	93 48 44.51	218 41 30	38 41 40	Linquist	435.4	2.63888
		294 20 05	114 20 14	Luttrell	272.4	2.43522
Ref. Mon. 199	48 32 29.30	294 20	114 20	DeGraw	10.38	1.01624
	93 48 44.97					
Tree	48 32 07.02	199 52 57	19 53 06	DeGraw	727.1	2.86159
	93 48 56.57	220 55 28	40 55 46	Luttrell	756.4	2.87875
Kennedy	48 31 59.39	210 17 41	30 18 01	DeGraw	1,065.1	3.02737
	93 49 10.70	224 12 44	44 13 13	Luttrell	1,126.4	3.05170
		230 52 57	50 53 08	Tree	373.8	2.57264
Tip	48 31 57.30	106 08 40	286 08 32	Kennedy	232.0	2.36542
	93 48 59.84	192 36 52	12 36 55	Tree	307.8	2.48820
		197 43 20	17 43 32	DeGraw	1,033.1	3.01415
Ref. Mon. 200	48 31 57.29	106 09	286 09	Tip	1.20	0.08099
	93 48 59.79					
School	48 31 40.23	167 45 27	347 45 22	Kennedy	605.5	2.78212
	93 49 04.44	190 09 10	10 09 13	Tip	535.6	2.72887
Ref. Mon. 201	48 31 40.25	57 35	237 35	School	0.93	9.96895–10
	93 49 04.41					

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Pass	48 31 45.65	57 35 01	237 34 52	School	312.4	2.49471
	93 48 51.59	137 15 31	317 15 17	Kennedy	577.7	2.76171
		154 48 12	334 48 06	Tip	397.6	2.59946
McIntosh	48 31 19.74	131 23 17	311 22 51	School	957.2	2.98101
	93 48 29.44	150 24 44	330 24 27	Pass	920.3	2.96394
Ref. Mon. 202	48 31 19.70	209 59	29 59	McIntosh	1.59	0.20140
	93 48 29.48					
Ogden	48 31 29.02	29 58 53	209 58 47	McIntosh	230.8	2.51953
	93 48 21.39	111 24 33	291 24 01	School	948.9	2.97722
		129 39 50	309 39 27	Pass	805.0	2.90579
Shore	48 31 11.55	106 45 12	286 44 41	McIntosh	878.3	2.94366
	93 47 48.46	128 36 47	308 36 22	Ogden	864.8	2.93690
Ref. Mon. 203	48 31 11.69	28 26	208 26	Shore	4.92	0.69170
	93 47 48.34					
Loman	48 31 03.14	126 12 50	306 12 24	McIntosh	868.1	2.93859
	93 47 55.31	146 12 07	326 11 47	Ogden	962.0	2.98316
		208 25 54	28 25 59	Shore	295.4	2.47035
Mistake	48 31 03.61	88 16 20	268 16 02	Loman	484.1	2.68492
	93 47 31.73	125 32 04	305 31 51	Shore	421.77	2.62508
Metcalf	48 30 54.02	126 29 39	306 29 25	Loman	473.6	2.67539
	93 47 36.76	156 05 08	336 04 59	Shore	592.2	2.77248
		199 11 52	19 11 56	Mistake	313.7	2.49652
Ref. Mon. 204	48 30 53.98	199 12	19 12	Metcalf	1.57	0.19562
	93 47 36.78					
Tepee	48 31 01.95	59 36 03	239 35 48	Metcalf	483.6	2.68450
	93 47 16.43	99 19 16	279 19 05	Mistake	318.2	2.50264
Ref. Mon. 205	48 31 02.01	59 36	239 36	Tepee	4.01	0.60282
	93 47 16.26					
Hoist	48 30 54.20	89 37 55	269 37 24	Metcalf	843.9	2.92628
	93 46 55.64	111 26 16	291 25 49	Mistake	795.7	2.90075
		119 16 50	299 16 34	Tepee	489.2	2.68950
Armstrong	48 31 02.24	64 53 31	244 53 12	Hoist	585.4	2.76742
	93 46 29.81	79 32 13	259 31 23	Metcalf	1,397.1	3.14524
		89 27 24	269 26 49	Tepee	956.8	2.98081
Ref. Mon. 206	48 31 02.73	337 46	157 46	Armstrong	16.31	1.21253
	93 46 30.11					
Simp	48 30 57.68	84 06 25	264 05 47	Hoist	1,046.4	3.01969
	93 46 04.92	105 25 16	285 24 57	Armstrong	529.9	2.72416
Ref. Mon. 207	48 30 57.42	112 31	292 31	Simp	21.51	1.33270
	93 46 03.95					
Lumber	48 31 02.95	0 14 45	180 14 45	Simp	162.7	2.21138
	93 46 04.89	75 27 37	255 26 59	Hoist	1,076.0	3.03182
		87 33 34	267 33 15	Armstrong	512.0	2.70923
Lamb	48 31 02.94	78 03 30	258 03 02	Simp	784.9	2.89479
	93 45 27.50	90 01 20	270 00 52	Lumber	767.1	2.88488
Field	48 30 57.21	103 20 16	283 19 49	Lumber	768.4	2.88559
	93 45 28.45	186 16 53	6 16 54	Lamb	178.0	2.25051
Clark	48 31 02.25	72 05 27	252 05 09	Field	506.4	2.70452
	93 45 04.97	92 37 47	272 37 30	Lamb	462.9	2.66547
Ref. Mon. 208	48 31 02.36	341 14	161 14	Clark	3.59	0.55534
	93 45 05.03					
Main	48 30 55.15	96 31 34	276 31 13	Field	560.1	2.74825
	93 45 01.34	114 08 18	294 07 58	Lamb	588.4	2.76968
		161 13 40	341 13 37	Clark	231.7	2.36494
Slope	48 31 10.77	64 57 25	244 56 47	Main	1,139.4	3.05666
	93 44 11.04	76 38 17	256 37 36	Clark	1,137.5	3.05597
High	48 31 02.11	90 13 51	270 13 10	Clark	1,117.0	3.04805
	93 44 10.54	177 48 37	357 48 37	Slope	267.6	2.42746
Ref. Mon. 209	48 31 01.94	177 49	357 49	High	5.29	0.72354
	93 44 10.53					
Sand	48 31 02.56	89 29 34	269 28 37	High	1,545.4	3.18905
	93 42 55.24	99 15 49	279 14 52	Slope	1,576.1	3.19758
Fence	48 31 07.54	83 13 34	263 12 42	High	1,420.86	3.15255
	93 43 01.79	318 51 19	138 51 24	Sand	204.3	2.31034
Ref. Mon. 210	48 31 07.60	318 51	138 51	Fence	2.56	0.40858
	93 43 01.87					
Vine	48 31 06.81	83 05 27	263 04 47	Sand	1,090.9	3.03777
	93 42 02.47	91 04 02	271 03 17	Fence	1,217.6	3.08549

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Smith	48 31 03.13	103 58 04	283 57 44	Fence	564.3	2.75151
	93 42 35.11	260 21 59	80 22 24	Vine	679.3	2.83207
Ref. Mon. 211	48 31 02.79	181 50	1 50	Smith	10.66	1.02759
	93 42 35.12					
Laurel	48 31 00.36	99 53 03	279 52 45	Smith	498.6	2.69771
	93 42 11.17	102 03 18	282 02 40	Fence	1,062.2	3.02620
		221 52 35	41 52 42	Vine	267.5	2.42738
Ref. Mon. 212	48 31 01.86	85 42 26	265 42 03	Laurel	617.6	2.79070
	93 41 41.16	109 16 49	289 16 33	Vine	463.22	2.66579
Fred	48 30 50.76	110 09 24	290 08 54	Laurel	861.5	2.93525
	93 41 31.76	128 12 37	308 12 14	Vine	801.9	2.90414
		150 39 19	330 39 12	Ref. Mon. 212	393.6	2.59502
Ref. Mon. 213	48 30 49.87	183 23	3 23	Fred	27.36	1.43704
	93 41 31.84					
Henry	48 30 59.41	47 28 35	227 28 24	Fred	395.4	2.59699
	93 41 17.57	91 32 44	271 32 03	Laurel	1,100.5	3.04158
		98 54 13	278 53 55	Ref. Mon. 212	490.14	2.69032
Bull	48 30 54.60	80 45 17	260 44 50	Fred	738.5	2.86834
	93 40 56.25	108 45 17	288 45 01	Henry	462.0	2.66467
Ref. Mon. 214	48 30 56.12	84 44 20	264 44 01	Bull	513.1	2.71017
	93 40 31.35	96 06 41	276 06 06	Henry	953.8	2.97946
Hotel	48 31 07.06	30 33 22	210 33 15	Ref. Mon. 214	392.3	2.59363
	93 40 21.63	61 33 06	241 32 40	Bull	807.9	2.90736
		70 43 18	250 42 25	Fred	1,524.8	3.18320
		78 22 10	258 21 28	Henry	1,171.9	3.06888
		187 13 00	7 13 18	Daw	3,892.7	3.59025
Anderson	48 30 56.68	84 35 03	264 34 57	Ref. Mon. 214	180.9	2.25752
	93 40 22.57	94 16 55	274 16 14	Henry	1,131.7	3.05372
		183 26 44	3 26 45	Hotel	321.3	2.50696
Spencer	48 31 04.28	77 10 34	257 09 56	Anderson	1,057.0	3.02409
	93 39 32.35	94 52 06	274 51 29	Hotel	1,014.9	3.00644
Ref. Mon. 215	48 31 04.35	336 38	156 38	Spencer	2.21	0.34498
	93 39 32.39					
Mac	48 30 55.61	91 39 23	271 38 41	Anderson	1,146.9	3.05951
	93 39 26.71	107 26 00	287 25 19	Hotel	1,181.2	3.07234
		156 37 45	336 37 41	Spencer	291.7	2.46490
Big Fork Pole	48 31 17.65	5 01 56	185 01 54	Anderson	649.9	2.81287
	93 40 19.80	6 34 55	186 34 54	Hotel	328.8	2.51699
		19 38 23	199 38 15	Ref. Mon. 214	705.6	2.84853
		179 25 14	359 25 10	Devlin	11,035.7	4.04280
		187 16 32	7 16 49	Daw	3,563.9	3.55193
		264 03 32	84 12 42	Johnson	15,124.5	4.17968
		292 58 05	112 58 41	Spencer	1,057.5	3.02426
		301 59 11	121 59 51	Mac	1,284.4	3.10869
Burnt	48 31 00.36	79 34 16	259 33 47	Mac	810.8	2.90894
	93 38 47.85	97 32 50	277 32 17	Spencer	921.1	2.96431
Ref. Mon. 216	48 31 00.26	179 16	359 16	Burnt	3.11	0.49304
	93 38 47.85					
Frasier	48 31 08.19	63 55 31	243 55 02	Mac	884.4	2.94663
	93 38 48.01	359 15 46	179 15 46	Burnt	242.0	2.38374
Law	48 31 16.87	50 45 12	230 44 49	Burnt	806.2	2.90643
	93 38 17.43	66 51 45	246 51 22	Frasier	682.3	2.83397
Dun	48 31 20.50	35 13 21	215 13 05	Burnt	761.41	2.88162
	93 38 26.46	49 19 24	229 19 08	Frasier	583.1	2.76576
		301 09 25	121 09 32	Law	216.4	2.33522
Ref. Mon. 217	48 31 20.52	301 09	121 09	Dun	1.51	0.17811
	93 38 26.52					
Plain	48 31 46.74	24 43 33	204 43 18	Law	1,015.5	3.00670
	93 37 56.73	36 57 50	216 57 28	Dun	1,014.4	3.00619
Ref. Mon. 218	48 31 46.69	152 23	332 23	Plain	1.58	0.20003
	93 37 56.70					
Walton	48 31 51.83	17 35 35	197 35 23	Law	1,132.9	3.05419
	93 38 00.74	28 35 34	208 35 15	Dun	1,102.4	3.04233
		332 23 18	152 23 21	Plain	177.7	2.24964
Clay	48 31 52.56	56 42 29	236 42 19	Plain	328.0	2.51584
	93 37 43.37	86 22 36	266 22 23	Walton	357.2	2.55291
Ward	48 31 57.27	6 23 39	186 23 39	Clay	146.2	2.16491
	93 37 42.58	41 45 29	221 45 19	Plain	436.1	2.63957
		65 45 31	245 45 18	Walton	408.8	2.61153

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 219	48 31 57.83	6 24	186 24	Ward	17.42	1.24102
	93 37 42.48					
Point	48 31 50.15	110 29 58	290 29 51	Clay	212.9	2.32809
	93 37 33.65	140 12 30	320 12 23	Ward	286.08	2.45649
Ref. Mon. 220	48 31 50.04	194 22	14 22	Point	3.46	0.53920
	93 37 33.69					
Cad	48 31 56.39	14 22 25	194 22 23	Point	199.0	2.29883
	93 37 31.24	64 34 58	244 34 49	Clay	275.4	2.44002
		96 38 19	276 38 10	Ward	234.1	2.36932
Move	48 31 21.32	140 58 05	320 57 39	Point	1,146.4	3.05934
	93 36 58.46	148 10 00	328 09 36	Cad	1,275.1	3.10554
Ref. Mon. 221	48 31 37.91	129 52 27	309 52 10	Point	590.0	2.77087
	93 37 11.58	144 45 38	324 45 23	Cad	699.1	2.84456
		332 16 39	152 16 48	Move	578.7	2.76242
Ref. Mon. 222	48 31 20.64	188 29	8 29	Move	21.45	1.33143
	93 36 53.62					
Certes	48 31 28.91	8 32 36	188 32 35	Move	236.9	2.37459
	93 36 56.75	130 55 00	310 54 33	Point	1,002.0	3.00086
		132 24 18	312 24 08	Ref. Mon. 221	412.2	2.61509
Cadden	48 31 17.27	101 07 57	281 07 34	Move	649.0	2.81227
	93 36 27.43	120 52 04	300 51 42	Certes	700.9	2.84565
Peter	48 31 26.76	75 08 11	255 07 48	Move	655.3	2.81642
	93 36 27.60	359 19 06	179 19 06	Cadden	293.43	2.46750
Ref. Mon. 223	48 31 27.21	359 19	179 19	Peter	13.64	1.13469
	93 36 27.60					
Cass	48 31 23.04	61 29 00	241 28 48	Cadden	373.7	2.57249
	93 36 11.43	109 07 00	289 06 48	Peter	351.2	2.54553
Ref. Mon. 224	48 31 22.77	192 29	12 29	Cass	8.67	0.93802
	93 36 11.52					
Reserve	48 31 30.09	34 09 47	214 09 37	Cadden	478.6	2.67996
	93 36 14.33	344 41 08	164 41 10	Cass	225.6	2.35336
Wan	48 31 33.08	12 29 15	192 29 13	Cass	317.5	2.50179
	93 36 08.08	54 13 17	234 13 13	Reserve	158.1	2.19886
Boom	48 31 36.18	42 14 21	222 14 08	Cass	548.3	2.73900
	93 35 53.46	66 15 31	246 15 16	Reserve	467.7	2.66998
		72 16 02	252 15 51	Wan	314.8	2.49810
Indian	48 31 46.45	24 03 58	204 03 53	Boom	347.2	2.54060
	93 35 46.56	46 54 52	226 54 36	Wan	604.5	2.78139
Ref. Mon. 225	48 31 46.49	334 26	154 26	Indian	1.36	0.13290
	93 35 46.59					
Ran	48 31 41.62	62 45 42	242 45 23	Wan	576.7	2.76094
	93 35 43.09	154 26 17	334 26 14	Indian	165.1	2.21784
Turn	48 31 39.29	46 47 21	226 47 17	Boom	140.1	2.14651
	93 35 48.49	64 29 27	244 29 12	Wan	445.4	2.64879
		190 07 12	10 07 13	Indian	224.6	2.35139
		236 55 07	56 55 11	Ran	132.1	2.12103
Chief	48 31 53.28	39 10 39	219 10 29	Ran	464.4	2.66692
	93 35 28.79	59 56 17	239 56 04	Indian	421.3	2.62460
Run	48 31 42.43	72 12 29	252 12 26	Ran	81.3	1.90988
	93 35 39.32	129 52 16	309 52 10	Indian	193.7	2.28702
		212 47 52	32 47 59	Chief	398.8	2.60073
Fork	48 31 42.46	89 28 17	269 28 14	Run	99.9	1.99959
	93 35 34.45	116 22 24	296 22 15	Indian	277.4	2.44309
		199 09 17	19 09 21	Chief	353.9	2.54884
Little	48 31 41.84	103 43 37	283 43 34	Fork	81.1	1.90916
	93 35 30.61	113 31 20	293 31 08	Indian	357.0	2.55266
		186 01 27	6 01 28	Chief	355.5	2.55083
Ref. Mon. 226	48 31 41.76	259 54	79 54	Little	13.50	1.13030
	93 35 31.26					
Hathway	48 31 45.14	82 01 17	262 00 50	Little	735.1	2.86637
	93 34 55.13	110 00 26	290 00 00	Chief	735.0	2.86631
Watrous	48 31 32.36	108 38 07	288 37 35	Little	916.3	2.96202
	93 34 48.29	127 52 43	307 52 12	Chief	1,052.6	3.02228
		160 27 04	340 26 59	Hathway	419.0	2.62217
Ref. Mon. 227	48 31 32.33	200 21	20 21	Watrous	1.08	0.03543
	93 34 48.31					
Pile	48 31 42.38	20 21 16	200 21 12	Watrous	330.2	2.51876
	93 34 42.70	89 01 21	269 00 45	Little	983.2	2.99264
		108 28 51	288 28 42	Hathway	268.9	2.42958

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Bowen	48 31 46.56	60 58 41	240 58 12	Watrous	904.1	2.95623
	93 34 09.76	79 11 08	259 10 43	Pile	687.9	2.83754
Ref. Mon. 228	48 31 46.55	138 33	318 33	Bowen	0.56	9.74663–10
	93 34 09.74					
Stick	48 31 39.62	77 06 52	257 06 16	Watrous	1,005.2	3.00227
	93 34 00.53	95 38 13	275 37 41	Pile	869.2	2.93914
		138 33 32	318 33 25	Bowen	286.0	2.45644
Hammer	48 31 41.57	75 53 28	255 53 19	Stick	247.73	2.39397
	93 33 48.82	109 43 45	289 43 29	Bowen	456.4	2.65930
Grove	48 31 50.36	63 57 11	243 56 51	Hammer	618.0	2.79098
	93 33 21.76	67 21 47	247 21 18	Stick	861.9	2.93544
		83 12 33	263 11 57	Bowen	991.7	2.99639
Ref. Mon. 229	48 31 50.44	45 12	225 12	Grove	3.66	0.56372
	93 33 21.64					
Roll	48 31 42.42	85 09 02	265 08 51	Hammer	309.39	2.49050
	93 33 33.80	99 50 09	279 49 42	Bowen	748.8	2.87439
		225 11 51	45 12 00	Grove	348.0	2.54159
Axe	48 31 42.32	90 10 04	270 09 23	Roll	1,047.0	3.01993
	93 32 42.77	107 14 25	287 13 56	Grove	837.6	2.92304
Ref. Mon. 230	48 31 41.42	172 21	352 21	Axe	28.15	1.44942
	93 32 42.59					
Chimney	48 31 51.08	71 01 35	251 01 07	Roll	822.4	2.91507
	93 32 55.90	87 36 23	267 36 04	Grove	531.2	2.72526
		315 07 19	135 07 29	Axe	381.6	2.58159
Sheep	48 31 57.62	48 48 47	228 48 27	Axe	717.3	2.85568
	93 32 16.46	75 59 13	255 58 43	Chimney	833.8	2.92107
Saw	48 31 51.99	66 59 18	246 58 52	Axe	763.8	2.88297
	93 32 08.51	88 20 32	268 19 56	Chimney	972.6	2.98794
		136 47 26	316 47 20	Sheep	238.4	2.37726
Ref. Mon. 231	48 31 51.37	136 49	316 49	Saw	26.20	1.41822
	93 32 07.64					
Drill	48 31 52.61	71 21 54	251 21 52	Saw	59.5	1.77468
	93 32 05.76	87 22 32	267 21 54	Chimney	1,029.7	3.01271
		125 09 59	305 09 51	Sheep	208.6	2.42917
Small	48 32 08.33	74 00 14	253 59 12	Drill	1,761.7	3.24592
	93 30 43.22	80 11 34	260 10 24	Sheep	1,941.4	3.28811
Ref. Mon. 233	48 32 07.68	179 32	359 32	Small	20.01	1.30120
	93 30 43.21					
Old	48 32 18.11	64 26 28	244 25 28	Drill	1,825.3	3.26133
	93 30 45.50	351 11 41	171 11 43	Small	305.6	2.48518
Isherwood	48 32 08.92	62 19 06	242 18 31	Drill	1,084.7	3.03532
	93 31 18.94	73 31 07	253 30 24	Sheep	1,230.7	3.09016
		247 31 36	67 32 01	Old	742.4	2.87063
		271 25 30	91 25 57	Small	733.06	2.86514
Ref. Mon. 232	48 32 08.92	271 25	91 25	Isherwood	0.84	9.92169–10
	93 31 18.98					
Stiller	48 32 24.12	60 25 00	240 24 29	Small	987.9	2.99471
	93 30 01.34	78 24 55	258 24 22	Old	924.7	2.96600
Beach	48 32 32.55	48 04 25	228 03 55	Small	1,119.5	3.04904
	93 30 02.61	63 06 48	243 06 16	Old	986.3	2.99401
		354 15 38	174 15 39	Stiller	261.6	2.41771
Ref. Mon. 234	48 32 32.79	354 16	174 16	Beach	7.34	0.86570
	93 30 02.65					
Twig	48 32 29.15	69 05 48	249 05 33	Stiller	435.4	2.63891
	93 29 41.51	103 37 53	283 37 37	Beach	445.5	2.64880
Ref. Mon. 235	48 32 28.57	164 48	344 48	Twig	18.80	1.27411
	93 29 41.27					
Pier	48 32 39.22	65 20 59	245 20 34	Twig	745.9	2.87266
	93 29 08.46	79 29 28	259 28 47	Beach	1,129.7	3.05298
Ref. Mon. 236	48 32 39.83	318 59	138 59	Pier	24.68	1.39226
	93 29 09.25					
Jackson	48 32 32.87	82 17 44	262 17 13	Twig	856.3	2.93265
	93 29 00.14	89 33 50	269 33 03	Beach	1,281.5	3.10773
		138 59 02	318 58 56	Pier	260.1	2.41516
Ref. Mon. 237	48 32 51.32	1 02 20	181 02 19	Johnson	1,348.22	3.12976
	93 28 05.31	63 08 14	243 07 33	Jackson	1,260.6	3.10058
		73 55 19	253 54 32	Pier	1,347.97	3.12968

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Berry	48 32 51.07	69 00 49	248 59 56	Jackson	1,569.3	3.19570
	93 27 48.70	77 23 51	257 22 52	Pier	1,676.2	3.22433
		91 15 48	271 15 36	Ref. Mon. 237	340.7	2.53233
Ref. Mon. 238	48 32 50.81	192 07	12 07	Berry	8.34	0.92122
	93 27 48.79					
Elm	48 32 48.64	59 38 52	239 38 22	Jackson	963.9	2.98402
	93 28 19.58	73 49 28	253 48 51	Pier	1,043.8	3.01860
		254 14 37	74 14 47	Ref. Mon. 237	304.2	2.48319
		263 14 04	83 14 26	Berry	637.8	2.80470
		348 01 26	168 01 36	Johnson	1,293.6	3.11179
Timothy	48 32 49.30	61 06 04	241 05 32	Jackson	1,050.0	3.02117
	93 28 15.32	76 53 47	256 53 44	Elm	89.8	1.95317
		253 08 05	73 08 13	Ref. Mon. 237	214.6	2.33159
		264 16 13	84 16 33	Berry	548.7	2.73932
		351 59 20	171 59 27	Johnson	1,298.4	3.11342
Woods	48 32 58.78	47 11 23	227 11 14	Ref. Mon. 237	339.3	2.53055
	93 27 53.18	338 56 09	158 56 12	Berry	255.1	2.40673
Rasp	48 33 02.65	36 47 13	216 47 03	Berry	446.6	2.64989
	93 27 35.67	60 03 53	240 03 31	Ref. Mon. 237	701.6	2.84609
		71 35 00	251 34 47	Woods	378.5	2.57805
Ref. Mon. 239	48 33 02.49	111 48	291 48	Rasp	13.41	1.12740
	93 27 35.06					
Barn	48 33 06.23	19 11 34	199 11 31	Woods	243.7	2.38692
	93 27 49.27	291 37 36	111 37 46	Rasp	300.1	2.47725
		358 35 10	178 35 10	Berry	468.4	2.67062
Bush	48 33 28.31	16 43 54	196 43 45	Rasp	827.7	2.91789
	93 27 24.05	37 10 31	217 10 12	Barn	856.0	2.93248
Ref. Mon. 241	48 33 28.23	100 48	280 48	Bush	13.56	1.13223
	93 27 23.40					
Wilson	48 33 22.42	25 17 41	205 17 32	Barn	553.3	2.74293
	93 27 37.74	237 04 17	57 04 27	Bush	334.6	2.52449
		356 00 50	176 00 51	Rasp	612.3	2.78698
Ref. Mon. 240	48 33 22.38	237 04	57 04	Wilson	2.51	0.39915
	93 27 37.84					
Clover	48 33 35.40	9 53 51	189 53 49	Wilson	406.8	2.60943
	93 27 34.33	316 04 14	136 04 22	Bush	304.0	2.48285
Creek	48 33 54.93	4 54 38	184 54 36	Bush	825.4	2.91664
	93 27 20.60	25 00 48	205 00 38	Clover	665.8	2.82336
Hole	48 33 57.85	4 32 47	184 32 45	Clover	695.7	2.84243
	93 27 31.64	291 42 41	111 42 49	Creek	243.6	2.38676
		350 18 49	170 18 55	Bush	925.64	2.96644
Ref. Mon. 242	48 33 58.16	291 43	111 43	Hole	26.13	1.41711
	93 27 32.82					
Cut	48 34 02.64	311 49 46	131 49 56	Creek	356.9	2.55253
	93 27 33.57	345 01 18	165 01 20	Hole	153.1	2.18493
Stump	48 34 07.01	319 45 49	139 46 00	Creek	488.7	2.68905
	93 27 36.00	339 46 47	159 46 48	Cut	143.9	2.15815
Open	48 34 24.41	339 59 42	159 59 54	Creek	969.0	2.98632
	93 27 36.77	354 25 55	174 25 57	Cut	675.7	2.82975
		358 18 52	178 18 53	Stump	537.7	2.73053
Ref. Mon. 243	48 34 24.45	73 52	253 52	Open	4.23	0.62665
	93 27 36.57					
Log	48 34 47.55	347 13 49	167 13 55	Open	732.9	2.86502
	93 27 44.67	351 55 04	171 55 11	Stump	1,264.8	3.10201
Swede	48 34 48.05	273 17 00	93 17 10	Log	270.8	2.43257
	93 27 57.86	329 22 22	149 22 38	Open	848.6	2.92871
		340 31 45	160 32 02	Stump	1,344.6	3.12859
Ref. Mon. 244	48 35 20.75	332 30 02	152 30 22	Log	1,156.3	3.06308
	93 28 10.72	345 22 29	165 22 39	Swede	1,044.0	3.01870
Third	48 35 24.16	67 05 52	247 05 43	Ref. Mon. 244	270.4	2.43201
	93 27 58.56	345 51 57	165 52 08	Log	1,166.2	3.06678
		359 15 23	179 15 24	Swede	1,115.56	3.04747
Ref. Mon. 245	48 35 24.16	203 53	23 53	Third	0.16	9.21748–10
	93 27 58.57					
Key	48 35 33.90	2 58 16	182 58 16	Third	301.3	2.47900
	93 27 57.80	33 05 44	213 05 35	Ref. Mon. 244	484.8	2.68554
Short	48 35 29.86	53 03 18	233 03 10	Third	293.0	2.46691
	93 27 47.14	59 47 38	239 47 21	Ref. Mon. 244	559.2	2.74758
		119 43 10	299 43 02	Key	251.7	2.40083

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 246	48 35 29.28	170 39	350 39	Short	18.16	1.25912
	93 27 46.99					
Gillian	48 35 36.38	67 35 34	247 35 27	Key	200.6	2.30227
	93 27 48.75	350 38 55	170 38 56	Short	203.9	2.30948
Wire	48 35 30.71	69 12 55	249 12 51	Short	73.7	1.86770
	93 27 43.77	108 55 48	288 55 37	Key	303.9	2.48279
		149 45 14	329 45 10	Gillian	202.6	2.30672
English	48 35 37.52	69 34 29	249 34 08	Wire	602.6	2.78001
	93 27 16.22	86 58 33	266 58 08	Gillian	667.7	2.82456
Ref. Mon. 247	48 35 37.74	316 39	136 39	English	9.27	0.96708
	93 27 16.52					
Cedar	48 35 31.54	88 34 53	268 34 15	Wire	1,032.5	3.01388
	93 26 53.40	97 30 32	277 29 50	Gillian	1,144.0	3.05844
		111 33 21	291 33 04	English	502.6	2.70126
Ref. Mon. 248	48 35 40.92	57 36 34	237 36 17	Cedar	540.6	2.73284
	93 26 31.12	83 31 31	263 30 57	English	929.9	2.96842
Dump	48 35 38.59	76 44 15	256 43 41	Cedar	948.6	2.97710
	93 26 08.34	88 38 46	268 37 55	English	1,391.2	3.14338
		98 45 22	278 45 05	Ref. Mon. 248	472.4	2.67427
Ref. Mon. 249	48 35 38.59	168 39	348 39	Dump	0.06	8.79934–10
	93 26 08.34					
Stake	48 35 42.38	65 05 52	245 05 25	Cedar	795.0	2.90038
	93 26 18.21	80 18 20	260 18 10	Ref. Mon. 248	268.5	2.42889
		300 04 25	120 04 32	Dump	233.7	2.36861
Stone	48 35 45.64	57 32 57	237 32 52	Stake	187.8	2.27364
	93 26 10.48	63 39 32	243 38 59	Cedar	981.5	2.99188
		348 38 31	168 38 33	Dump	222.2	2.34676
Pop	48 35 46.80	2 14 07	182 14 07	Dump	253.9	2.40463
	93 26 07.86	56 16 15	236 16 13	Stone	64.5	1.80971
Water	48 35 59.06	44 53 01	224 52 38	Dump	892.5	2.95061
	93 25 37.60	58 23 28	238 23 03	Stone	790.9	2.89811
		58 34 44	238 34 21	Pop	726.4	2.86118
Fish	48 36 09.68	17 04 30	197 04 27	Water	343.1	2.53537
	93 25 32.69	37 15 43	217 15 17	Dump	1,206.6	3.08156
		45 33 43	225 33 17	Pop	1,009.3	3.00400
		220 48 22	40 49 00	Fort Frances east base	1,571.4	3.19629
Ref. Mon. 250	48 36 09.68	72 53	252 53	Fish	0.08	8.88649–10
	93 25 32.68					
National	48 36 18.69	53 37 32	233 37 02	Water	1,022.1	3.00950
	93 24 57.44	68 55 43	248 55 16	Fish	773.96	2.88872
		198 30 08	18 30 19	Fort Frances east base	960.7	2.98259
Ref. Mon. 252	48 36 18.69	77 07	257 07	National	0.14	9.14613–10
	93 24 57.43					
Falls	48 36 14.18	50 55 02	230 54 41	Water	740.8	2.86969
	93 25 09.54	73 39 16	253 38 58	Fish	494.2	2.69394
		207 45 29	27 45 49	Fort Frances east base	1,186.8	3.07439
		240 41 16	60 41 25	National	284.3	2.45382
Ref. Mon. 251	48 36 14.18	252 30	72 30	Falls	0.13	9.10721–10
	93 25 09.55					
Digester	48 36 23.90	72 30 09	252 29 34	Falls	998.0	2.99911
	93 24 23.08	77 07 26	257 07 00	National	722.0	2.85852
		152 00 02	331 59 47	Fort Frances east base	849.6	2.92919
Ryus east base	48 36 48.02	49 49 22	229 48 50	Digester	1,155.0	3.06258
	93 23 40.00	90 13 30	270 12 43	Fort Frances east base	1,281.20	3.10762
Courthouse	48 36 31.05	75 06 24	255 05 53	Digester	859.7	2.93436
	93 23 42.52	113 17 14	293 16 29	Fort Frances east base	1,338.6	3.12666
		185 37 28	5 37 30	Ryus east base	526.7	2.72158
Ref. Mon. 253	48 36 38.28	12 11 28	192 11 25	Digester	454.3	2.65737
	93 24 18.40	52 53 43	232 53 14	National	1,002.8	3.00121
Picket	48 36 27.95	18 18 59	198 18 55	National	301.5	2.47922
	93 24 52.81	245 39 39	65 40 04	Ref. Mon. 253	773.7	2.88859
		281 37 02	101 37 24	Digester	621.8	2.79365
Rock	48 36 11.52	106 36 55	286 36 08	Digester	1,337.7	3.12635
	93 23 20.51	143 13 38	323 13 21	Courthouse	753.3	2.87696
Ref. Mon. 257	48 36 11.52	107 54	287 54	Rock	0.15	9.18184–10
	93 23 20.50					
Koochiching Courthouse	48 36 04.75	175 23 20	355 23 16	Fort Frances east base	1,346.0	3.12903
	93 24 37.27	234 04 21	54 05 02	Courthouse	1,384.9	3.14143
		262 25 01	82 25 59	Rock	1,586.5	3.20043

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
U. S. G. S. bench mark	48 36 22.49	100 34 46	280 34 38	Digester	236.5	2.37388
	93 24 11.73	141 29 46	321 29 23	Fort Frances east base	1,014.1	3.00606
		287 53 40	107 54 19	Rock	1,102.8	3.04249
Ref. Mon. 254	48 36 22.50	33 23	213 23	U. S. G. S. bench mark	0.15	9.18184–10
	93 24 11.73					
River	48 36 27.04	35 57 07	215 57 03	U. S. G. S. bench mark	173.4	2.23906
	93 24 06.76	131 42 04	311 41 37	Fort Frances east base	981.9	2.99206
		255 58 02	75 58 20	Courthouse	511.8	2.70908
Ref. Mon. 255	48 36 27.03	215 57	35 57	River	0.12	9.07555–10
	93 24 06.77					
Bridge	48 36 30.53	33 23 14	213 23 08	U. S. G. S. bench mark	297.5	2.47343
	93 24 03.74	124 26 34	304 26 05	Fort Frances east base	964.0	2.98406
Ref. Mon. 256	48 36 30.54	33 23	213 23	Bridge	0.10	8.98227–10
	93 24 03.74					
Onion	48 36 36.83	36 59 10	216 58 49	Rock	978.8	2.99071
	93 22 51.77	80 15 46	260 15 08	Courthouse	1,055.0	3.02324
Cabin	48 36 15.72	111 28 31	291 27 47	Courthouse	1,294.5	3.11209
	93 22 43.72	165 49 14	345 49 08	Onion	672.8	2.82788
Ref. Mon. 258	48 36 15.73	291 29	111 29	Cabin	1.56	0.19257
	93 22 43.79					
Willis	48 36 19.58	81 37 52	261 37 23	Cabin	820.3	2.91397
	93 22 04.11	118 37 46	298 37 11	Onion	1,112.3	3.04621
Ref. Mon. 259	48 36 21.55	24 24	204 24	Willis	66.87	1.82521
	93 22 02.76					
Transformer	48 36 36.30	91 06 25	271 05 54	Onion	847.0	2.92790
	93 22 10.42	345 56 07	165 56 11	Willis	532.5	2.72633
Ref. Mon. 260	48 36 36.42	345 56	165 56	Transformer	3.66	0.56324
	93 22 10.47					
Jamison	48 36 34.45	44 07 07	224 06 50	Willis	639.8	2.80602
	93 21 42.37	95 41 26	275 41 05	Transformer	577.6	2.76161
Ref. Mon. 261	48 36 34.45	8 35	188 35	Jamison	0.08	8.88081–10
	93 21 42.37					
Muskrat	48 36 59.77	8 34 45	188 34 41	Jamison	791.0	2.89818
	93 21 36.61	24 24 33	204 24 12	Willis	1,363.3	3.13459
		43 42 03	223 41 38	Transformer	1,002.7	3.00115
Ref. Mon. 263	48 36 59.74	204 25	24 25	Muskrat	1.16	0.06595
	93 21 36.63					
Canoe	48 36 37.83	86 12 51	266 12 25	Transformer	712.2	2.85263
	93 21 35.73	178 28 58	358 28 57	Muskrat	678.1	2.83128
Ref. Mon. 262	48 36 37.83	358 29	178 29	Canoe	0.17	9.22531–10
	93 21 35.73					
Hubbard	48 36 40.10	82 50 35	262 50 01	Transformer	941.4	2.97378
	93 21 24.82	158 20 11	338 20 02	Muskrat	653.7	2.81540
Ref. Mon. 264	48 36 39.84	158 20	338 20	Hubbard	8.80	0.94463
	93 21 24.67					

GEOGRAPHIC POSITIONS OF TRIANGULATION STATIONS, RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Smith	48 36 51.60	61 20 48	241 20 20	Canoe	886.8	2.94784
	93 20 57.74	72 24 18	252 23 24	Transformer	1,562.0	3.19368
Lake	48 37 06.61	10 35 43	190 35 37	Canoe	904.5	2.95642
	93 21 27.61	43 07 59	223 07 27	Transformer	1,282.7	3.10814
		307 09 37	127 09 59	Smith	767.8	2.88523
R. L. 2	48 37 03.31	50 27 46	230 27 29	Smith	568.4	2.75467
	93 20 36.34	95 33 00	275 32 21	Lake	1,055.1	3.02329
		206 29 15	26 30 12	Squall Point	3,499.3	3.54398
		269 08 53	89 09 56	Birch Point	1,737.1	3.23982
Ref. Mon. 268	48 37 03.31	339 18	159 18	R. L. 2	0.09	8.95904–10
	93 20 36.34					
R. L. 3	48 38 12.50	6 46 54	186 46 45	Lake	2,049.5	3.31164
	93 21 15.80	247 12 28	67 13 55	Squall Point	2,569.0	3.40976
		309 40 23	129 41 57	Birch Point	3,306.6	3.51938
		339 17 05	159 17 35	R. L. 2	2,284.7	3.35883
		351 34 53	171 35 06	Smith	2,526.2	3.40246
Ref. Mon. 267	48 38 12.49	159 17	339 17	R. L. 3	0.21	9.31387–10
	93 21 15.79					
Ref. Mon. 265	48 36 54.19	179 56 44	359 56 44	R. L. 3	2,418.8	3.38360
	93 21 15.68	250 43 42	70 44 12	R. L. 2	853.7	2.93130
R. L. 1	48 36 53.94	94 04 37	274 04 33	Ref. Mon. 265	107.1	2.02977
	93 21 10.47	138 05 44	318 05 31	Lake	525.7	2.72076
		177 25 34	357 25 30	R. L. 3	2,428.8	3.38540
		247 30 48	67 31 14	R. L. 2	756.6	2.87885
		285 32 55	105 33 04	Smith	270.6	2.43236
Ref. Mon. 266	48 36 53.94	247 31	67 31	R. L. 1	0.10	8.99123–10
	93 21 10.47					
R. L. 5	48 38 15.59	14 39 32	194 39 11	Birch Point	2,281.2	3.35817
	93 18 43.35	46 02 06	226 00 41	R. L. 2	3,215.2	3.50721
		88 15 50	268 13 55	R. L. 3	3,122.6	3.49452
R. L. 6	48 37 08.90	86 34 22	266 32 52	Birch Point	2,453.0	3.38969
	93 17 11.98	138 27 25	318 25 49	Squall Point	3,954.4	3.59708
R. L. 7	48 38 36.22	9 09 54	189 09 38	R. L. 6	2,732.1	3.43650
	93 16 50.73	45 24 02	225 22 16	Birch Point	4,050.0	3.60745
		94 54 34	274 52 42	Squall Point	3,068.7	3.48695
R. L. 12	48 38 23.84	59 55 22	239 53 33	Fransen	3,433.0	3.53568
	93 12 27.06	137 35 19	317 33 20	Lockhart	4,809.7	3.68212
		246 01 47	66 02 51	Dunsmoore	1,900.4	3.27885
Ref. Mon. 272	48 38 23.84	1 52	181 52	R. L. 12	0.13	9.10721–10
	93 12 27.06					
R. L. 10	48 38 06.36	51 40 04	231 39 09	Fransen	1,904.4	3.27976
	93 13 39.18	156 37 12	336 36 08	Lockhart	4,456.3	3.64897
		249 54 18	69 55 13	R. L. 12	1,572.2	3.19650
R. L. 8	48 39 17.46	294 25 25	114 27 39	R. L. 12	4,003.4	3.60243
	93 15 25.12	315 21 23	135 22 42	R. L. 10	3,086.5	3.48947
		348 41 28	168 41 53	Fransen	3,444.7	3.53715
Ref. Mon. 269	48 39 17.46	172 14	352 14	R. L. 8	0.12	9.08637–10
	93 15 25.12					
R. L. 11	48 37 43.03	81 11 57	261 10 08	Fransen	3,006.4	3.47805
	93 12 27.05	116 00 52	295 59 58	R. L. 10	1,643.3	3.21573
		179 59 21	359 59 21	R. L. 12	1,260.5	3.10056
R. L. 9	48 37 39.67	102 23	282 23	Lake (U. S. C. & G. S.)	0.21	9.31387–10
	93 15 04.97	172 13 49	352 13 33	R. L. 8	3,048.9	3.48415
		244 50 56	64 51 59	R. L. 10	1,940.5	3.28792
		247 06 14	67 08 12	R. L. 12	3,509.4	3.54523
		268 08 37	88 10 35	R. L. 11	3,235.5	3.50994
Ref. Mon. 270	48 37 39.67	352 14	172 14	R. L. 9	0.14	9.14613–10
	93 15 04.97					
R. L. 29	48 38 40.19	41 01 40	221 01 06	R. L. 10	1,385.4	3.14157
	93 12 54.76	47 11 42	227 10 14	Fransen	3,276.0	3.51534
		342 10 58	162 11 19	R. L. 11	1,854.7	3.26828
R. L. 31	48 38 59.59	19 19 46	199 19 11	Fransen	2,994.6	3.47634
	93 14 03.73	292 59 46	113 00 38	R. L. 29	1,533.6	3.18570
		320 03 55	140 05 08	R. L. 11	3,084.0	3.48911

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
R. L. 28	48 38 41.16	1 52 24	181 52 24	R. L. 12	535.3	2.72859
	93 12 26.21	54 16 15	234 15 20	R. L. 10	1,840.5	3.26494
		87 05 14	267 04 53	R. L. 29	585.4	2.76742
Ref. Mon. 271	48 38 41.15	181 52	1 52	R. L. 28	0.13	9.11727–10
	93 12 26.21					
R. L. 30	48 38 29.90	154 33 01	334 32 45	R. L. 31	1,015.7	3.00677
	93 13 42.40	251 56 36	71 57 12	R. L. 29	1,025.7	3.01102
R. L. 32	48 38 38.28	224 43 13	44 43 37	R. L. 31	926.7	2.96693
	93 14 35.58	268 20 55	88 22 11	R. L. 29	2,064.7	3.31486
		283 21 45	103 22 25	R. L. 30	1,119.0	3.04883
R. L. 33	48 38 45.41	25 10 05	205 10 01	R. L. 32	243.4	2.38639
	93 14 30.53	231 23 10	51 23 30	R. L. 31	702.0	2.84635
		274 41 29	94 42 41	R. L. 29	1,966.9	3.29378
		295 55 40	115 56 16	R. L. 30	1,095.4	3.03958
R. L. 13	48 37 44.08	88 38 50	268 38 00	R. L. 11	1,367.5	3.13593
	93 11 20.29	131 56 19	311 55 29	R. L. 12	1,837.8	3.26429
R. L. 14=Raney (U. S. C. & G. S.)	48 37 56.94	25 56 22	205 56 16	R. L. 13	441.9	2.64534
	93 11 10.84	74 36 21	254 35 24	R. L. 11	1,618.5	3.20911
		83 40 17	263 37 22	R. L. 9	4,823.7	3.68338
		118 02 09	298 01 12	R. L. 12	1,767.7	3.24742
R. L. 35	48 37 41.19	107 23 05	287 22 56	R. L. 13	298.9	2.47556
	93 11 06.35	169 18 04	349 18 01	R. L. 14	495.3	2.69489
Ref. Mon. 273	48 37 41.19	259 56	79 56	R. L. 35	0.17	9.22531–10
	93 11 06.36					
R. L. 34	48 37 42.31	79 55 56	259 55 49	R. L. 35	198.3	2.29728
	93 10 56.82	96 29 18	276 29 02	R. L. 13	483.6	2.68447
		147 34 26	327 34 16	R. L. 14	535.5	2.72879
Ref. Mon. 274	48 37 42.31	259 56	79 56	R. L. 34	0.10	9.01703–10
	93 10 56.82					
R. L. 37=Water (U. S. C. & G. S.)	48 37 26.51	153 59 19	333 59 11	R. L. 35	504.5	2.70288
	93 10 55.55	176 56 49	356 56 48	R. L. 34	488.8	2.68911
R. L. 36	48 37 36.17	17 52 06	197 52 03	R. L. 37	313.6	2.49641
	93 10 50.85	116 00 41	296 00 30	R. L. 35	353.3	2.54810
		147 11 02	327 10 58	R. L. 34	225.6	2.35330
Ref. Mon. 275	48 37 36.17	153 25	333 25	R. L. 36	0.13	9.10721–10
	93 10 50.84					
R. L. 17	48 37 49.04	31 00 01	210 58 44	Island View	4,100.0	3.61278
	93 10 01.50	146 03 27	326 02 42	Dunsmoore	2,226.0	3.34753
		229 37 29	49 39 05	Lumber Camp	3,441.1	3.53670
R. L. 16	48 38 09.62	240 34 59	60 36 43	Lumber Camp	3,244.4	3.51114
	93 10 11.50	342 08 58	162 09 05	R. L. 17	667.8	2.82466
R. L. 15	48 37 50.53	178 04 35	358 04 34	R. L. 16	590.1	2.77090
	93 10 10.54	283 57 06	103 57 13	R. L. 17	190.5	2.27994
R. L. 18	48 37 40.14	197 28 16	17 28 20	R. L. 15	336.4	2.52687
	93 10 15.47	226 07 03	46 07 14	R. L. 17	396.7	2.59842
R. L. 38	48 37 30.24	77 22 17	257 21 58	R. L. 37	527.5	2.72221
	93 10 30.41	113 38 21	293 38 05	R. L. 36	456.8	2.65973
R. L. 39	48 36 49.87	144 20 52	324 20 22	R. L. 37	1,392.9	3.14392
	93 10 15.90	153 25 14	333 24 48	R. L. 36	1,599.3	3.20394
		166 35 55	346 35 44	R. L. 38	1,282.0	3.10790
Ref. Mon. 276	48 36 49.86	153 25	333 25	R. L. 39	0.18	9.25527–10
	93 10 15.90					
R. L. 19	48 37 40.77	18 03 52	198 03 34	R. L. 39	1,653.8	3.21849
	93 09 50.86	68 07 32	248 07 02	R. L. 38	872.7	2.94086
R. L. 20	48 36 50.69	87 36 07	267 35 45	R. L. 39	606.0	2.78250
	93 09 46.34	143 32 51	323 32 18	R. L. 38	1,519.0	3.18156
		176 34 20	356 34 17	R. L. 19	1,549.7	3.19025
Grindstone	48 36 39.72	58 13 51	238 12 30	Island View	2,607.7	3.41626
	93 09 56.36	161 19 21	341 18 31	Dunsmoore	4,209.9	3.62427
		209 55 51	29 57 23	Lumber Camp	5,043.0	3.70269
		211 11 34	31 11 42	R. L. 20	396.3	2.59804
Dryweeds	48 36 15.76	79 20 23	259 18 20	Island View	3,419.2	3.53392
	93 09 00.57	122 55 25	302 54 43	Grindstone	1,361.5	3.13402
		139 00 46	319 00 12	R. L. 20	1,429.4	3.15515
		152 13 36	332 12 04	Dunsmoore	5,344.0	3.72787
Dove	48 35 47.72	163 35 35	343 35 18	Grindstone	1,674.4	3.22385
	93 09 33.28	217 43 06	37 43 31	Dryweeds	1,095.2	3.03948
City	48 35 33.98	128 09 55	308 09 35	Dove	686.8	2.83686
	93 09 06.92	153 29 31	333 28 54	Grindstone	2,269.2	3.35588
		185 45 16	5 45 21	Dryweeds	1,297.2	3.11301

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Pick	48 35 37.06	185 03 40	5 03 42	Dove	330.6	2.51926
	93 09 34.70	210 19 06	30 19 32	Dryweeds	1,385.0	3.14145
		279 29 01	99 29 22	City	577.1	2.76126
B. B. 1	48 35 03.72	160 44 31	340 44 18	Pick	1,090.8	3.03774
	93 09 17.14	192 37 55	12 38 03	City	957.8	2.98127
B. B. 2	48 35 05.40	191 40 01	11 40 08	Pick	998.5	2.99936
	93 09 44.55	221 08 14	41 08 42	City	1,172.2	3.06900
		275 16 04	95 16 24	B. B. 1	564.2	2.75141
B. B. 3	48 34 48.64	128 47 00	308 46 36	B. B. 2	826.6	2.91731
	93 09 13.11	169 56 52	349 56 49	B. B. 1	473.2	2.67503
B. B. 4	48 34 39.60	187 53 58	7 54 03	B. B. 2	804.5	2.90552
	93 09 49.95	222 03 48	42 04 13	B. B. 1	1,003.6	3.00156
		249 42 31	69 42 59	B. B. 3	805.0	2.90578
B. B. 5	48 33 53.78	135 59 45	315 58 55	B. B. 4	1,968.3	3.29410
	93 08 43.24	160 08 04	340 07 41	B. B. 3	1,802.0	3.25576
B. B. 6	48 33 48.39	166 33 42	346 33 28	B. B. 4	1,626.4	3.21123
	93 09 31.51	191 27 13	11 27 27	B. B. 3	1,898.8	3.27848
		260 27 40	80 28 16	B. B. 5	1,003.6	3.00155
West	48 34 04.87	227 06 42	47 07 24	B. B. 4	1,576.8	3.19778
	93 10 46.31	288 20 52	108 21 48	B. B. 6	1,615.8	3.20840
B. B. 7	48 33 01.53	132 54 54	312 53 57	B. B. 6	2,126.1	3.32758
	93 08 15.57	160 37 50	340 37 29	B. B. 5	1,710.5	3.23313
B. B. 8	48 33 16.24	210 35 42	30 36 04	B. B. 6	1,153.9	3.06217
	93 10 00.15	233 40 12	53 41 10	B. B. 5	1,957.5	3.29170
		281 56 47	101 58 05	B. B. 7	2,192.4	3.34092
B. B. 9	48 33 38.12	56 04 47	236 03 46	B. B. 7	2,024.4	3.30630
	93 06 53.65	102 09 40	282 08 18	B. B. 5	2,298.3	3.36141
B. B. 10	48 33 03.69	87 12 51	267 12 01	B. B. 7	1,364.9	3.13511
	93 07 09.09	128 43 11	308 42 01	B. B. 5	2,474.0	3.39340
		196 34 29	16 34 40	B. B. 9	1,169.6	3.04515
Interior	48 33 19.49	60 37 24	240 36 53	B. B. 10	994.8	2.99774
	93 06 26.82	136 16 59	316 16 39	B. B. 9	796.1	2.90099
Tall	48 33 28.07	73 01 07	253 00 35	Interior	907.1	2.95766
	93 05 44.51	102 21 24	282 20 32	B. B. 9	1,451.3	3.16176
Southeast	48 32 52.32	102 00 21	281 59 21	B. B. 10	1,688.6	3.22752
	93 05 48.56	136 55 14	316 54 45	Interior	1,148.8	3.06026
		184 17 36	4 17 39	Tall	1,107.2	3.04421
R. L. 21	48 37 06.86	75 34 25	255 33 14	R. L. 20	2,003.6	3.30182
	93 08 11.60	117 16 17	297 15 02	R. L. 19	2,286.8	3.35922
R. L. 23	48 37 40.34	26 09 20	206 09 01	R. L. 21	1,151.9	3.06142
	93 07 46.81	57 56 51	237 55 22	R. L. 20	2,888.6	3.46069
		90 18 58	270 17 25	R. L. 19	2,540.3	3.40488
R. L. 22	48 37 26.20	28 43 02	208 42 48	R. L. 21	786.6	2.89578
	93 07 53.15	98 26 55	278 25 26	R. L. 19	2,436.9	3.38684
		200 39 53	20 39 57	R. L. 23	367.7	2.56553
R. L. 24	48 37 10.56	85 35 20	265 34 26	R. L. 21	1,483.7	3.17136
	93 06 59.37	117 35 58	297 35 17	R. L. 22	1,242.7	3.09435
		133 26 07	313 25 32	R. L. 23	1,337.8	3.12638
		204 24 09	24 24 39	Sand Point	1,934.2	3.28651
R. L. 25	48 37 41.05	14 30 43	194 30 34	R. L. 24	972.6	2.98793
	93 06 47.47	58 30 25	238 29 22	R. L. 21	2,020.7	3.30551
		74 47 03	254 46 14	R. L. 22	1,393.8	3.14420
		88 58 25	268 57 40	R. L. 23	1,215.3	3.08468
R. L. 26	48 37 23.67	77 46 59	257 45 50	R. L. 24	1,911.5	3.28138
	93 05 28.15	108 17 38	288 16 38	R. L. 25	1,710.7	3.23318
		141 46 30	321 45 51	Sand Point	1,727.0	3.23728
		145 41 34	325 41 19	Roll (U. S. C. & G. S.)	742.5	2.87069
		227 41 25	47 43 46	Berry	5,200.4	3.71604
		292 11 08	112 13 16	Cranberry	3,758.9	3.57506
Ref. Mon. 278	48 37 23.67	187 50	7 50	R. L. 26	0.11	9.05690–10
	93 05 28.15					
R. L. 27	48 37 49.64	7 50 00	187 49 56	R. L. 26	809.6	2.90828
	93 05 22.76	58 37 31	238 36 18	R. L. 24	2,317.4	3.36501
		70 21 27	250 21 07	Roll (U. S. C. & G. S.)	561.5	2.74935
		81 18 43	261 17 39	R. L. 25	1,754.7	3.24421
		115 11 42	295 10 59	Sand Point	1,302.8	3.11488
Ref. Mon. 277	48 37 49.64	7 50	187 50	R. L. 27	0.07	8.84510–10
	93 05 22.76					
R. L. 40	48 38 03.79	64 01 11	243 59 38	R. L. 26	2,827.7	3.45144
	93 03 24.03	91 52 42	271 59 30	Sand Point	3,611.9	3.55773
		210 00 36	30 01 24	Berry	2,610.1	3.41665
		340 34 25	160 34 59	Cranberry	2,820.3	3.45029

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
R. L. 41	48 36 54.00	70 20 15	250 19 24	Cranberry	1,497.7	3.17542
	93 01 29.38	132 34 12	312 32 46	R. L. 40	3,187.3	3.50342
		166 44 10	346 43 32	Berry	4,536.8	3.65675
Ref. Mon. 279	48 36 54.01	68 07	248 07	R. L. 41	0.38	9.57403–10
	93 01 29.36					
R. L. 42	48 36 27.60	92 48 36	272 44 41	Cranberry	6,427.2	3.80802
	92 57 24.85	130 53 13	310 49 31	Berry	7,996.9	3.90292
		187 28 36	7 28 51	Baldy	3,254.8	3.51252
Ref. Mon. 285	48 36 27.69	80 46	260 46	R. L. 42	0.35	9.54900–10
	92 57 24.83					
Ref. Mon. 283	48 38 12.06	204 33	24 33	Baldy	0.43	9.63548–10
	92 57 04.17					
R. L. 44	48 37 17.56	224 27 34	44 28 35	Baldy	2,359.7	3.37286
	92 58 24.89	321 26 24	141 27 09	R. L. 42	1,973.2	3.29517
Ref. Mon. 281	48 37 17.56	286 24	106 24	R. L. 44	0.44	9.63849–10
	92 58 24.91					
R. L. 43	48 36 46.44	61 52 06	241 51 26	R. L. 42	1,234.0	3.09130
	92 56 31.73	112 32 09	292 30 44	R. L. 44	2,506.1	3.39952
		165 54 28	345 54 04	Baldy	2,727.3	3.43573
R. L. 45	48 37 41.32	58 57 15	238 56 30	R. L. 44	1,423.1	3.15323
	92 57 25.36	204 32 55	24 33 11	Baldy	1,044.4	3.01886
		327 03 21	147 04 01	R. L. 43	2,019.9	3.30533
		359 44 19	179 44 19	R. L. 42	2,277.1	3.35739
Ref. Mon. 282	48 37 41.33	24 33	204 33	R. L. 45	0.25	9.40312–10
	92 57 25.35					
R. L. 46	48 37 52.40	33 48 29	213 48 02	R. L. 44	1,295.2	3.11234
	92 57 49.70	236 53 48	56 54 22	Baldy	1,113.0	3.04648
		301 27 56	124 28 14	R. L. 45	604.6	2.78149
R. L. 47	48 37 31.81	252 54 39	72 55 55	R. L. 46	2,165.3	3.33551
	92 59 30.78	263 27 47	83 29 21	R. L. 45	2,585.1	3.41247
		288 03 59	108 04 48	R. L. 44	1,419.4	3.15209
Ref. Mon 280	48 37 31.82	64 20	244 20	R. L. 47	0.29	9.46538–10
	92 59 30.76					
R. L. 48	48 38 05.88	12 33 17	192 32 57	R. L. 43	2,514.0	3.40036
	92 56 05.05	65 14 22	245 13 22	R. L. 45	1,810.9	3.25790
		98 59 09	278 58 25	Baldy	1,225.3	3.08824
Ref. Mon. 284	48 38 05.89	65 14	245 14	R. L. 48	0.46	9.66464–10
	92 56 05.03					
R. L. 49	48 37 36.02	111 15 37	291 15 22	R. L. 45	451.2	2.65435
	92 57 04.82	118 49 55	298 49 22	R. L. 46	1,049.0	3.02076
		180 41 39	0 41 40	Baldy	1,113.6	3.04674
R. L. 50	48 36 34.37	50 55 19	230 55 16	Sea	91.08	1.95943
	92 56 22.02	80 47 13	260 46 26	R. L. 42	1,303.9	3.11525
		151 55 53	331 55 46	R. L. 43	422.7	2.62606
Ref. Mon. 286	48 36 34.37	80 47	260 47	R. L. 50	0.39	9.59439–10
	92 56 22.00					
R. L. 51	48 36 04.21	159 18 33	339 18 23	R. L. 42	772.5	2.88790
	92 57 11.52	211 59 51	32 00 21	R. L. 43	1,538.4	3.18706
		227 25 35	47 26 12	R. L. 50	1,377.1	3.13897
R. L. 52	48 36 08.82	80 12 06	260 11 36	R. L. 51	837.0	2.92273
	92 56 31.27	117 51 49	297 51 08	R. L. 42	1,241.6	3.09398
		189 13 10	9 13 14	Sea	741.2	2.86996
		193 30 05	13 30 12	R. L. 50	811.5	2.90929
R. L. 53	48 36 14.46	76 28 39	256 28 12	R. L. 52	745.2	2.87225
	92 55 55.90	138 58 28	318 58 08	R. L. 50	815.0	2.91114
R. L. 54	48 36 32.30	14 13 27	194 13 22	R. L. 53	568.5	2.75470
	92 55 49.08	49 59 44	229 59 12	R. L. 52	1,128.2	3.05238
		95 24 10	275 23 45	R. L. 50	677.6	2.83098
Ref. Mon. 287	48 36 32.29	163 20	343 20	R. L. 54	0.30	9.47567–10
	92 55 49.08					
R. L. 55	48 36 17.38	82 36 05	262 35 40	R. L. 53	700.3	2.84527
	92 55 22.01	129 43 08	309 42 48	R. L. 54	721.2	2.85804
R. L. 56	48 35 56.93	139 14 07	319 13 50	R. L. 53	715.0	2.85432
	92 55 33.11	163 19 48	343 19 36	R. L. 54	1,140.5	3.05710
		199 48 35	19 48 43	R. L. 55	671.5	2.82704
Ref. Mon. 288	48 35 56.92	163 20	343 20	R. L. 56	0.32	9.50515–10
	92 55 33.11					
R. L. 57	48 35 44.78	124 43 00	304 42 40	R. L. 56	659.0	2.81888
	92 55 06.67	162 40 47	342 40 35	R. L. 55	1,054.9	3.02320

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
R. L. 58	48 36 05.18	10 21 50	190 21 46	R. L. 57	640.6	2.80657
	92 55 01.05	68 47 59	248 47 35	R. L. 56	704.6	2.84794
		131 17 07	311 16 51	R. L. 55	571.3	2.75684
R. L. 59	48 35 36.72	112 24 17	292 23 57	R. L. 57	653.3	2.81514
	92 54 37.19	150 55 45	330 55 27	R. L. 58	1,005.9	3.00254
		238 51 07	58 52 13	Brule	2,100.6	3.32235
Ref. Mon. 290	48 35 36.73	5 15	185 15	R. L. 59	0.37	9.56348–10
	92 54 37.19					
R. L. 61	48 36 00.23	5 14 42	185 14 40	R. L. 59	729.1	2.86281
	92 54 33.94	54 34 34	234 34 10	R. L. 57	823.0	2.91542
		105 24 29	285 24 09	R. L. 58	576.1	2.76049
		258 14 17	78 15 20	Brule	1,768.3	3.24755
Ref. Mon. 289	48 36 00.23	5 15	185 15	R. L. 61	0.26	9.41996–10
	92 54 33.94					
R. L. 62	48 35 49.06	24 59 42	204 59 34	R. L. 59	420.6	2.62388
	92 54 28.52	80 24 12	260 23 44	R. L. 57	792.8	2.89918
		126 45 57	306 45 33	R. L. 58	831.9	2.92007
R. L. 60	48 35 33.26	92 10 58	272 10 55	Breaul	99.22	1.99658
	92 53 46.77	95 54 54	275 54 16	R. L. 59	1,038.7	3.01648
		130 45 53	310 45 17	R. L. 61	1,275.9	3.10582
		212 39 30	32 39 58	Brule	1,417.4	3.15148
		278 23 05	98 26 40	Manitowoc	5,929.3	3.77300
Ref. Mon. 291	48 35 33.25	207 38	27 38	R. L. 60	0.34	9.52504–10
	92 53 46.78					
R. L. 66	48 35 52.40	27 37 44	207 37 33	R. L. 60	667.5	2.82443
	92 53 31.67	34 49 12	214 48 57	Breaul	715.7	2.85474
		70 10 03	250 09 14	R. L. 59	1,427.3	3.15453
		217 06 40	37 06 57	Brule	754.7	2.87780
Ref. Mon. 292	48 35 52.41	27 38	207 38	R. L. 66	0.37	9.56348–10
	92 53 31.66					
R. L. 63	48 36 02.26	70 36 09	250 34 36	R. L. 60	2,696.0	3.43072
	92 51 42.67	99 30 07	279 29 02	Brule	1,802.4	3.25584
		297 56 47	117 58 49	Manitowoc	3,761.1	3.57532
R. L. 64	48 35 30.39	92 53 09	272 52 04	R. L. 60	1,763.6	3.24641
	92 52 20.81	142 08 49	322 08 12	Brule	1,623.4	3.21043
		218 26 26	38 26 54	R. L. 63	1,257.0	3.09933
R. L. 65	48 33 46.46	137 17 42	317 15 50	R. L. 60	4,490.5	3.65229
	92 51 18.15	158 12 02	338 11 15	R. L. 64	3,457.9	3.53881
		173 10 13	353 09 54	R. L. 63	4,224.9	3.62582
		229 13 28	49 15 11	Manitowoc	3,723.8	3.57099
		266 02 37	86 06 23	Whitewash	6,202.5	3.79257
		348 10 43	168 10 57	Big Island	1,915.1	3.28220
Ref. Mon. 293	48 33 46.46	60 38	240 38	R. L. 65	0.24	9.38561–10
	92 51 18.14					
R. L. 67	48 32 51.60	116 57 22	296 55 20	R. L. 65	3,740.1	3.57288
	92 48 35.55	172 07 28	352 07 11	Manitou (U. S. C. & G. S.)	3,351.6	3.52525
		172 55 16	352 54 57	Manitowoc	4,157.5	3.61883
		233 24 02	53 25 46	Whitewash	3,555.2	3.55087
		271 03 02	91 07 00	Boundary	6,518.8	3.81417
Ref. Mon. 294	48 34 38.71	1 09 49	181 09 45	Duck	5,605.3	3.74860
	92 48 58.12	35 24 27	215 22 57	Big Island	4,279.6	3.63140
		60 39 55	240 38 11	R. L. 65	3,293.2	3.51762
		176 31 00	356 30 58	Manitowoc	818.7	2.91314
		196 57 55	16 57 55	Manitou (U. S. C. & G. S.)	11.8	1.07173
		289 42 51	109 44 53	Whitewash	3,523.5	3.54698
R. L. 73	48 33 50.26	36 36 57	216 35 05	Duck	5,116.3	3.70896
	92 46 34.94	69 49 56	249 46 38	Big Island	5,770.1	3.76118
		117 01 59	297 00 11	Ref. Mon. 294	3,294.8	3.51783
		127 48 00	307 46 11	Manitowoc	3,776.7	3.57711
		231 09 49	51 10 03	Whitewash	489.9	2.69008
R. L. 69	48 32 09.59	112 02 26	292 00 29	R. L. 67	3,460.3	3.53911
	92 45 59.17	166 43 33	346 43 07	R. L. 73	3,194.8	3.50445
		250 27 09	70 29 10	Boundary	3,512.7	3.54564
R. L. 72	48 32 55.29	51 48 06	231 47 00	R. L. 69	2,282.0	3.35832
	92 44 31.74	88 43 16	268 40 13	R. L. 67	5,001.6	3.69911
		123 55 05	303 53 33	R. L. 73	3,043.9	3.48343
		278 52 34	98 53 29	Boundary	1,535.6	3.18628
Ref. Mon. 296	48 32 10.49	89 27 53	269 26 08	R. L. 69	2,877.3	3.45899
	92 43 38.91	141 56 31	321 55 52	R. L. 72	1,757.6	3.24493
		200 42 50	20 43 06	Boundary	1,226.0	3.08848
Ref. Mon. 295	48 32 35.82	122 08 37	302 08 02	R. L. 72	1,130.3	3.05321
	92 43 45.08	236 57 55	56 58 15	Boundary	668.1	2.82482
		350 49 11	170 49 15	Ref. Mon. 296	792.7	2.89910
R. L. 77	48 32 41.86	43 39 58	223 39 24	Ref. Mon. 296	1,339.7	3,12700
	92 42 53.82	79 56 20	259 55 42	Ref. Mon. 295	1,067.7	3.02846
		109 52 32	289 52 14	Boundary	522.3	2.71790

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 297	48 32 16.84	82 43 50	262 42 54	Ref. Mon. 296	1,549.2	3.19010
	92 42 24.00	130 45 39	310 44 59	Boundary	1,455.9	3.16314
		141 38 46	321 38 24	R. L. 77	985.7	2.99374
		296 43 55	116 45 30	Sand Narrows	2,907.4	3.46351
Ref. Mon. 298	48 32 55.91	41 55 31	221 54 51	Ref. Mon. 297	1,621.8	3.20999
	92 41 31.18	61 50 44	241 49 08	Ref. Mon. 296	2,971.9	3.47304
		75 39 13	255 38 11	R. L. 77	1,749.6	3.24295
		83 19 33	263 18 13	Boundary	2,201.1	3.34264
		328 58 16	148 59 11	Sand Narrows	2,934.9	3.46759
Ref. Mon. 299	48 32 09.82	23 04 48	203 04 31	Sand Narrows	1,186.5	3.07428
	92 39 54.78	94 03 59	274 02 07	Ref. Mon. 297	3,068.9	3.48698
		125 45 39	305 44 27	Ref. Mon. 298	2,436.5	3.38676
Vague	48 33 31.62	25 08 08	205 07 06	Sand Narrows	3,996.4	3.60167
	92 38 54.72	25 59 52	205 59 07	Ref. Mon. 299	2,810.9	3.44885
		71 02 38	251 00 41	Ref. Mon. 298	3,393.0	3.53058
Ref. Mon. 300	48 33 31.61	206 00	26 00	Vague	0.31	9.49693–10
	92 38 54.72					
Stokes	48 31 49.43	13 28 46	193 28 14	Bear	3,696.4	3.56778
	92 35 18.49	85 43 38	265 39 54	Sand Narrows	6,151.2	3.78896
		125 27 50	305 25 07	Vague	5,443.6	3.73589
Oak	48 30 38.47	112 14 20	292 11 45	Sand Narrows	4,575.7	3.66046
	92 36 51.03	154 37 57	334 36 24	Vague	5,919.7	3.77230
		220 53 51	40 55 00	Stokes	2,900.1	3.46241
		323 29 34	143 30 11	Bear	1,745.2	3.24185
Ref. Mon. 301	48 32 00.38	102 19 37	282 18 48	Ref. Mon. 299	1,366.9	3.13575
	92 38 49.68	177 54 07	357 54 03	Vague	2,820.2	3.45028
		226 21 03	46 21 46	Joy	1,603.8	3.20515
		274 26 33	94 29 11	Stokes	4,346.0	3.63809
		316 05 19	136 06 48	Oak	3,511.2	3.54546
Ref. Mon. 302	48 32 41.59	41 48 13	221 47 31	Ref. Mon. 301	1,707.4	3.23234
	92 37 54.20	54 49 00	234 47 13	Sand Narrows	3,596.1	3.55583
		68 22 23	248 20 52	Ref. Mon. 299	2,660.8	3.42502
		95 41 56	275 39 13	Ref. Mon. 298	4,472.1	3.65051
		141 14 29	321 13 43	Vague	1,982.0	3.29710
		296 45 00	116 46 57	Stokes	3,577.7	3.55360
		341 10 23	161 11 11	Oak	4,017.8	3.60399
Ref. Mon. 303	48 31 24.37	143 39 11	323 38 42	Ref. Mon. 301	1,380.9	3.14015
	92 38 09.79	187 38 02	7 38 14	Ref. Mon. 302	2,403.4	3.38136
		188 46 04	8 46 17	Joy	2,245.3	3.35127
R. L. 82	48 31 31.13	82 42 07	262 41 07	Ref. Mon. 303	1,641.2	3.21516
	92 36 50.45	110 16 57	290 15 28	Ref. Mon. 301	2,607.7	3.41625
		149 00 14	328 59 26	Ref. Mon. 302	2,539.0	3.40467
Ref. Mon. 304	48 31 19.08	102 08 57	282 08 29	Ref. Mon. 303	777.9	2.89094
	92 37 32.72	246 45 39	66 46 11	R. L. 82	944.0	2.97496
Ref. Mon. 305	48 31 02.07	139 15 35	319 15 13	Ref. Mon. 303	909.2	2.95866
	92 37 40.87	197 39 13	17 39 19	Ref. Mon. 304	551.1	2.74126
		229 03 03	49 03 41	R. L. 82	1,369.7	3.13662
Ref. Mon. 306	48 31 07.49	67 13 19	247 13 05	Ref. Mon. 305	431.9	2.63537
	92 37 21.47	117 45 07	297 44 31	Ref. Mon. 303	1,120.4	3.04938
		147 09 42	327 09 34	Ref. Mon. 304	426.0	2.62945
Ref. Mon. 307	48 30 51.52	188 45 27	8 45 29	Ref. Mon. 305	329.8	2.51828
	92 37 43.32	222 16 32	42 16 48	Ref. Mon. 306	666.6	2.82385
Ref. Mon. 308	48 30 51.15	92 40 41	272 40 32	Ref. Mon. 307	242.0	2.38378
	92 37 31.54	150 24 54	330 24 47	Ref. Mon. 305	387.8	2.58866
		202 16 51	22 16 58	Ref. Mon. 306	545.2	2.73656
Ref. Mon. 309	48 30 45.25	156 23 13	336 23 10	Ref. Mon. 307	211.3	2.32494
	92 37 39.19	220 44 39	40 44 45	Ref. Mon. 308	240.7	2.38139
		332 35 49	152 35 53	Dog	274.2	2.43802
Ref. Mon. 310	48 30 44.23	98 18 07	278 17 59	Ref. Mon. 309	219.4	2.34121
	92 37 28.62	126 44 58	306 44 47	Ref. Mon. 307	376.6	2.57584
		164 20 06	344 20 04	Ref. Mon. 308	222.2	2.34684
Ref. Mon. 311	48 30 39.19	211 35 58	31 36 02	Ref. Mon. 309	219.7	2.34176
	92 37 44.80	244 55 31	64 55 43	Ref. Mon. 310	366.7	2.56437
R. L. 90	48 30 37.80	100 31 11	280 31 03	Ref. Mon. 311	235.8	2.37251
	92 37 33.51	153 06 30	333 06 26	Ref. Mon. 309	258.0	2.41169
		206 49 41	26 49 45	Ref. Mon. 310	222.4	2.34714
		324 29 25	144 29 25	Dog	16.30	1.21211
Ref. Mon. 312	48 30 37.30	126 43 23	306 43 20	Ref. Mon. 311	98.2	1.99198
	92 37 40.97	264 09 42	84 09 47	R. L. 90	153.9	2.18733
R. L. 92	48 30 31.41	161 58 33	341 58 30	Ref. Mon. 311	253.0	2.40304
	92 37 40.99	180 07 54	0 07 54	Ref. Mon. 312	181.8	2.25969
		217 51 52	37 51 57	R. L. 90	250.2	2.39823
R. L. 94	48 30 34.12	242 35 29	62 35 40	Ref. Mon. 311	340.4	2.53203
	92 37 59.52	282 25 24	102 25 38	R. L. 92	389.6	2.59065

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 313	48 30 29.71	126 59 23	306 59 16	R. L. 94	226.7	2.35544
	92 37 50.70	202 27 29	22 27 33	Ref. Mon. 311	317.2	2.50127
		255 14 06	75 14 13	R. L. 92	206.2	2.31438
Ref. Mon. 314	48 30 29.71	140 10 50	320 10 46	R. L. 94	177.4	2.24893
	92 37 53.99	270 07 27	90 07 30	Ref. Mon. 313	67.5	1.82916
R. L. 96	48 30 26.74	179 25 12	359 25 12	R. L. 94	227.9	2.35774
	92 37 59.41	230 31 50	50 31 54	Ref. Mon. 314	144.2	2.15886
		242 53 45	62 53 52	Ref. Mon. 313	200.8	2.30281
R. L. 98	48 30 26.88	89 07 52	269 07 41	R. L. 96	279.2	2.44584
	92 37 45.81	131 00 31	311 00 27	Ref. Mon. 313	133.0	2.12377
Ref. Mon. 315	48 30 20.36	153 20 54	333 20 50	R. L. 96	220.5	2.34347
	92 37 54.59	195 27 56	15 27 59	Ref. Mon. 313	299.4	2.47630
		221 49 39	41 49 46	R. L. 98	270.2	2.43169
Ref. Mon. 317	48 30 22.24	74 52 09	254 52 01	Ref. Mon. 315	221.5	2.34546
	92 37 44.17	166 47 59	346 47 58	R. L. 98	147.4	2.16851
Ref. Mon. 316	48 30 19.52	101 46 11	281 46 06	Ref. Mon. 315	127.5	2.10568
	92 37 48.51	193 40 42	13 40 44	R. L. 98	234.0	2.36920
		226 42 21	46 42 24	Ref. Mon. 317	122.3	2.08733
Ref. Mon. 318	48 30 21.08	81 24 44	261 24 32	Ref. Mon. 316	323.4	2.50976
	92 37 32.93	87 07 59	267 07 42	Ref. Mon. 315	445.2	2.64857
		98 45 24	278 45 15	Ref. Mon. 317	233.5	2.36830
		124 06 10	304 06 00	R. L. 98	319.4	2.50428
Ref. Mon. 319	48 30 14.31	136 24 36	316 24 29	Ref. Mon. 315	258.1	2.41179
	92 37 45.92	161 44 29	341 44 27	Ref. Mon. 316	169.5	2.22905
		180 19 52	0 19 52	R. L. 98	388.3	2.58915
		188 20 43	8 20 44	Ref. Mon. 317	247.4	2.39338
		231 53 05	51 53 15	Ref. Mon. 318	339.0	2.53017
Ref. Mon. 320	48 30 10.93	109 40 25	289 40 14	Ref. Mon. 319	310.5	2.49212
	92 37 31.68	175 18 58	355 18 57	Ref. Mon. 318	314.8	2.49806
Ref. Mon. 322	48 30 03.69	196 50 44	16 50 47	Ref. Mon. 319	342.8	2.53505
	92 37 50.76	214 15 47	34 16 00	Ref. Mon. 318	650.2	2.81302
		240 17 16	60 17 30	Ref. Mon. 320	451.1	2.65424
Ref. Mon. 321	48 30 01.90	130 53 33	310 53 31	Ref. Mon. 322	84.3	1.92600
	92 37 47.66	229 38 22	49 38 34	Ref. Mon. 320	430.5	2.63395
River	48 30 10.90	237 04 01	57 04 49	Oak	1,567.1	3.19509
	92 37 55.12	269 53 17	89 53 34	Ref. Mon. 320	481.1	2.68228
		283 09 55	103 11 20	Bear	2,417.4	3.38335
		338 07 24	158 07 27	Ref. Mon. 322	239.9	2.38005
Knox	48 29 44.14	166 29 02	346 28 55	River	850.1	2.92945
	92 37 45.44	169 44 30	349 44 26	Ref. Mon. 322	613.7	2.78794
		198 50 58	18 51 08	Ref. Mon. 320	874.3	2.94167
		213 38 05	33 38 46	Oak	2,015.9	3.30447
		262 42 23	82 43 41	Bear	2,172.8	3.33701
Ref. Mon. 324	48 29 58.16	211 01 53	31 02 01	River	458.8	2.66166
	92 38 06.64	314 52 18	134 52 33	Knox	614.2	2.78830
Ref. Mon. 325	48 29 59.30	232 55 04	52 55 21	River	594.1	2.77388
	92 38 18.20	278 22 17	98 22 26	Ref. Mon. 324	240.0	2.38025
		304 50 19	124 50 43	Knox	819.7	2.91364
Ref. Mon. 323	48 30 00.01	83 31 01	263 30 53	Ref. Mon. 325	195.5	2.29107
	92 38 08.74	322 49 27	142 49 28	Ref. Mon. 324	71.6	1.85472
Ref. Mon. 326	48 29 57.69	196 46 25	16 46 25	Ref. Mon. 325	51.9	1.71545
	92 38 18.93	251 03 25	71 03 33	Ref. Mon. 323	221.2	2.34475
		266 38 58	86 39 07	Ref. Mon. 324	252.9	2.40292
Ref. Mon. 327	48 30 00.62	291 53 26	111 53 30	Ref. Mon. 325	109.2	2.03827
	92 38 23.14	316 19 33	136 19 37	Ref. Mon. 326	125.0	2.09707
Ref. Mon. 328	48 29 58.20	200 07 35	20 07 36	Ref. Mon. 327	79.5	1.90050
	92 38 24.47	255 13 20	75 13 25	Ref. Mon. 325	133.1	2.12419
		277 53 50	97 53 55	Ref. Mon. 326	114.8	2.05996
R. L. 113	48 29 58.12	235 19 07	55 19 11	Ref. Mon. 327	135.4	2.13153
	92 38 28.56	268 23 24	88 23 27	Ref. Mon. 328	84.0	1.92424
R. L. 114	48 30 01.37	9 03 27	189 03 26	R. L. 113	101.6	2.00705
	92 38 27.78	283 45 34	103 45 37	Ref. Mon. 327	98.1	1.99183
		325 15 49	145 15 51	Ref. Mon. 328	119.3	2.07652
Ref. Mon. 329	48 29 58.11	86 12 25	266 11 52	Bat	909.5	2.95882
	92 38 49.45	257 13 25	77 13 42	R. L. 114	456.2	2.65914
		269 55 54	89 56 10	R. L. 113	428.9	2.63235
Ref. Mon. 330	48 30 02.12	15 42 08	195 42 07	Ref. Mon. 329	128.8	2.10990
	92 38 47.76	273 13 33	93 13 49	R. L. 114	410.7	2.61350
		287 23 59	107 24 14	R. L. 113	412.9	2.61588
Center III	48 29 56.56	245 23 44	65 23 58	Ref. Mon. 330	412.8	2.61575
	92 39 06.04	261 59 42	81 59 55	Ref. Mon. 329	343.8	2.53634

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 331	48 30 02. 52	274 35 48	94 36 08	Ref. Mon. 330	540. 1	2. 73247
	92 39 13. 98	288 22 40	108 22 59	Ref. Mon. 329	530. 6	2. 72474
		322 50 58	142 51 04	Center III	270. 0	2. 43129
Ref. Mon. 332	48 30 08. 30	37 48 29	217 48 09	Doran	907. 6	2. 95790
	92 39 14. 32	46 37 41	226 37 27	Bat	546. 0	2. 73723
		289 16 28	109 16 48	Ref. Mon. 330	577. 8	2. 76181
		301 38 58	121 39 17	Ref. Mon. 329	599. 8	2. 77802
		357 14 40	177 14 40	Ref. Mon. 331	147. 6	2. 16917
Mamie	48 29 48. 07	195 55 28	15 55 33	Ref. Mon. 331	496. 4	2. 69580
	92 39 20. 61	228 46 40	48 46 51	Center III	397. 8	2. 59968
		237 14 24	57 14 49	Ref. Mon. 330	802. 1	2. 90424
		244 08 28	64 08 52	Ref. Mon. 329	710. 9	2. 85180
Swift	48 29 50. 96	224 22 57	44 23 11	Ref. Mon. 331	543. 0	2. 73482
	92 39 32. 48	252 19 50	72 20 10	Center III	569. 7	2. 75567
Water	48 29 54. 94	211 15 40	31 15 41	Bat	43. 87	1. 64219
	92 39 34. 77	225 29 21	45 29 37	Ref. Mon. 332	588. 4	2. 76970
		238 09 14	58 09 30	Ref. Mon. 331	502. 4	2. 70101
		265 09 48	85 10 10	Center III	591. 9	2. 77224
		339 07 19	159 07 21	Swift	131. 7	2. 11950
Ref. Mon. 333	48 29 45. 10	87 35 35	267 35 35	Doran	13. 42	1. 12772
	92 39 40. 77	202 04 00	22 04 05	Water	328. 1	2. 51597
		223 14 01	43 14 08	Swift	248. 5	2. 39524
Ref. Mon. 334	48 29 48. 77	0 59 30	180 59 29	Ref. Mon. 333	113. 4	2. 05453
	92 39 40. 68	212 27 38	32 27 42	Water	226. 0	2. 35408
		248 05 32	68 05 38	Swift	181. 3	2. 25843
Kettle	48 29 43. 48	229 50 19	49 50 46	Ref. Mon. 331	960. 0	2. 98226
	92 39 49. 72	256 39 01	76 39 23	Mamie	614. 1	2. 78823
Squirrel I	48 29 53. 64	248 16 16	68 16 44	Ref. Mon. 331	824. 5	2. 91618
	92 39 51. 29	285 17 03	105 17 26	Mamie	652. 9	2. 81482
		354 07 51	174 07 52	Kettle	315. 5	2. 49906
Warner	48 29 42. 80	248 35 31	68 36 02	Squirrel I	917. 6	2. 96264
	92 40 32. 90	268 38 27	88 38 59	Kettle	886. 8	2. 94784
Jack	48 29 55. 65	23 03 57	203 03 51	Warner	431. 5	2. 63496
	92 40 24. 67	275 10 39	95 11 04	Squirrel I	688. 0	2. 83761
		297 39 14	117 39 40	Kettle	810. 1	2. 90852
Ref. Mon. 335	48 29 46. 16	252 05 51	72 06 24	Jack	953. 8	2. 97946
	92 41 08. 88	278 00 02	98 00 29	Warner	745. 9	2. 87268
Ref. Mon. 336	48 30 02. 53	5 39 32	185 39 30	Ref. Mon. 335	507. 9	2. 70576
	92 41 06. 44	283 53 57	103 54 28	Jack	883. 4	2. 94616
		311 30 06	131 30 31	Warner	919. 4	2. 96350
Mica	48 29 51. 70	129 59 14	309 58 13	Moose	2, 202. 8	3. 34298
	92 41 41. 02	244 45 56	64 46 22	Ref. Mon. 336	784. 8	2. 89474
		284 30 54	104 31 18	Ref. Mon. 335	681. 6	2. 83354
Center II	48 30 04. 49	21 49 22	201 49 16	Mica	425. 7	2. 62910
	92 41 33. 31	276 16 24	96 16 44	Ref. Mon. 336	555. 0	2. 74427
		318 27 13	138 27 31	Ref. Mon. 335	756. 3	2. 87871
Crook	48 30 18. 19	120 53 53	300 53 17	Moose	1, 162. 8	3. 06551
	92 42 14. 64	289 03 24	109 04 15	Ref. Mon. 336	1, 481. 2	3. 17062
		296 30 14	116 30 45	Center II	948. 0	2. 97681
		306 13 32	126 14 21	Ref. Mon. 335	1, 673. 6	3. 22365
		317 53 45	137 56 17	Snow	6, 220. 1	3. 79379
		319 51 12	139 51 37	Mica	1, 070. 5	3. 02958
Ref. Mon. 338	48 29 48. 91	6 38 43	186 38 43	Bees Kees	36. 4	1. 56129
	92 42 01. 40	139 47 15	319 46 29	Moose	1, 966. 3	3. 29364
		163 16 40	343 16 30	Crook	944. 3	2. 97512
		258 22 33	78 22 48	Mica	427. 2	2. 63063
Last	48 29 43. 67	184 37 50	4 37 53	Crook	1, 069. 8	3. 02932
	92 42 18. 84	245 39 51	65 40 04	Ref. Mon. 338	393. 1	2. 59446
		252 17 01	72 17 29	Mica	815. 2	2. 91128
Ref. Mon. 337	48 29 33. 17	119 12 22	299 12 01	Last	664. 5	2. 82250
	92 41 50. 59	153 19 29	333 19 21	Bees Kees	503. 6	2. 70210
		155 28 12	335 28 04	Ref. Mon. 338	534. 4	2. 72788
Cement	48 29 23. 58	177 56 57	357 56 57	Last	621. 0	2. 79309
	92 42 17. 76	182 10 39	2 10 42	Crook	1, 688. 1	3. 22741
		203 13 50	23 14 03	Ref. Mon. 338	851. 6	2. 93025
		220 58 13	40 58 41	Mica	1, 150. 5	3. 06088
Train	48 29 23. 91	89 06 01	269 05 37	Cement	644. 2	2. 80904
	92 41 46. 39	132 29 51	312 29 27	Last	903. 7	2. 95602
		145 15 02	325 14 05	Moose	2, 767. 6	3. 44211
		158 15 06	338 14 55	Ref. Mon. 338	831. 6	2. 91992
		160 55 33	340 55 12	Crook	1, 774. 2	3. 24901
		187 19 18	7 19 22	Mica	865. 5	2. 93728
Hayes	48 29 02. 19	175 08 22	355 08 20	Cement	663. 2	2. 82164
	92 42 15. 02	221 13 34	41 13 56	Train	892. 1	2. 95043

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Freight	48 29 04.57	80 49 08	260 48 51	Hayes	461.8	2.66445
	92 41 52.82	138 54 33	318 54 14	Cement	779.0	2.89155
		192 28 26	12 28 31	Train	611.7	2.78654
Ref. Mon. 339	48 29 04.60	12 28	192 28	Freight	0.86	9.93632-10
	92 41 52.82					
Box	48 28 55.15	129 08 01	309 07 51	Hayes	344.3	2.53697
	92 42 02.02	159 47 27	339 47 15	Cement	935.7	2.97115
		199 51 45	19 51 57	Train	944.5	2.97518
		212 58 22	32 58 29	Freight	346.9	2.54019
Ref. Mon. 342	48 28 33.75	202 29 43	22 29 56	Hayes	950.8	2.97811
	92 42 32.74	223 39 25	43 39 48	Box	913.9	2.96090
Pent	48 28 33.93	89 12 16	269 12 01	Ref. Mon. 342	406.4	2.60894
	92 42 12.96	177 12 47	357 12 45	Hayes	873.9	2.94144
		198 54 50	18 54 58	Box	692.9	2.84069
Ref. Mon. 340=Pluss (U. S. C. & G. S.)	48 28 59.49	4 47 09	184 47 07	Pent	792.4	2.89897
	92 42 09.74	30 42 45	210 42 28	Ref. Mon. 342	925.1	2.96618
		186 23 38	6 23 44	Bees Kees	1,499.8	3.17602
		245 41 38	65 41 51	Freight	381.0	2.58098
Ref. Mon. 341	48 28 23.06	144 07 58	324 07 49	Ref. Mon. 342	407.3	2.60996
	92 42 21.12	185 54 47	5 54 51	Hayes	1,215.0	3.08459
		201 35 24	21 35 38	Box	1,066.1	3.02779
		206 32 18	26 32 24	Pent	375.3	2.57438
New	48 28 02.35	202 40 01	22 40 15	Ref. Mon. 342	1,051.1	3.02164
	92 42 52.46	225 10 32	45 10 55	Ref. Mon. 341	907.7	2.95792
		305 45 20	125 46 00	Rye	1,390.9	3.14329
		338 51 10	158 51 18	Harry	665.2	2.82298
Ref. Mon. 344	48 28 02.14	160 50	340 50	New	7.01	0.84584
	92 42 52.35					
Ref. Mon. 343	48 28 00.43	97 40 22	277 40 06	New	443.2	2.64660
	92 42 31.08	178 06 08	358 06 06	Ref. Mon. 342	1,029.6	3.01268
		196 18 52	16 18 59	Ref. Mon. 341	728.3	2.86230
Ref. Mon. 346	48 27 36.61	180 58 21	0 58 22	New	795.2	2.90046
	92 42 53.12	211 36 00	31 36 17	Ref. Mon. 343	864.0	2.93653
		235 26 24	55 26 33	Harry	307.8	2.48829
		270 53 11	90 53 52	Rye	1,142.4	3.05781
Ref. Mon. 345	48 27 39.87	77 29 53	257 29 36	Ref. Mon. 346	465.3	2.66774
	92 42 31.01	147 35 43	327 35 27	New	822.4	2.91508
		179 52 01	359 52 01	Ref. Mon. 343	635.2	2.80288
Louis	48 27 22.14	112 22 45	292 22 05	Ref. Mon. 346	1,174.3	3.06977
	92 42 00.27	130 56 10	310 55 47	Ref. Mon. 345	836.0	2.92220
		151 50 59	331 50 36	Ref. Mon. 343	1,341.6	3.12762
Cedar	48 26 49.61	148 28 11	328 27 38	Ref. Mon. 346	1,703.2	3.23127
	92 42 09.77	164 17 54	344 17 38	Ref. Mon. 345	1,612.7	3.20754
		168 40 55	348 40 39	Ref. Mon. 343	2,231.0	3.34850
		190 59 29	10 59 36	Louis	1,023.5	3.01009
Ref. Mon. 348	48 26 28.19	127 20 36	307 20 04	Cedar	1,091.1	3.03787
	92 41 27.56	158 02 05	338 01 40	Louis	1,797.0	3.25455
Mail	48 26 54.03	12 23 47	192 23 41	Ref. Mon. 348	817.3	2.91238
	92 41 19.02	82 33 02	262 32 24	Cedar	1,051.8	3.02192
		135 41 36	315 41 05	Louis	1,213.4	3.08401
Ref. Mon. 347	48 26 38.25	67 30 39	247 30 12	Ref. Mon. 348	812.5	2.90981
	92 40 51.03	102 14 46	282 13 47	Cedar	1,655.7	3.21899
		130 16 56	310 16 35	Mail	753.9	2.87733
Bird	48 26 07.18	109 29 03	289 27 57	Ref. Mon. 348	1,946.5	3.28926
	92 39 58.27	131 31 00	311 30 21	Ref. Mon. 347	1,448.2	3.16082
		255 07 46	75 08 17	Deer	864.6	2.93682
Ref. Mon. 350	48 26 19.40	35 02 08	215 01 58	Bird	461.0	2.66372
	92 39 45.39	97 22 39	277 21 23	Ref. Mon. 348	2,117.2	3.32577
		113 21 15	293 20 26	Ref. Mon. 347	1,469.3	3.16712
Ref. Mon. 352	48 25 56.80	117 11 33	297 11 10	Bird	701.4	2.84597
	92 39 27.92	152 46 11	332 45 58	Ref. Mon. 350	785.0	2.89487
		152 59 48	332 57 07	Moose	9,734.0	3.98829
		157 01 58	336 59 53	Crook	8,770.2	3.94301
		192 09 53	12 10 20	Snow	3,537.2	3.54866
Ref. Mon. 349	48 26 25.20	45 36 17	225 35 56	Bird	795.6	2.90070
	92 39 30.61	59 28 23	239 28 12	Ref. Mon. 350	352.7	2.54739
		356 23 11	176 23 13	Ref. Mon. 352	878.9	2.94393
Goose	48 26 14.50	23 39 33	203 39 24	Ref. Mon. 352	596.8	2.77582
	92 39 16.27	75 19 35	255 19 03	Bird	892.5	2.95059
		81 08 30	261 08 29	Deer	28.00	1.44724
		104 11 29	284 11 07	Ref. Mon. 350	617.5	2.79063
Ref. Mon. 351	48 26 13.43	29 30 41	209 30 30	Ref. Mon. 352	590.1	2.77091
	92 39 13.78	110 04 47	290 04 44	Deer	83.9	1.92368
		122 53 42	302 53 40	Goose	61.0	1.78498

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Can	48 26 24.99	47 31 50	227 31 15	Ref. Mon. 352	1,289.3	3.11036
	92 38 41.65	65 31 11	245 30 45	Goose	781.8	2.89308
Ref. Mon. 354	48 26 02.12	86 21 06	266 19 32	Ref. Mon. 352	2,573.7	3.41055
	92 37 22.97	98 43 39	278 42 16	Ref. Mon. 351	2,304.3	3.36253
		99 20 02	279 18 37	Goose	2,360.0	3.37291
		113 36 00	293 35 01	Can	1,764.7	3.24668
Black	48 26 31.38	62 42 19	242 41 03	Ref. Mon. 352	2,328.1	3.36700
	92 37 47.27	72 41 22	252 40 17	Ref. Mon. 351	1,862.4	3.27007
		74 06 03	254 04 56	Goose	1,902.0	3.27920
		79 59 33	259 58 52	Can	1,134.9	3.05496
		331 03 50	151 04 08	Ref. Mon. 354	1,032.5	3.01389
Brown	48 26 08.69	84 16 59	264 15 45	Ref. Mon. 354	2,032.1	3.30795
	92 35 44.60	105 32 48	285 31 16	Black	2,616.9	3.41778
Ref. Mon. 355	48 26 49.44	27 12 46	207 12 14	Namakan	1,883.6	3.27498
	92 34 17.25	54 58 33	234 57 28	Brown	2,192.7	3.34097
		69 04 07	249 01 48	Ref. Mon. 354	4,087.3	3.61144
		82 39 26	262 36 49	Black	4,352.2	3.63871
		240 09 39	60 13 08	Tower	6,601.0	3.81961
		319 25 38	139 27 55	Bay	5,777.2	3.76172
Ref. Mon. 353	48 26 32.38	23 40 52	203 40 37	Ref. Mon. 354	1,020.5	3.00882
	92 37 03.03	29 18 41	209 18 41	Namakan west base	14.49	1.16107
		261 11 30	81 13 34	Ref. Mon. 355	3,447.5	3.53751
Namakan ecc	48 25 56.42	93 32 25	273 30 41	Ref. Mon. 354	2,867.0	3.45743
	92 35 03.76	107 49 49	287 47 47	Black	3,530.1	3.54779
		114 18 22	294 17 52	Brown	921.2	2.96436
		210 15 58	30 16 33	Ref. Mon. 355	1,896.4	3.27792
		291 30 44	111 30 48	Namakan	101.84	2.00792
Ref. Mon. 356	48 25 55.20	168 00	348 00	Namakan	0.11	9.02809–10
	92 34 59.15					
Matt	48 26 03.61	85 13 35	265 11 58	Namakan ecc	2,661.6	3.42514
	92 32 54.73	129 51 40	309 50 38	Ref. Mon. 355	2,209.2	3.34424
Ref. Mon. 358	48 26 41.14	34 33 13	214 32 44	Matt	1,407.5	3.14844
	92 32 15.89	68 11 53	248 09 47	Namakan ecc	3,716.6	3.57014
		95 53 00	275 51 29	Ref. Mon. 355	2,507.1	3.39917
Heron	48 26 27.30	60 44 51	240 44 03	Matt	1,497.5	3.17536
	92 31 51.17	76 28 12	256 25 47	Namakan ecc	4,071.9	3.60980
		102 50 46	282 48 56	Ref. Mon. 355	3,079.1	3.48842
		130 03 59	310 03 40	Ref. Mon. 358	663.9	2.82213
Crooked	48 27 42.41	11 14 42	191 14 28	Ref. Mon. 358	1,929.6	3.28546
	92 31 57.58	60 19 34	240 17 49	Ref. Mon. 355	3,303.4	3.51896
		356 44 50	176 44 53	Heron	2,323.6	3.36616
Ref. Mon. 357	48 27 42.33	100 11	280 11	Crooked	13.50	1.13032
	92 31 56.94					
Squirrel II	48 26 39.50	53 58 32	233 58 14	Heron	640.8	2.80675
	92 31 25.95	92 49 03	272 48 26	Ref. Mon. 358	1,027.6	3.01183
Ref. Mon. 360	48 26 51.37	55 48 59	235 48 20	Heron	1,323.0	3.12155
	92 30 57.92	57 32 19	237 31 58	Squirrel II	682.8	2.83428
		78 50 59	258 50 01	Ref. Mon. 358	1,633.3	3.21306
		222 19 28	42 19 28	Namakan east base	13.65	1.13513
Dead	48 26 44.26	65 05 46	245 05 06	Heron	1,243.3	3.09459
	92 30 56.30	76 27 45	256 27 23	Squirrel II	626.8	2.79714
		171 22 53	351 22 52	Ref. Mon. 360	222.2	2.34684
Ref. Mon. 362	48 26 49.60	69 12 15	249 11 59	Dead	464.5	2.66701
	92 30 35.16	96 41 12	276 40 55	Ref. Mon. 360	470.8	2.67280
Ref. Mon. 359	48 26 57.20	45 20 42	225 20 35	Ref. Mon. 360	256.1	2.40844
	92 30 49.05	309 26 52	129 27 02	Ref. Mon. 362	369.5	2.56767
Tack	48 26 56.88	17 58 36	197 58 33	Ref. Mon. 362	236.7	2.37415
	92 30 31.61	52 26 45	232 26 26	Dead	639.9	2.80612
		72 30 53	252 30 33	Ref. Mon. 360	566.8	2.75342
Ref. Mon. 361	48 26 57.42	59 28 09	239 27 54	Ref. Mon. 362	475.7	2.67729
	92 30 15.23	87 11 28	267 11 16	Tack	337.1	2.52770
Crane	48 26 32.67	143 38 49	323 38 35	Ref. Mon. 362	649.2	2.81240
	92 30 16.44	157 22 20	337 22 09	Tack	810.4	2.90869
		181 51 45	1 51 46	Ref. Mon. 361	764.9	2.88362
Lake	48 26 38.98	64 21 54	244 21 39	Crane	450.7	2.65386
	92 29 56.67	112 30 55	292 30 26	Ref. Mon. 362	856.4	2.93267
		127 36 14	307 35 48	Tack	906.3	2.95729
		146 11 30	326 11 16	Ref. Mon. 361	685.4	2.83597
Clark	48 26 25.81	113 14 29	293 14 11	Crane	537.1	2.73008
	92 29 52.42	167 54 05	347 54 02	Lake	416.2	2.61927
Ref. Mon. 363	48 26 10.47	128 13 51	308 13 19	Crane	1,108.1	3.04456
	92 29 34.08	141 29 41	321 29 27	Clark	605.3	2.78200
		152 12 43	332 12 26	Lake	995.4	2.99801
		178 51 13	358 51 10	Tower	4,486.0	3.65186

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Pig	48 26 13.38	195 17 36	15 18 20	Tower	4,556.8	3.65866
	92 30 36.98	226 19 43	46 20 13	Lake	1,145.3	3.05892
		247 15 08	67 15 41	Clark	992.9	2.99692
		273 58 07	93 58 54	Ref. Mon. 363	1,295.8	3.11253
Rod	48 26 22.92	34 50 02	214 49 55	Pig	359.0	2.55508
	92 30 27.00	262 50 31	82 50 57	Clark	716.2	2.85506
		289 27 52	109 28 32	Ref. Mon. 363	1,153.6	3.06204
Ref. Mon. 364	48 26 08.77	97 20 32	277 19 51	Pig	1,115.6	3.04751
	92 29 43.14	181 12 57	1 13 01	Tower	4,538.8	3.65694
		254 12 58	74 13 05	Ref. Mon. 363	193.5	2.28668
Ref. Mon. 366	48 25 53.90	151 07 15	331 07 05	Ref. Mon. 364	524.7	2.71989
	92 29 30.82	172 31 26	352 31 24	Ref. Mon. 363	516.4	2.71302
Camp	48 25 56.38	62 44 54	242 44 49	Ref. Mon. 366	167.3	2.22349
	92 29 23.58	133 35 33	313 35 18	Ref. Mon. 364	555.2	2.74446
		153 37 35	333 37 27	Ref. Mon. 363	486.0	2.68667
Stump	48 25 45.63	127 32 58	307 32 46	Ref. Mon. 366	418.8	2.62198
	92 29 14.66	151 05 06	331 04 59	Camp	379.1	2.57873
Stone	48 25 51.73	19 12 50	199 12 48	Stump	199.3	2.29946
	92 29 11.47	99 34 20	279 34 06	Ref. Mon. 366	403.2	2.60553
		119 59 39	299 59 30	Camp	287.4	2.45841
Rock	48 25 44.31	107 34 54	287 34 49	Stump	135.0	2.13042
	92 29 08.40	164 35 02	344 35 00	Stone	237.5	2.37568
Point	48 25 48.12	52 21 04	232 20 59	Rock	192.7	2.28485
	92 29 00.98	74 42 29	254 42 19	Stump	291.6	2.46480
		117 17 12	297 17 04	Stone	242.7	2.38507
Ref. Mon. 365	48 25 44.66	87 14 19	267 14 11	Rock	220.3	2.34305
	92 28 57.70	147 46 34	327 46 31	Point	126.6	2.10236
Cliff	48 25 41.56	110 28 10	290 28 02	Rock	243.7	2.38684
	92 28 57.30	159 31 55	339 31 52	Point	216.6	2.33564
		175 05 00	355 05 00	Ref. Mon. 365	96.2	1.98312
Top	48 25 40.42	105 17 03	285 16 58	Cliff	132.5	2.12233
	92 28 51.08	133 51 31	313 51 26	Ref. Mon. 365	188.7	2.27586
		139 26 22	319 26 15	Point	313.1	2.49566
Ref. Mon. 368	48 25 41.55	110 28 30	290 28 22	Rock	243.7	2.38692
	92 28 57.30	175 03 59	355 03 59	Ref. Mon. 365	96.2	1.98331
Ref. Mon. 367	48 25 40.43	105 09 28	285 09 23	Ref. Mon. 368	132.7	2.12273
	92 28 51.07	139 22 57	319 22 50	Point	313.1	2.49564
Ref. Mon. 370	48 25 33.65	179 22 57	359 22 57	Cliff	244.3	2.38792
	92 28 57.17	210 53 03	30 53 08	Top	243.9	2.38728
Deer	48 25 35.22	75 25 50	255 25 43	Ref. Mon. 370	192.6	2.28476
	92 28 48.10	136 00 15	316 00 08	Cliff	272.2	2.43490
		159 09 51	339 09 49	Top	172.1	2.23589
Ref. Mon. 369	48 25 35.38	322 04	142 04	Deer	6.60	0.81947
	92 28 48.30					
Ref. Mon. 372	48 25 22.30	147 54 49	327 54 41	Ref. Mon. 370	413.6	2.61659
	92 28 46.48	175 14 03	355 14 02	Deer	400.3	2.60235
Ref. Mon. 371	48 25 26.20	50 58 08	230 58 03	Ref. Mon. 372	191.0	2.28111
	92 28 39.26	122 00 48	302 00 34	Ref. Mon. 370	434.1	2.63760
		146 53 41	326 53 35	Deer	332.6	2.52188
Low	48 25 12.29	130 17 16	310 17 03	Ref. Mon. 372	478.4	2.67977
	92 28 28.73	153 15 17	333 15 09	Ref. Mon. 371	481.1	2.68223
High	48 25 20.37	42 19 26	222 19 18	Low	337.6	2.52840
	92 28 17.68	95 45 38	275 45 17	Ref. Mon. 372	595.2	2.77467
		112 04 51	292 04 35	Ref. Mon. 371	478.9	2.68027
Ref. Mon. 373	48 25 12.68	132 05 25	312 05 13	Ref. Mon. 372	443.5	2.64692
	92 28 30.47	156 35 49	336 35 42	Ref. Mon. 371	455.0	2.65804
Ref. Mon. 374	48 25 04.38	150 44 56	330 44 46	Ref. Mon. 372	634.5	2.80242
	92 28 31.40	166 30 45	346 30 39	Ref. Mon. 371	693.0	2.84072
Hall	48 24 57.81	133 01 18	313 01 01	Low	655.4	2.81651
	92 28 05.43	160 07 39	340 07 30	High	740.9	2.86975
Wells	48 25 06.15	27 48 51	207 48 46	Hall	291.2	2.46413
	92 27 58.82	107 08 19	287 07 57	Low	643.6	2.80861
		138 34 03	318 33 49	High	585.9	2.76780
Center II	48 24 56.07	102 06 25	282 06 16	Hall	257.1	2.41010
	92 27 53.20	159 38 57	339 38 53	Wells	322.2	2.52137
Isle	48 25 06.34	44 23 40	224 23 28	Center II	444.2	2.64755
	92 27 38.09	64 53 21	244 53 01	Hall	620.8	2.79294
		89 12 09	926 11 54	Wells	426.3	2.62970

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Allan	48 24 38.13	140 09 12	320 08 54	Hall	791.9	2.89867
	92 27 40.75	155 11 57	335 11 48	Center II	610.3	2.78558
		156 46 04	336 45 51	Wells	941.9	2.97399
		183 35 34	3 35 36	Isle	873.2	2.94109
Ref. Mon. 375	48 24 56.83	38 14 08	218 13 52	Allan	735.5	2.86659
	92 27 18.62	126 15 37	306 15 22	Isle	496.6	2.69600
Fire	48 24 54.05	63 59 13	243 58 36	Allan	1,221.4	3.04974
	92 26 51.75	98 50 08	278 49 48	Ref. Mon. 375	559.1	2.74750
Ref. Mon. 376	48 24 27.21	114 42 09	294 41 42	Allan	807.4	2.90709
	92 27 05.08	150 41 19	330 40 53	Isle	1,386.3	3.14187
		163 05 08	343 04 58	Ref. Mon. 375	956.5	2.98069
		198 17 48	18 17 58	Fire	873.4	2.94123
Lass	48 24 25.61	191 49 42	11 49 45	Allan	395.2	2.59676
	92 27 44.69	266 31 35	86 32 05	Ref. Mon. 376	816.1	2.91173
Ref. Mon. 377	48 24 01.23	139 07 49	319 07 25	Lass	995.8	2.99817
	92 27 13.01	153 24 30	333 24 09	Allan	1,274.6	3.10537
		191 28 57	11 29 03	Ref. Mon. 376	818.8	2.91315
Chief	48 23 55.57	230 48 42	50 49 23	Lass	1,468.5	3.16687
	92 28 40.03	264 24 49	84 25 54	Ref. Mon. 377	1,798.6	3.25492
Ref. Mon. 378	48 24 08.29	226 06 38	46 07 00	Ref. Mon. 376	842.9	2.92575
	92 27 34.62	296 07 50	116 08 06	Ref. Mon. 377	495.1	2.69470
Penn	48 23 04.85	120 31 58	300 29 21	Bay	5,017.7	3.70050
	92 27 44.39	143 50 55	323 50 13	Chief	1,940.2	3.28784
		179 51 29	359 51 29	Lass	2,494.3	3.39695
		200 20 21	20 20 45	Ref. Mon. 377	1,857.1	3.26884
Perrier	48 22 51.86	206 42 14	26 43 07	Lass	3,241.5	3.51075
	92 28 55.52	224 32 09	44 33 25	Ref. Mon. 377	3,006.4	3.47805
		254 39 31	74 40 24	Penn	1,517.6	3.18115
Ref. Mon. 381	48 21 56.13	141 44 27	321 42 13	Bay	5,949.3	3.77447
	92 28 15.41	154 23 16	334 22 46	Perrier	1,909.1	3.28084
		172 07 55	352 06 53	Tower	12,458.9	4.09548
		196 44 05	16 44 28	Penn	2,216.7	3.34571
Ref. Mon. 380	48 22 33.25	229 24 06	49 24 47	Penn	1,500.5	3.17623
	92 28 39.76	336 23 12	156 23 30	Ref. Mon. 381	1,251.2	3.09734
Ref. Mon. 379	48 22 17.73	145 01 16	325 01 04	Ref. Mon. 380	585.1	2.76721
	92 28 23.46	346 02 56	166 03 02	Ref. Mon. 381	687.4	2.83720
Pole	48 21 47.90	194 46 13	14 46 32	Perrier	2,043.2	3.31031
	92 29 20.83	219 51 08	39 52 20	Penn	3,096.7	3.49089
		259 18 19	79 19 08	Ref. Mon. 381	1,370.4	3.13684
Ref. Mon. 382	48 21 31.72	190 56 49	10 57 02	Ref. Mon. 380	1,935.6	3.28683
	92 28 57.62	229 02 54	49 03 25	Ref. Mon. 381	1,150.4	3.06085
Lunch	48 21 05.85	126 35 23	306 34 19	Pole	2,179.5	3.33835
	92 27 55.82	165 26 34	345 26 20	Ref. Mon. 381	1,604.6	3.20535
Bare	48 20 48.20	150 32 59	330 32 21	Pole	2,117.9	3.32591
	92 28 30.25	153 28 31	333 26 28	Bay	7,566.0	3.87887
		174 27 32	354 26 41	Tower	14,507.7	4.16160
		188 16 44	8 16 55	Ref. Mon. 381	2,120.4	3.32642
		232 25 37	52 26 03	Lunch	894.3	2.95149
Tea	48 20 23.32	118 09 03	298 08 11	Bare	1,628.8	3.21187
	92 27 20.50	151 01 55	331 01 29	Lunch	1,501.5	3.17652
Oscar	48 20 59.11	60 41 43	240 41 21	Bare	688.4	2.83786
	92 28 01.09	322 53 53	142 54 23	Tea	1,385.7	3.14168
Ref. Mon. 383	48 21 08.44	37 32 28	217 32 11	Bare	788.5	2.89678
	92 28 06.91	337 24 49	157 24 53	Oscar	312.2	2.49437
Ref. Mon. 384	48 21 06.78	256 57 11	76 57 19	Ref. Mon. 383	227.2	2.35644
	92 28 17.66	304 46 11	124 46 23	Oscar	415.4	2.61850
Sam	48 20 11.57	152 38 06	332 37 45	Bare	1,274.1	3.10519
	92 28 01.80	184 12 13	4 12 17	Lunch	1,681.3	3.22563
		246 52 38	66 53 09	Tea	924.9	2.96611
Ref. Mon. 385	48 19 42.56	127 00 58	307 00 15	Sam	1,488.4	3.17272
	92 27 04.10	164 59 08	344 58 56	Tea	1,303.6	3.11515
Crane	48 19 37.01	142 43 49	322 43 20	Sam	1,341.3	3.12752
	92 27 22.37	181 32 22	1 32 23	Tea	1,431.0	3.15564
		245 30 36	65 30 50	Ref. Mon. 385	413.5	2.61643
Moose	48 19 22.83	115 51 12	295 50 39	Crane	1,004.8	3.00208
	92 26 38.47	139 06 02	319 05 43	Ref. Mon. 385	806.4	2.90653
Jim	48 19 09.23	142 12 01	322 11 37	Crane	1,085.9	3.03580
	92 26 50.05	164 18 12	344 18 02	Ref. Mon. 385	1,069.3	3.02909
		209 36 52	29 37 01	Moose	483.0	2.68397
Ref. Mon. 386	48 19 39.88	243 05 43	63 05 49	Ref. Mon. 385	182.6	2.26148
	92 27 12.00	334 28 11	154 28 27	Jim	1,049.2	3.02086

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Jack	48 19 16.45	48 35 15	228 35 06	Jim	336.9	2.52750
	92 26 37.79	124 40 35	304 40 02	Crane	1,116.5	3.04786
		146 06 14	326 05 54	Ref. Mon. 385	971.7	2.98753
View	48 19 06.10	97 04 17	277 03 49	Jim	786.2	2.89551
	92 26 12.19	133 39 36	313 39 17	Moose	748.4	2.87413
Trap	48 18 58.55	151 56 06	331 56 00	Jim	374.0	2.57291
	92 26 41.51	184 46 53	4 46 55	Moose	752.6	2.87656
		187 53 49	7 53 52	Jack	558.2	2.74679
		248 52 59	68 53 21	View	647.7	2.81138
Center	48 18 37.22	127 43 24	307 42 53	Trap	1,076.8	3.03213
	92 26 00.17	164 29 47	344 29 38	View	925.8	2.96650
Black	48 18 16.07	148 32 06	328 31 37	Trap	1,538.2	3.18701
	92 26 02.54	172 40 29	352 40 22	View	1,558.0	3.19256
		184 16 25	4 16 27	Center	655.0	2.81625
Bird	48 18 25.91	75 10 25	255 09 43	Black	1,186.7	3.07433
	92 25 06.88	107 39 16	287 38 36	Center	1,152.5	3.06164
		132 42 05	312 41 16	View	1,830.9	3.26266
Ref. Mon. 401	48 17 47.88	117 13 28	297 12 27	Black	1,904.1	3.27969
	92 24 40.38	155 04 16	335 03 57	Bird	1,295.3	3.11238
Ref. Mon. 402	48 17 38.12	136 47 16	316 46 36	Black	1,608.7	3.20649
	92 25 09.09	181 46 18	1 46 20	Bird	1,476.8	3.16934
		242 59 43	63 00 04	Ref. Mon. 401	664.2	2.82228
Narrows	48 18 58.71	89 08 05	269 07 53	Trap	336.2	2.52663
	92 26 25.20	122 23 51	302 23 33	Jim	606.5	2.78287
		154 39 23	334 39 14	Jack	606.2	2.78259
Birch	48 18 53.79	108 27 36	288 27 20	Trap	464.5	2.66697
	92 26 20.13	145 32 41	325 32 37	Narrows	184.5	2.26603
Little	48 18 50.24	143 46 11	323 46 04	Trap	318.3	2.50281
	92 26 32.38	209 29 24	29 29 29	Narrows	300.8	2.47828
		246 31 04	66 31 13	Birch	275.3	2.43976
Ref. Mon. 387	48 18 58.67	157 27	337 27	Narrows	1.42	0.15229
	92 26 25.17					
Ref. Mon. 388	48 18 57.86	257 01 10	77 01 14	Narrows	117.7	2.07064
	92 26 30.76	299 51 03	119 51 11	Birch	252.6	2.40237
Ref. Mon. 389	48 18 53.70	157 25	337 25	Birch	2.74	0.43775
	92 26 20.08					
Ref. Mon. 390	48 18 53.91	186 39 37	6 39 37	Narrows	149.5	2.17454
	92 26 26.04	271 44 07	91 44 11	Birch	121.8	2.08560
Ref. Mon. 392	48 18 43.53	157 25 24	337 25 21	Little	224.3	2.35082
	92 26 28.20	207 42 23	27 42 29	Birch	357.8	2.55366
Ref. Mon. 391	48 18 47.10	66 13 16	246 13 07	Ref. Mon. 392	273.6	2.43710
	92 26 16.05	106 03 00	286 02 48	Little	350.1	2.54421
		157 51 52	337 51 49	Birch	222.9	2.34811
Ref. Mon. 393	48 18 35.09	122 11 18	302 11 03	Ref. Mon. 392	489.6	2.68987
	92 26 08.09	156 09 31	336 09 25	Ref. Mon. 391	405.8	2.60827
Ref. Mon. 394	48 18 30.03	146 13 09	326 12 59	Ref. Mon. 392	501.6	2.70038
	92 26 14.67	176 54 04	356 54 04	Ref. Mon. 391	528.0	2.72265
		220 57 05	40 57 10	Ref. Mon. 393	206.7	2.31534
Poplar	48 18 29.49	93 43 34	273 43 25	Ref. Mon. 394	255.9	2.40815
	92 26 02.27	145 13 48	325 13 43	Ref. Mon. 393	210.3	2.32281
Side	48 18 25.34	145 17 56	325 17 52	Ref. Mon. 394	176.2	2.24591
	92 26 09.80	186 40 11	6 40 12	Ref. Mon. 393	303.0	2.48143
		230 25 38	50 25 44	Poplar	201.2	2.30372
Foot	48 18 24.78	93 16 22	273 16 11	Side	303.5	2.48223
	92 25 55.10	134 31 50	314 31 45	Poplar	207.5	2.31704
Print	48 18 18.70	144 07 52	324 07 47	Side	253.4	2.40382
	92 26 02.60	181 08 28	1 08 28	Poplar	333.6	2.52324
		219 25 23	39 25 29	Foot	243.4	2.38634
Turn	48 18 22.13	78 31 07	258 30 48	Print	532.4	2.72627
	92 25 37.28	102 35 38	282 35 25	Foot	376.2	2.57546
Nest	48 18 17.56	95 09 25	275 09 11	Print	389.7	2.59078
	92 25 43.76	133 40 45	313 40 37	Foot	323.0	2.50917
		223 27 11	43 27 16	Turn	194.3	2.28840
Ref. Mon. 395	48 18 23.27	218 03 13	38 03 14	Foot	594.0	2.77379
	92 25 56.87	303 07 05	123 07 15	Nest	322.6	2.50868
Ref. Mon. 396	48 18 18.71	317 01	137 01	Print	0.59	9.77085–10
	92 26 02.62					
Ref. Mon. 397	48 18 21.97	172 01	352 01	Turn	5.04	0.70243
	92 25 37.24					

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 398	48 18 17.60	29 04	209 04	Nest	1.29	0.11059
	92 25 43.73					
Ref. Mon. 399	48 18 11.25	113 04 21	293 04 04	Nest	497.4	2.69671
	92 25 21.55	136 02 13	316 02 01	Turn	466.7	2.66906
Brutus	48 18 11.90	126 43 46	306 43 37	Nest	292.4	2.46593
	92 25 32.39	162 18 58	342 18 54	Turn	331.5	2.52053
		275 08 06	95 08 14	Ref. Mon. 399	224.2	2.35065
Ref. Mon. 400	48 18 11.89	128 16	308 16	Brutus	0.64	9.80346–10
	92 25 32.37					
War	48 18 07.33	110 11 38	290 11 24	Brutus	409.2	2.61197
	92 25 13.75	127 00 29	307 00 24	Ref. Mon. 399	201.3	2.30391
		311 08 01	131 08 26	Ref. Mon. 401	913.2	2.96058
		353 55 22	173 55 26	Ref. Mon. 402	907.4	2.95781
Fall	48 18 01.44	147 39 16	327 39 09	Brutus	382.6	2.58280
	92 25 22.46	183 30 23	3 30 24	Ref. Mon. 399	303.8	2.48254
		224 34 39	44 34 45	War	255.5	2.40746
		295 46 19	115 46 50	Ref. Mon. 401	963.0	2.98362
		339 04 21	159 04 31	Ref. Mon. 402	771.2	2.88715
Cato	48 17 24.80	117 39 43	297 39 15	Ref. Mon. 402	885.8	2.94736
	92 24 31.03	164 51 48	344 51 41	Ref. Mon. 401	738.4	2.86828
Cicero	48 17 18.69	155 23 09	335 22 59	Ref. Mon. 402	659.9	2.81950
	92 24 55.76	199 22 03	19 22 15	Ref. Mon. 401	955.6	2.98027
		249 40 44	69 41 02	Cato	543.6	2.73528
Green	48 16 53.92	131 06 02	311 05 30	Cicero	1,164.1	3.06601
	92 24 13.20	158 56 04	338 55 51	Cato	1,022.3	3.00959
Ref. Mon. 404	48 16 56.32	154 13 00	334 12 48	Cicero	767.4	2.88500
	92 24 39.56	191 18 48	11 18 54	Cato	897.2	2.95287
		277 46 39	97 46 58	Green	548.6	2.73925
Ref. Mon. 403	48 16 53.95	5 34	185 34	Green	0.99	9.99563–10
	92 24 13.20					
Smoke	48 16 19.61	143 11 44	323 11 13	Ref. Mon. 404	1,416.5	3.15120
	92 23 58.40	163 56 35	343 56 24	Green	1,102.8	3.04251
Ref. Mon. 406	48 16 11.72	166 14 50	346 14 38	Ref. Mon. 404	1,418.3	3.15176
	92 24 23.21	188 59 52	8 59 59	Green	1,319.6	3.12043
		244 32 23	64 32 41	Smoke	566.5	2.75322
Ref. Mon. 405	48 16 19.66	325 10	145 10	Smoke	2.20	0.34242
	92 23 58.47					
Ref. Mon. 407	48 15 38.73	131 58 23	311 57 42	Ref. Mon. 406	1,524.0	3.18298
	92 23 28.27	153 47 38	333 47 15	Smoke	1,407.3	3.14839
Ref. Mon. 408	48 15 33.94	144 31 16	324 30 46	Ref. Mon. 406	1,433.1	3.15629
	92 23 42.87	167 12 29	347 12 17	Smoke	1,446.4	3.16029
		243 51 25	63 51 36	Ref. Mon. 407	335.6	2.52586
Ref. Mon. 412	48 15 16.81	158 24 58	338 24 34	Ref. Mon. 406	1,824.1	3.26106
	92 23 50.67	175 17 58	355 17 52	Smoke	1,946.3	3.28920
		214 18 42	34 18 59	Ref. Mon. 407	819.7	2.91368
Channel	48 14 51.74	159 56 20	339 56 10	Ref. Mon. 412	824.2	2.91601
	92 23 36.97	187 02 52	7 02 59	Ref. Mon. 407	1,462.3	3.16503
Ref. Mon. 409	48 15 32.46	5 19 07	185 19 03	Channel	1,263.0	3.10139
	92 23 31.29	100 51 22	280 51 14	Ref. Mon. 408	243.3	2.38610
Ref. Mon. 410	48 15 32.49	1 56 22	181 56 21	Channel	1,259.4	3.10016
	92 23 34.90	270 52 45	90 52 48	Ref. Mon. 409	74.44	1.87178
Ref. Mon. 411	48 15 07.58	50 28 48	230 28 26	Channel	768.8	2.88579
	92 23 08.22	138 43 11	318 42 45	Ref. Mon. 408	1,083.4	3.03479
Ref. Mon. 415	48 14 53.91	85 34 04	265 33 33	Channel	866.6	2.93781
	92 22 55.09	121 40 01	301 39 20	Ref. Mon. 412	1,347.1	3.12941
		141 26 16	321 25 41	Ref. Mon. 408	1,581.2	3.19899
		153 41 33	333 41 09	Ref. Mon. 407	1,544.2	3.18869
Ref. Mon. 414	48 15 01.82	164 22 48	344 22 38	Ref. Mon. 408	1,030.0	3.01284
	92 23 29.43	173 12 24	353 12 19	Ref. Mon. 410	954.0	2.97955
		247 52 32	67 52 48	Ref. Mon. 411	472.3	2.67419
		289 01 33	109 01 59	Ref. Mon. 415	749.4	2.87473
Ref. Mon. 413	48 14 59.00	99 15 40	279 15 21	Ref. Mon. 414	543.2	2.73495
	92 23 03.44	143 00 05	322 59 36	Ref. Mon. 408	1,351.6	3.13083
Ref. Mon. 416	48 14 47.20	220 52 00	40 52 11	Ref. Mon. 413	481.8	2.68287
	92 23 18.72	246 57 23	66 57 41	Ref. Mon. 415	529.8	2.72418
Ref. Mon. 417	48 14 36.11	154 45 31	334 45 25	Ref. Mon. 416	378.5	2.57807
	92 23 10.90	159 43 59	339 43 35	Ref. Mon. 408	1,904.0	3.27966
		210 40 57	30 41 09	Ref. Mon. 415	639.3	2.80567

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 418	48 14 33.32	157 18 35	337 18 07	Ref. Mon. 408	2,029.6	3.30741
	92 23 04.92	197 40 50	17 40 57	Ref. Mon. 415	667.7	2.82459
River	48 14 31.46	118 22 48	298 22 06	Channel	1,318.1	3.11994
	92 22 40.76	156 54 29	336 54 18	Ref. Mon. 415	753.8	2.87727
Forest	48 14 29.17	148 09 48	328 09 32	Channel	820.9	2.91428
	92 23 15.98	209 24 52	29 25 07	Ref. Mon. 415	877.5	2.94326
		264 25 05	84 25 31	River	730.2	2.86343
Ref. Mon. 419	48 14 21.47	157 18 41	337 18 07	Ref. Mon. 408	2,426.3	3.38494
	92 22 57.50	182 50 40	2 50 42	Ref. Mon. 415	1,003.4	3.00147
Hub	48 14 23.01	337 53	157 53	Ref. Mon. 419	51.41	1.71105
	92 22 58.44					
Ref. Mon. 420	48 14 22.02	243 11 38	63 11 40	Hub	68.0	1.83273
	92 23 01.38	281 57 01	101 57 04	Ref. Mon. 419	81.8	1.91301
Gum	48 14 09.92	121 06 46	301 06 10	Forest	1,150.7	3.06097
	92 22 28.23	158 46 34	338 46 24	River	713.9	2.85365
Line	48 14 06.38	157 18 48	337 18 07	Ref. Mon. 408	2,931.6	3.46710
	92 22 48.06	255 01 42	75 01 57	Gum	423.5	2.62688
Ref. Mon. 422	48 14 11.21	330 06 05	150 06 08	Line	172.3	2.23639
	92 22 52.22					
Ref. Mon. 421	48 14 11.04	14 49 19	194 49 18	Line	149.1	2.17336
	92 22 46.21	92 26 57	272 26 53	Ref. Mon. 422	124.1	2.09394
Ref. Mon. 434	48 13 23.28	157 19 08	337 18 48	Line	1,442.8	3.15921
	92 22 21.09					
Ref. Mon. 424	48 14 03.77	157 18 49	337 18 48	Line	87.3	1.94126
	92 22 46.42					
Ref. Mon. 423	48 14 07.61	42 39 23	222 39 19	Ref. Mon. 424	161.7	2.20861
	92 22 41.11	75 01 47	255 01 42	Line	148.3	2.17103
Hub 2	48 13 57.47	157 18 52	337 18 49	Ref. Mon. 424	210.8	2.32391
	92 22 42.48					
Ref. Mon. 425	48 13 56.53	106 21 48	286 21 44	Hub 2	103.1	2.01340
	92 22 37.69	141 07 15	321 07 09	Ref. Mon. 424	287.2	2.45816
Ref. Mon. 426	48 13 55.44	189 00 36	9 00 36	Hub 2	63.5	1.80298
	92 22 42.96	252 48 34	72 48 38	Ref. Mon. 425	114.0	2.05690
Ref. Mon. 427	48 13 44.63	157 18 58	337 18 48	Line	727.8	2.86201
	92 22 34.45					
Hub X	48 13 46.67	337 18 57	157 18 58	Ref. Mon. 427	68.0	1.83280
	92 22 35.73					
Ref. Mon. 428	48 13 45.11	238 54 54	58 54 57	Hub X	93.4	1.97030
	92 22 39.60	277 48 24	97 48 28	Ref. Mon. 427	107.2	2.03026
Ref. Mon. 429	48 13 33.74	157 19 03	337 18 48	Line	1,092.4	3.03838
	92 22 27.64					
Hub Y	48 13 35.57	337 19 02	157 19 03	Ref. Mon. 429	61.2	1.78711
	92 22 28.79					
Ref. Mon. 430	48 13 33.13	206 33 53	26 33 54	Hub Y	84.3	1.92589
	92 22 30.61	252 52 18	72 52 20	Ref. Mon. 429	64.2	1.80734
Hub 6	48 13 30.17	157 19 05	337 19 03	Ref. Mon. 429	119.5	2.07729
	92 22 25.41					
Ref. Mon. 431	48 13 29.42	106 33 55	286 33 52	Hub 6	81.6	1.91186
	92 22 21.62	137 02 35	317 02 30	Ref. Mon. 429	182.4	2.26109
Ref. Mon. 432	48 13 28.24	336 36 30	156 36 32	Ref. Mon. 434	166.9	2.22251
	92 22 24.31					
Ref. Mon. 433	48 13 26.45	8 04 59	188 04 58	Ref. Mon. 434	98.9	1.99537
	92 22 20.42	124 34 04	304 34 01	Ref. Mon. 432	97.4	1.98842
Ref. Mon. 441	48 13 26.33	83 19 05	263 18 36	Ref. Mon. 434	810.7	2.90888
	92 21 42.08					
Ref. Mon. 435	48 13 23.99	83 18 43	263 18 36	Ref. Mon. 434	188.7	2.27570
	92 22 12.02					
Ref. Mon. 437	48 13 24.33	83 18 46	263 18 36	Ref. Mon. 434	279.3	2.44601
	92 22 07.66	83 18 46	263 18 43	Ref. Mon. 435	90.6	1.95708
Ref. Mon. 436	48 13 11.92	175 31 38	355 31 37	Ref. Mon. 435	373.9	2.57282
	92 22 10.60	189 00 49	9 00 51	Ref. Mon. 437	388.2	2.58901
Ref. Mon. 438	48 13 20.88	41 08 38	221 08 29	Ref. Mon. 436	367.6	2.56541
	92 21 58.88	120 28 11	300 28 04	Ref. Mon. 437	210.1	2.32235
Hub 7	48 13 25.10	83 18 53	263 18 46	Ref. Mon. 437	204.5	2.31061
	92 21 57.82	263 18 53	83 19 05	Ref. Mon. 441	327.0	2.51457

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 439	48 13 27.78	44 25 43	224 25 39	Ref. Mon. 437	149.0	2.17330
	92 22 02.60	309 55 26	129 55 29	Hub 7	128.8	2.10975
Ref. Mon. 440	48 13 21.69	108 23 35	288 23 24	Hub 7	333.7	2.52333
	92 21 42.48	183 15 32	3 15 32	Ref. Mon. 441	143.6	2.15707
Loon west base	48 13 35.54	17 01 03	197 01 00	Ref. Mon. 441	297.4	2.47334
	92 21 37.86					
Loon east base	48 13 32.97	40 49 38	220 49 32	Ref. Mon. 441	271.0	2.43296
	92 21 33.50	131 21 01	311 20 58	Loon west base	120.06	2.07941
Sam	48 13 39.31	40 46 14	220 46 08	Loon east base	258.4	2.41232
	92 21 25.32	65 47 35	245 47 26	Loon west base	283.8	2.45307
Chris	48 13 37.49	65 07 45	245 07 34	Loon east base	332.0	2.52120
	92 21 18.90	81 14 16	261 14 02	Loon west base	396.0	2.59770
		112 55 51	292 55 46	Sam	143.9	2.15795
Ref. Mon. 442	48 13 31.23	228 09 37	48 09 47	Sam	374.1	2.57304
	92 21 38.83	243 54 47	63 54 51	Loon east base	122.5	2.08804
Stone	48 13 47.40	15 11 13	195 11 10	Chris	317.0	2.50112
	92 21 14.88	40 46 39	220 46 31	Sam	330.0	2.51855
Rain	48 13 45.20	45 25 18	225 25 09	Chris	339.2	2.53045
	92 21 07.20	64 03 17	244 03 04	Sam	416.0	2.61912
		113 10 59	293 10 53	Stone	172.5	2.23670
Ref. Mon. 443	48 13 47.89	61 21 46	241 21 45	Stone	31.72	1.50133
	92 21 13.53					
Ref. Mon. 444	48 13 45.37	137 45 08	317 45 06	Stone	84.7	1.92774
	92 21 12.12	159 31 09	339 31 08	Ref. Mon. 443	83.1	1.91978
Rabbit	48 13 53.64	2 09 23	182 09 23	Rain	261.0	2.41666
	92 21 06.72	41 06 33	221 06 27	Stone	256.1	2.40835
Fly	48 13 47.35	58 50 58	238 50 54	Rain	128.2	2.10783
	92 21 01.88	90 20 22	270 20 12	Stone	268.2	2.42853
		152 49 20	332 49 16	Rabbit	218.7	2.33977
High	48 13 55.00	18 50 53	198 50 50	Fly	249.8	2.39759
	92 20 57.97	76 56 28	256 56 21	Rabbit	185.4	2.26803
Hub Z	48 13 49.95	57 03 59	237 03 55	Fly	147.9	2.16996
	92 20 55.87	116 59 46	296 59 38	Rabbit	251.4	2.40035
		164 26 35	344 26 34	High	161.9	2.20933
Blaze	48 13 55.48	23 41 56	203 41 53	Hub Z	186.7	2.27105
	92 20 52.23	82 49 14	262 49 10	High	119.4	2.07696
Joe	48 13 51.61	68 39 04	248 38 59	Hub Z	140.6	2.14788
	92 20 49.52	121 00 58	301 00 52	High	203.4	2.30842
		154 58 38	334 58 36	Blaze	132.1	2.12106
Ref. Mon. 445	48 13 53.94	119 36 09	299 36 07	High	66.5	1.82283
	92 20 55.17	231 45 51	51 45 53	Blaze	77.2	1.88756
Ref. Mon. 446	48 13 52.83	121 02 41	301 02 37	High	130.3	2.11486
	92 20 52.56	184 45 33	4 45 33	Blaze	82.4	1.91587
Cat	48 13 57.07	44 20 07	224 20 01	Joe	235.9	2.37275
	92 20 41.53	77 29 13	257 29 05	Blaze	226.1	2.35436
Lynx	48 13 54.09	69 57 04	249 56 56	Joe	223.5	2.34930
	92 20 39.35	99 12 46	279 12 36	Blaze	269.3	2.43029
		153 54 50	333 54 48	Cat	102.6	2.01098
Point	48 13 57.76	54 07 45	234 07 39	Lynx	193.7	2.28706
	92 20 31.74	83 57 46	263 57 38	Cat	203.2	2.30783
Bay	48 13 54.92	83 52 55	263 52 46	Lynx	240.4	2.38087
	92 20 27.77	103 10 27	283 10 17	Cat	291.8	2.46503
		136 57 26	316 57 23	Point	120.2	2.07998
Ref. Mon. 447	48 13 55.75	274 59 13	94 59 24	Bay	297.1	2.47292
	92 20 42.11	312 04 35	132 04 38	Lynx	76.8	1.88530
Ref. Mon. 448	48 13 54.65	189 08	9 08	Bay	8.44	0.92634
	92 20 27.83					
Straw	48 14 00.79	37 35 16	217 35 13	Point	118.0	2.07205
	92 20 28.25	356 49 44	176 49 44	Bay	181.7	2.25931
Hay	48 13 58.91	30 13 04	210 13 01	Bay	143.0	2.15521
	92 20 24.28	76 57 34	256 57 28	Point	158.1	2.19888
		125 12 49	305 12 46	Straw	100.4	2.00157
Ref. Mon. 449	48 14 02.81	23 35 42	203 35 41	Straw	68.1	1.83308
	92 20 26.93	335 31 34	155 31 36	Hay	132.1	2.12103
Gorge	48 14 06.33	18 46 59	198 46 56	Hay	241.9	2.38358
	92 20 20.51	43 03 18	223 03 12	Straw	234.2	2.36954

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Knoll	48 14 02.07	51 22 29	231 22 25	Hay	156.2	2.19377
	92 20 18.37	79 00 12	259 00 05	Straw	207.9	2.31779
		161 25 30	341 25 29	Gorge	138.7	2.14203
Ref. Mon. 450	48 14 02.70	69 46 26	249 46 20	Straw	170.7	2.23225
	92 20 20.49	179 50 35	359 50 35	Gorge	112.1	2.04959
Ref. Mon. 453	48 14 06.94	14 16 05	194 16 04	Knoll	155.3	2.19109
	92 20 16.51	77 00 32	257 00 29	Gorge	84.6	1.92742
Ref. Mon. 451	48 14 05.47	244 13 05	64 13 08	Ref. Mon. 453	104.8	2.02052
	92 20 21.09	331 50 35	151 50 37	Knoll	119.0	2.07541
Ref. Mon. 452	48 14 05.07	50 58 18	230 58 12	Straw	209.8	2.32179
	92 20 20.36	175 27 05	355 27 05	Gorge	39.1	1.59248
Ref. Mon. 455	48 14 07.07	34 38 31	214 38 27	Knoll	187.5	2.27303
	92 20 13.20	81 23 48	261 23 43	Gorge	152.5	2.18322
		86 49 28	266 49 26	Ref. Mon. 453	68.4	1.83522
Ref Mon. 454	48 14 05.88	155 28 14	335 28 13	Ref. Mon. 453	36.2	1.55874
	92 20 15.78	235 25 36	55 25 38	Ref. Mon. 455	64.7	1.81104
Ref. Mon. 457	48 14 08.28	33 03	213 03	Ref. Mon. 455	44.60	1.64933
	92 20 12.02					
Green	48 14 06.07	70 26 25	250 26 12	Knoll	368.6	2.56654
	92 20 01.54	91 10 48	271 10 34	Gorge	391.6	2.59281
Spring	48 14 01.48	92 58 01	272 57 48	Knoll	352.2	2.54675
	92 20 01.32	110 42 49	290 42 35	Gorge	423.2	2.62656
		178 13 53	358 13 53	Green	141.7	2.15136
Ref. Mon. 456	48 14 01.69	178 13 53	358 13 53	Green	135.3	2.13120
	92 20 01.33	358 14	178 14	Spring	6.43	0.80821
Ref. Mon. 458	48 14 06.05	111 53	291 53	Green	1.37	0.13672
	92 20 01.47					
Crate	48 14 08.11	47 12 27	227 12 19	Spring	301.2	2.47886
	92 19 50.61	74 23 07	254 22 59	Green	234.0	2.36928
Bed	48 14 05.14	68 09 13	248 09 03	Spring	304.0	2.48287
	92 19 47.65	95 40 51	275 40 41	Green	287.9	2.45932
		146 14 58	326 14 56	Crate	110.0	2.04156
Ref. Mon 459	48 14 07.23	146 18	326 18	Crate	32.49	1.51175
	92 19 49.74					
Ref. Mon. 460 ecc	48 14 05.34	31 04	211 04	Bed	7.14	0.85370
	92 19 47.47					
Ref. Mon. 460	48 14 05.54	310 31	130 31	Ref. Mon. 460 ecc	9.35	0.97081
	92 19 47.81					
Hazel	48 14 12.87	34 05 22	214 05 16	Bed	288.1	2.45952
	92 19 39.83	56 32 45	236 32 37	Crate	266.8	2.42619
Cook	48 14 09.98	63 29 35	243 29 24	Bed	334.9	2.52494
	92 19 33.13	80 52 21	260 52 08	Crate	365.5	2.56285
		122 48 12	302 48 07	Hazel	164.5	2.21607
Ref. Mon. 468	48 14 12.04	39 53 14	219 53 12	Cook	82.7	1.91760
	92 19 30.55	97 37 55	277 37 48	Hazel	193.0	2.28554
Dam	48 14 14.49	7 39 11	187 39 10	Cook	140.6	2.14786
	92 19 32.22	72 15 40	252 15 34	Hazel	164.8	2.21694
		335 38 53	155 38 54	Ref. Mon. 468	83.2	1.92036
Reed	48 14 11.58	73 59 26	253 59 19	Cook	178.5	2.25164
	92 19 24.81	96 50 59	276 50 55	Ref. Mon. 468	119.4	2.07695
		120 30 39	300 30 33	Dam	177.4	2.24901
Ref. Mon. 462	48 14 08.59	54 24 40	234 24 35	Bed	183.1	2.26263
	92 19 40.43	85 54 10	265 54 02	Crate	210.5	2.32336
Ref. Mon. 461	48 14 09.64	36 53 00	216 52 56	Bed	173.5	2.23937
	92 19 42.60	305 47 50	125 47 52	Ref. Mon. 462	55.1	1.74150
Ref. Mon. 463	48 14 11.63	13 10 32	193 10 31	Ref. Mon. 462	96.3	1.98373
	92 19 39.37	40 27 21	220 27 15	Bed	263.3	2.42042
		291 31 53	111 31 58	Cook	138.5	2.14158
Ref. Mon. 464	48 14 11.25	26 46 26	206 46 25	Ref. Mon. 462	91.9	1.96343
	92 19 38.43	59 57 32	239 57 29	Ref. Mon. 461	99.5	1.99783
		121 03 55	301 03 54	Ref. Mon. 463	22.7	1.35623
Ref. Mon. 465	48 14 13.09	84 45 01	264 44 58	Hazel	76.2	1.88222
	92 19 36.15	327 02 01	147 02 03	Cook	114.5	2.05885
Ref. Mon. 466	48 14 11.73	127 58 43	307 58 41	Ref. Mon. 465	68.3	1.83437
	92 19 33.54	261 17 42	81 17 44	Ref. Mon. 468	62.2	1.79408
		351 05 00	171 05 00	Cook	54.7	1.73808
Ref. Mon. 467	48 14 14.01	34 33 48	214 33 46	Ref. Mon. 466	85.5	1.93222
	92 19 31.18	347 58 59	167 58 59	Ref. Mon. 468	62.4	1.75917

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Cloud	48 14 19.20	40 56 46	220 56 39	Reed	311.8	2.49387
	92 19 14.91	67 50 49	247 50 36	Dam	385.7	2.58620
Ref. Mon. 470	48 14 16.28	65 00 36	245 00 25	Reed	344.2	2.53685
	92 19 09.69	83 12 41	263 12 24	Dam	468.1	2.67037
		129 55 06	309 55 02	Cloud	140.4	2.14730
Otter	48 14 24.62	36 41 38	216 41 31	Ref. Mon. 470	321.2	2.50679
	92 19 00.39	60 47 41	240 47 30	Cloud	343.2	2.53558
Beaver	48 14 20.56	68 22 07	248 21 55	Ref. Mon. 470	357.9	2.55379
	92 18 53.57	84 34 14	264 33 58	Cloud	442.4	2.64578
		131 44 33	311 44 28	Otter	188.7	2.27570
Rock	48 14 32.73	23 38 30	203 38 26	Otter	273.3	2.43671
	92 18 55.08	355 15 46	175 15 47	Beaver	377.3	2.57669
Cedar	48 14 24.08	51 32 27	231 32 22	Beaver	174.9	2.24279
	92 18 46.93	93 28 07	273 27 57	Otter	278.2	2.44442
		147 49 38	327 49 32	Rock	315.7	2.49929
Birch	48 14 32.54	24 33 39	204 33 35	Cedar	287.4	2.45843
	92 18 41.14	91 10 12	271 10 02	Rock	287.6	2.45880
Rose	48 14 25.35	75 46 03	255 45 58	Cedar	159.3	2.20217
	92 18 39.45	125 16 09	305 15 57	Rock	395.0	2.59659
		171 03 43	351 03 42	Birch	224.9	2.35205
Ref. Mon. 469	48 14 25.62	241 19 40	61 19 54	Birch	445.5	2.64890
	92 19 00.09	271 07 58	91 08 13	Rose	426.0	2.62937
Ref. Mon. 471	48 14 32.93	305 15 57	125 16 09	Rose	405.5	2.60799
	92 18 55.49	305 16	125 16	Rock	10.51	1.02160
Ref. Mon. 472	48 14 25.22	227 19	47 19	Rose	5.63	0.75051
	92 18 39.65					
Ref. Mon. 473	48 14 32.46	47 19 00	227 18 51	Ref. Mon. 472	329.6	2.51800
	92 18 27.90	47 19 00	227 18 51	Rose	324.0	2.51052
		90 32 13	270 32 03	Birch	273.1	2.43634
Lost	48 14 24.09	96 10 04	276 09 51	Rose	362.2	2.55898
	92 18 21.99	123 27 47	303 27 33	Birch	473.6	2.67537
		154 44 47	334 44 43	Ref. Mon. 473	285.9	2.45618
Ref. Mon. 474	48 14 24.09	276 10	96 10	Lost	2.31	0.36361
	92 18 22.10					
Lock	48 14 35.13	56 15 31	236 15 13	Lost	614.3	2.78835
	92 17 57.24	82 33 38	262 33 15	Ref. Mon. 473	638.1	2.80489
Bert	48 14 28.90	71 44 19	251 44 02	Lost	474.2	2.67593
	92 18 00.17	100 52 47	280 52 26	Ref. Mon. 473	582.7	2.76545
		197 26 21	17 26 23	Lock	201.9	2.30512
Jeff	48 14 37.69	50 14 50	230 14 38	Bert	424.5	2.62785
	92 17 44.35	73 28 52	253 28 42	Lock	277.3	2.44290
Mutt	48 14 30.10	83 36 05	263 35 53	Bert	332.5	2.52180
	92 17 44.16	119 57 17	299 57 07	Lock	311.5	2.49350
		179 00 03	359 00 03	Jeff	234.4	2.37000
Wart	48 14 40.92	55 18 26	235 18 08	Mutt	587.6	2.76907
	92 17 20.74	78 23 42	258 23 24	Jeff	497.4	2.69667
Pop	48 14 30.85	88 23 07	268 22 37	Mutt	823.5	2.91565
	92 17 04.26	104 19 18	284 18 48	Jeff	853.7	2.93132
		132 28 03	312 27 51	Wart	460.9	2.66363
Jerry	48 14 37.07	73 41 42	253 41 18	Pop	683.8	2.83490
	92 16 32.45	96 49 39	276 49 03	Wart	1,003.3	3.00145
Seven	48 14 59.12	6 27 57	186 27 54	Jerry	685.7	2.83612
	92 16 28.71	40 01 38	220 01 11	Pop	1,140.4	3.05707
		62 21 52	242 21 13	Wart	1,211.7	3.08339
Ref. Mon 476	48 14 28.86	240 50 17	60 51 18	Seven	1,918.6	3.28299
	92 17 49.93	260 59 10	81 00 08	Jerry	1,618.4	3.20909
Ref. Mon. 475	48 14 37.98	21 51 26	201 51 22	Ref. Mon. 476	303.2	2.48181
	92 17 44.45	271 04 36	91 05 30	Jerry	1,485.8	3.17196
Ref. Mon. 477	48 14 59.12	144 49	324 49	Seven	0.21	9.32911–10
	92 16 28.71					
Ref. Mon. 478	48 14 34.05	98 30 25	278 30 02	Jerry	630.2	2.79946
	92 16 02.25	144 49 14	324 48 54	Seven	947.6	2.97663
		144 49 14	324 48 54	Ref. Mon. 477	947.4	2.97654
Chip	48 15 05.82	5 17 39	185 17 36	Ref. Mon. 478	985.6	2.99372
	92 15 57.84	38 48 08	218 47 42	Jerry	1,139.7	3.05680
		72 00 17	251 59 54	Seven	669.6	2.82585
Ref. Mon. 479	48 15 05.87	296 00	116 00	Chip	3.10	0.49136
	92 15 57.97					

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Titan	48 15 18.31	295 59 14	115 59 43	Chip	880.5	2.94471
	92 16 36.21	295 59 14	115 59 43	Ref. Mon. 479	877.4	2.94318
		345 23 03	165 23 09	Seven	612.6	2.78717
Ref. Mon. 481	48 15 18.38	355 44	175 44	Titan	2.13	0.32838
	92 16 36.21					
Grass	48 15 19.51	28 14 05	208 13 53	Seven	714.8	2.85416
	92 16 12.32	85 42 42	265 42 24	Titan	494.1	2.69378
		324 45 24	144 45 35	Chip	517.7	2.71408
Simp	48 15 33.27	308 52 03	128 52 22	Grass	677.1	2.83065
	92 16 37.88	355 43 34	175 43 35	Titan	463.2	2.66574
Ref. Mon. 480	48 15 40.37	21 19 36	201 19 26	Titan	731.3	2.86409
	92 16 23.31	53 52 12	233 52 01	Simp	372.0	2.57054
		340 36 49	160 36 57	Grass	683.0	2.83441
Bird	48 15 35.77	258 19 11	78 19 36	Ref. Mon. 480	701.6	2.84608
	92 16 56.62	281 18 42	101 18 56	Simp	394.3	2.59581
Ref. Mon. 483	48 15 35.80	78 19	258 19	Bird	4.11	0.61384
	92 16 56.43	258 19 11	78 19 36	Ref. Mon. 480	697.5	2.84353
Ref. Mon. 482	48 15 44.13	26 33 42	206 33 37	Bird	288.5	2.46022
	92 16 50.37	281 45 03	101 45 23	Ref. Mon. 480	570.0	2.75585
		322 28 43	142 28 52	Simp	422.9	2.62628
Ref. Mon. 484	48 15 58.82	311 14 42	131 15 01	Ref. Mon. 482	688.3	2.83778
	92 17 15.46	331 22 33	151 22 47	Bird	811.0	2.90903
Ref. Mon. 485	48 15 51.32	233 31 25	53 31 36	Ref. Mon. 484	389.6	2.59064
	92 17 30.65	284 58 06	104 58 36	Ref. Mon. 482	860.0	2.93451
		304 22 56	124 23 21	Bird	350.4	2.92964
Lee	48 16 02.95	285 51 15	105 51 31	Ref. Mon. 484	467.3	2.66961
	92 17 37.26	339 13 54	159 13 59	Ref. Mon. 485	384.3	2.58463
Wasp	48 16 05.13	24 26 00	204 25 53	Ref. Mon. 485	468.5	2.67070
	92 17 21.26	78 29 07	258 28 55	Lee	336.8	2.52737
		328 29 11	148 29 15	Ref. Mon. 484	228.6	2.35916
Jay	48 16 12.55	292 58 43	112 59 03	Wasp	587.0	2.76865
	92 17 47.46	324 37 48	144 37 56	Lee	363.5	2.56053
Ref. Mon. 486	48 16 21.57	12 27 45	192 27 41	Lee	588.8	2.76998
	92 17 31.10	50 28 08	230 27 56	Jay	437.5	2.64103
		338 12 40	158 12 48	Wasp	546.8	2.73780
Ref. Mon. 497	48 16 41.72	324 11 24	144 11 40	Ref. Mon. 486	767.7	2.88520
	92 17 52.88	352 55 54	172 55 58	Jay	908.0	2.95809
Ref. Mon. 496	48 16 48.52	10 31 56	190 31 49	Jay	1,130.1	3.05313
	92 17 37.44	56 35 05	236 34 53	Ref. Mon. 497	381.3	2.58126
		351 03 57	171 04 01	Ref. Mon. 486	842.8	2.92573
Ref. Mon. 487	48 16 12.58	50 28	230 28	Jay	1.52	0.18184
	92 17 47.40	230 27 56	50 28 08	Ref. Mon. 486	436.0	2.63952
Ref. Mon. 488	48 16 32.47	28 11 31	208 11 19	Jay	698.1	2.84390
	92 17 31.47	358 41 34	178 41 34	Ref. Mon. 486	336.9	2.52744
Ref. Mon. 489	48 16 35.37	301 30 47	121 30 52	Ref. Mon. 488	171.4	2.23408
	92 17 38.56	340 09 37	160 09 42	Ref. Mon. 486	453.3	2.65636
Ref. Mon. 490	48 16 37.39	311 07 10	131 07 16	Ref. Mon. 488	321.2	2.36406
	92 17 39.92	335 48 46	155 48 47	Ref. Mon. 489	68.5	1.83557
Ref. Mon. 491	48 16 34.44	204 26 33	24 26 34	Ref. Mon. 490	100.2	2.00097
	92 17 41.93	247 31 07	67 31 09	Ref. Mon. 489	75.2	1.87649
Ref. Mon. 492	48 16 38.99	307 33 42	127 33 44	Ref. Mon. 490	80.7	1.90668
	92 17 43.02	350 54 26	170 54 27	Ref. Mon. 491	142.2	2.15291
Ref. Mon. 493	48 16 37.44	206 23 08	26 23 09	Ref. Mon. 492	53.4	1.72754
	92 17 44.17	270 52 25	90 52 28	Ref. Mon. 490	87.7	1.94292
		333 28 37	153 28 39	Ref. Mon. 491	103.5	2.01481
Ref. Mon. 495	48 16 40.75	99 36 56	279 36 49	Ref. Mon. 497	181.0	2.25757
	92 17 44.23	210 12 26	30 12 31	Ref. Mon. 496	278.0	2.44397
Ref. Mon. 494	48 16 41.32	58 25 15	238 25 14	Ref. Mon. 495	33.9	1.52976
	92 17 42.83	93 26 58	273 26 51	Ref. Mon. 497	207.6	2.31731
Ref. Mon. 498	48 17 01.68	303 02 37	123 02 59	Ref. Mon. 496	745.3	2.87235
	92 18 07.75	333 33 33	153 33 44	Ref. Mon. 497	688.4	2.83786
Ref. Mon. 500	48 17 08.46	3 22 46	183 22 44	Ref. Mon. 497	827.3	2.91764
	92 17 50.52	59 29 11	239 28 58	Ref. Mon. 498	412.4	2.61530
		336 21 57	156 22 07	Ref. Mon. 496	672.2	2.82751
		349 17 37	169 17 43	Ref. Mon. 494	853.2	2.93103
Ref. Mon. 499	48 17 28.49	179 14 01	359 13 58	Center II	6,213.4	3.79333
	92 18 19.46	316 01 50	136 02 12	Ref. Mon. 500	859.6	2.93428
		343 44 20	163 44 29	Ref. Mon. 498	862.6	2.93579

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Norway	48 17 34.53	7 17 06	187 17 03	Ref. Mon. 500	811.9	2.90948
	92 17 45.52	24 18 13	204 17 56	Ref. Mon. 498	1,113.3	3.04663
		75 04 03	255 03 38	Ref. Mon. 499	724.1	2.85980
Point	48 17 50.96	302 39 43	122 40 12	Norway	939.9	2.97310
	92 18 23.91	352 28 25	172 28 28	Ref. Mon. 499	700.0	2.84509
Deer	48 18 18.49	18 19 35	198 19 18	Norway	1,430.3	3.15544
	92 17 23.70	36 39 34	216 38 52	Ref. Mon. 499	1,925.1	3.28446
		55 34 44	235 33 59	Point	1,504.3	3.17735
		165 13 32	345 12 48	Center II	4,828.2	3.68378
Ref. Mon. 502	48 18 18.47	111 38	291 38	Deer	1.82	0.26007
	92 17 23.62					
Ref. Mon. 501	48 18 27.41	14 00 22	194 00 06	Ref. Mon. 499	1,875.8	3.27318
	92 17 57.44	25 51 06	205 50 46	Point	1,251.3	3.09735
		291 37 09	111 37 34	Ref. Mon. 502	749.7	2.87486
		291 37 09	111 37 34	Deer	747.8	2.87381
		351 26 49	171 26 58	Norway	1,652.8	3.21795
Cliff	48 17 19.13	107 24 10	287 23 37	Ref. Mon. 499	967.0	2.98545
	92 17 34.70	112 12 33	292 08 14	Vermilion	7,711.3	3.88713
		167 28 23	347 28 06	Ref. Mon. 501	2,160.6	3.33458
		171 12 53	351 12 17	Center II	6,579.3	3.81818
		187 02 38	7 02 47	Deer	1,847.6	3.26660
Peak	48 18 26.65	24 51 21	204 51 17	Deer	277.6	2.44338
	92 17 18.04	91 40 36	271 40 07	Ref. Mon. 501	812.2	2.90967
Island	48 18 35.65	52 26 27	232 26 15	Ref. Mon. 501	417.1	2.62019
	92 17 41.40	300 00 23	120 00 40	Peak	555.7	2.74488
		325 27 52	145 28 05	Deer	643.1	2.80830
Ref. Mon. 503	48 18 39.87	283 03 44	103 04 04	Island	576.6	2.76090
	92 18 08.66	328 59 40	148 59 48	Ref. Mon. 501	448.7	2.65195
Ref. Mon. 504	48 18 47.86	38 05 28	218 05 21	Ref. Mon. 503	313.8	2.49670
	92 17 59.26	315 42 37	135 42 50	Island	527.2	2.72194
		356 36 05	176 36 06	Ref. Mon. 501	632.7	2.80120
Ref. Mon. 505	48 18 57.16	295 54 50	115 55 16	Ref. Mon. 504	657.2	2.81770
	92 18 27.95	323 20 47	143 21 01	Ref. Mon. 503	665.9	2.82341
Main	48 19 02.36	0 12 39	180 12 39	Ref. Mon. 503	694.7	2.84177
	92 18 08.53	68 09 05	248 08 51	Ref. Mon. 505	431.0	2.63449
		336 53 18	156 53 25	Ref. Mon. 504	486.7	2.68728
Ref. Mon. 506	48 19 02.21	68 09 05	248 08 51	Ref. Mon. 505	418.6	2.62178
	92 18 09.09	248 09	68 09	Main	12.43	1.09447
Ref. Mon. 507	48 19 15.59	304 38 49	124 39 10	Main	719.1	2.86579
	92 18 37.25	341 24 09	161 24 16	Ref. Mon. 505	600.6	2.77861
Ref. Mon. 508	48 19 15.36	29 11 04	209 10 56	Main	460.0	2.66274
	92 17 57.65	48 00 35	228 00 13	Ref. Mon. 505	840.0	2.92429
		90 30 50	270 30 21	Ref. Mon. 507	815.9	2.91161
Channel	48 19 29.63	11 42 29	191 42 22	Main	860.4	2.93472
	92 18 00.06	60 29 23	240 28 55	Ref. Mon. 507	880.3	2.94465
		353 34 13	173 34 15	Ref. Mon. 508	443.7	2.64713
Ref. Mon. 509	48 19 32.39	7 26 04	187 26 01	Ref. Mon. 508	530.5	2.72466
	92 17 54.31	54 17 23	234 17 19	Channel	145.7	2.16351
Ref. Mon. 510	48 19 31.51	48 21 00	228 20 40	Ref. Mon. 508	750.9	2.87558
	92 17 30.41	84 34 05	264 33 43	Channel	613.5	2.78780
		93 08 06	273 07 48	Ref. Mon. 509	493.1	2.69297
Sand	48 18 54.57	16 17 48	196 17 39	Ref. Mon. 501	873.8	2.94141
	92 17 45.54	338 00 26	158 00 43	Deer	1,201.7	3.07980
Bar	48 18 52.90	29 46 01	209 45 45	Ref. Mon. 501	906.9	2.95758
	92 17 35.59	104 04 26	284 04 18	Sand	211.4	2.32508
		347 01 22	167 01 31	Deer	1,090.7	3.03771
Short	48 19 03.96	9 26 57	189 26 55	Sand	294.0	2.46830
	92 17 43.20	197 11 47	17 11 57	Ref. Mon. 510	891.0	2.94989
		335 19 55	155 20 00	Bar	375.7	2.57479
Cut	48 19 09.92	9 08 55	189 08 52	Bar	532.5	2.72629
	92 17 31.48	31 25 05	211 24 54	Sand	555.8	2.74489
		52 38 34	232 38 25	Short	303.7	2.48250
		107 17 43	287 17 24	Ref. Mon. 508	564.6	2.75172
		145 51 58	325 51 41	Ref. Mon. 509	838.2	2.92337
		181 53 33	1 53 34	Ref. Mon. 510	667.2	2.82428
Frame	48 19 41.89	23 01 13	203 01 09	Ref. Mon. 509	318.9	2.50370
	92 17 48.26	311 04 33	131 04 46	Ref. Mon. 510	487.7	2.68819
Rough	48 19 41.67	57 33 09	237 32 52	Ref. Mon. 509	534.2	2.72774
	92 17 32.43	91 12 38	271 12 26	Frame	326.2	2.51345
		352 27 04	172 27 05	Ref. Mon. 510	316.3	2.50016
Ref. Mon. 511	48 20 06.32	14 53 23	194 53 16	Frame	780.9	2.89257
	92 17 38.52	350 38 42	170 38 47	Rough	771.8	2.88750

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 512	48 20 07.05	18 22 06	198 21 57	Rough	826.1	2.91706
	92 17 19.79	37 02 18	217 01 57	Frame	973.6	2.98837
		86 39 29	266 39 15	Ref. Mon. 511	386.4	2.58703
Ref. Mon. 513	48 20 36.02	9 45 47	189 45 41	Ref. Mon. 511	930.9	2.96892
	92 17 30.85	217 54 55	37 56 27	Burnt	4,121.9	3.61509
		316 14 00	136 15 26	La Croix	3,430.3	3.53533
		345 42 52	165 43 00	Ref. Mon. 512	923.5	2.96542
Ref. Mon. 514	48 20 32.97	16 41 50	196 41 41	Ref. Mon. 512	835.8	2.92211
	92 17 08.13	37 14 58	217 14 36	Ref. Mon. 511	1,034.0	3.01452
		101 24 06	281 23 49	Ref. Mon. 513	477.4	2.67884
		211 41 01	31 42 16	Burnt	3,932.0	3.59461
		321 21 59	141 23 08	La Croix	3,050.6	3.48439
Race	48 21 06.12	14 46 34	194 46 24	Ref. Mon. 514	1,058.9	3.02484
	92 16 55.01	38 26 59	218 26 32	Ref. Mon. 513	1,186.8	3.07438
Stage	48 20 42.10	56 19 00	236 18 44	Ref. Mon. 514	508.5	2.70631
	92 16 47.58	78 06 34	258 06 02	Ref. Mon. 513	910.6	2.95934
		168 20 27	348 20 21	Race	757.4	2.87934
Trunk	48 21 23.63	30 42 06	210 41 38	Stage	1,491.8	3.17371
	92 16 10.59	59 24 07	239 23 34	Race	1,062.6	3.02636
Ref. Mon. 516	48 20 49.58	65 52 54	245 52 35	Stage	565.5	2.75244
	92 16 22.51	73 26 00	253 25 09	Ref. Mon. 513	1,468.2	3.16678
		90 02 52	270 01 22	Center II	2,491.2	3.39640
		127 21 14	307 20 50	Race	841.8	2.92520
		193 08 18	13 08 27	Trunk	1,079.9	3.03339
		201 41 11	21 41 52	Burnt	3,048.3	3.48406
Ref. Mon. 515	48 21 23.61	13 08 27	193 08 18	Ref. Mon. 516	1,079.2	3.03309
	92 16 10.60	193 08	13 08	Trunk	0.76	9.88081–10
Ref. Mon. 518	48 21 01.86	73 41 19	253 40 32	Ref. Mon. 516	1,349.3	3.13011
	92 15 19.62	84 19 26	264 17 08	Center 2	3,804.8	3.58033
		93 50 35	273 49 23	Race	1,968.4	3.29412
		122 39 40	302 39 02	Trunk	1,246.4	3.09565
		176 05 04	356 04 58	Burnt	2,459.1	3.39077
Ref. Mon. 517	48 21 24.35	18 17 21	198 17 13	Ref. Mon. 518	731.8	2.86442
	92 15 08.47	54 50 38	234 49 43	Ref. Mon. 516	1,864.8	3.27064
		75 36 33	255 35 14	Race	2,264.7	3.35502
		89 00 20	268 59 33	Trunk	1,279.1	3.10691
Center	48 21 12.44	75 05 10	255 04 26	Ref. Mon. 518	1,269.5	3.10363
	92 14 20.04	110 15 57	290 15 21	Ref. Mon. 517	1,062.7	3.02642
Storm	48 21 18.58	72 23 25	252 23 03	Center	627.0	2.79725
	92 13 51.01	96 23 20	276 22 22	Ref. Mon. 517	1,604.4	3.20532
Ref. Mon. 519	48 21 18.72	341 00	161 00	Storm	4.63	0.66558
	92 13 51.09					
Nest	48 20 53.72	96 52 16	276 51 00	Ref. Mon. 518	2,103.8	3.32301
	92 13 38.17	116 59 04	296 57 57	Ref. Mon. 517	2,085.9	3.31930
		123 51 20	303 50 48	Center	1,037.9	3.01616
		161 00 15	341 00 05	Ref. Mon. 519	816.7	2.91208
		161 00 15	341 00 05	Storm	812.1	2.90961
Ref. Mon. 520	48 20 53.79	96 52 15	276 51 00	Ref. Mon. 518	2,086.8	3.31948
	92 13 38.99	276 52	96 52	Nest	17.03	1.23122
Pony	48 21 13.76	57 42 16	237 41 40	Nest	1,158.1	3.06373
	92 12 50.63	96 50 36	276 49 50	Storm	1,252.0	3.09762
Chop	48 21 01.93	77 39 00	257 38 18	Nest	1,184.7	3.07361
	92 12 41.97	109 53 57	289 53 05	Storm	1,511.7	3.17947
		153 58 38	333 58 32	Pony	406.5	2.60910
Ref. Mon. 533	48 21 16.54	62 41 03	242 40 31	Chop	983.2	2.99265
	92 11 59.54	85 20 03	265 19 25	Pony	1,055.4	3.02341
Bunch	48 21 00.35	92 46 35	272 45 58	Chop	1,011.7	3.00505
	92 11 52.89	109 12 58	289 12 15	Pony	1,258.9	3.10000
		164 41 30	344 41 25	Ref. Mon. 533	518.6	2.71481
Drill	48 21 37.43	34 02 22	214 01 54	Bunch	1,382.2	3.14059
	92 11 15.31	54 40 47	234 40 14	Ref. Mon. 533	1,116.0	3.04766
Ref. Mon. 543	48 21 20.51	65 03 17	245 02 28	Bunch	1,476.7	3.16930
	92 10 47.86	85 15 04	265 14 10	Ref. Mon. 533	1,480.8	3.17050
		132 45 29	312 45 08	Drill	769.6	2.88629
Ref. Mon. 545	48 21 38.48	49 26 43	229 26 20	Ref. Mon. 543	853.5	2.93121
	92 10 16.36	88 28 23	268 27 39	Drill	1,214.0	3.08420
Ref. Mon. 547	48 21 57.99	39 29 04	219 28 46	Ref. Mon. 545	780.7	2.89249
	92 09 52.24	44 41 24	224 40 42	Ref. Mon. 543	1,628.1	3.21167
		69 38 00	249 36 58	Drill	1,824.0	3.26102
Brush	48 21 40.01	68 17 51	248 16 56	Ref. Mon. 543	1,628.2	3.21170
	92 09 34.38	86 52 15	266 51 44	Ref. Mon. 545	865.5	2.93725
		87 48 41	267 47 25	Drill	2,079.2	3.31790
		146 29 14	326 29 01	Ref. Mon. 547	666.0	2.82347

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 521	48 20 58.30	72 51 54	252 51 37	Nest	479.6	2.68089
	92 13 15.91	130 55 46	310 55 20	Storm	956.4	2.98066
Ref. Mon. 522	48 20 52.78	94 20 17	274 20 03	Nest	383.5	2.58381
	92 13 19.60	140 56 20	320 55 57	Storm	1,026.3	3.01128
		204 00 51	24 00 54	Ref. Mon. 521	186.5	2.27059
Ref. Mon. 523	48 20 46.85	119 16 33	299 16 21	Ref. Mon. 522	374.9	2.57392
	92 13 03.72	144 37 18	324 37 09	Ref. Mon. 521	433.7	2.63723
Ref. Mon. 524	48 20 46.65	123 58 04	303 57 53	Ref. Mon. 522	338.9	2.53014
	92 13 05.95	150 17 38	330 17 31	Ref. Mon. 521	414.1	2.61713
		262 29 37	82 29 39	Ref. Mon. 523	46.3	1.66565
Ref. Mon. 525	48 20 44.51	122 53 47	302 53 44	Ref. Mon. 524	121.9	2.08601
	92 13 00.98	142 00 13	322 00 11	Ref. Mon. 523	91.7	1.96232
Ref. Mon. 526	48 20 40.17	158 12 02	338 11 59	Ref. Mon. 524	215.6	2.33369
	92 13 02.06	170 35 42	350 35 41	Ref. Mon. 523	209.1	2.32027
		189 26 31	9 26 31	Ref. Mon. 525	135.8	2.13301
Japheth	48 20 43.72	51 55 51	231 55 46	Ref. Mon. 526	177.8	2.25005
	92 12 55.26	101 40 34	281 40 30	Ref. Mon. 525	120.2	2.07996
Ham	48 20 40.35	87 35 25	267 35 21	Ref. Mon. 526	131.2	2.11812
	92 12 55.69	139 43 34	319 43 30	Ref. Mon. 525	168.4	2.22631
		184 52 13	4 52 14	Japheth	104.5	2.01921
Ref. Mon. 527	48 20 52.32	49 58 50	229 58 34	Ham	574.9	2.75959
	92 12 34.31	58 23 08	238 22 53	Japheth	506.6	2.70464
Ref. Mon. 528	48 20 42.13	79 43 35	259 43 24	Ham	308.0	2.48853
	92 12 40.97	99 29 53	279 29 42	Japheth	298.2	2.47459
		203 33 13	23 33 18	Ref. Mon. 527	343.4	2.53577
Ref Mon 529	48 20 43.64	82 27 46	262 27 33	Ref. Mon. 528	357.0	2.55263
	92 12 23.79	141 02 29	321 02 22	Ref. Mon. 527	344.5	2.53727
Ref. Mon. 531	48 20 56.17	29 02 32	209 02 23	Ref. Mon. 528	496.0	2.69550
	92 12 29.28	41 03 35	221 03 32	Ref. Mon. 527	157.7	2.19774
		260 13 23	80 13 50	Bunch	760.2	2.88095
		343 42 11	163 42 15	Ref. Mon. 529	403.0	2.60531
Ref. Mon. 530	48 20 53.00	4 19 25	184 19 24	Ref. Mon. 529	289.8	2.46206
	92 12 22.73	84 57 56	264 57 47	Ref. Mon. 527	239.4	2.37916
		125 57 22	305 57 17	Ref. Mon. 531	166.7	2.22190
		249 43 21	69 43 43	Bunch	654.9	2.81615
Ref. Mon. 535	48 21 05.90	42 08 19	222 08 13	Bunch	231.6	2.36472
	92 11 45.34	62 37 17	242 36 49	Ref. Mon. 530	866.8	2.93791
		71 36 43	251 36 10	Ref. Mon. 531	953.3	2.97922
Ref. Mon. 532	48 21 00.28	222 08	42 08	Bunch	2.80	0.44716
	92 11 52.98	222 08 14	42 08 19	Ref. Mon. 535	234.4	2.36996
Ref. Mon. 537	42 20 57.92	99 54 39	279 54 23	Bunch	435.7	2.63920
	92 11 32.04	132 01 09	312 00 59	Ref. Mon. 535	368.6	2.56653
Ref. Mon. 534	48 20 54.19	116 54 51	296 54 37	Bunch	420.2	2.62344
	92 11 34.69	148 47 21	328 47 13	Ref. Mon. 535	423.2	2.62652
		205 20 03	25 20 05	Ref. Mon. 537	127.5	2.10540
Ref. Mon. 538	48 20 59.13	50 28 25	230 28 18	Ref. Mon. 534	239.8	2.37977
	92 11 25.71	74 00 09	254 00 04	Ref. Mon. 537	135.6	2.13238
Ref. Mon. 536	48 20 56.52	74 44 51	254 44 41	Ref. Mon. 534	273.4	2.43672
	92 11 21.89	101 41 38	281 41 30	Ref. Mon. 537	213.6	2.32962
		135 40 37	315 40 34	Ref. Mon. 538	112.8	2.05218
Ref. Mon. 539	48 21 07.10	65 30 50	245 30 24	Ref. Mon. 536	788.4	2.89673
	92 10 47.04	72 49 36	252 49 07	Ref. Mon. 538	833.4	2.92086
Ref. Mon. 540	48 21 04.65	73 10 44	253 10 14	Ref. Mon. 536	868.4	2.93870
	92 10 41.52	79 22 53	259 22 20	Ref. Mon. 538	925.8	2.96654
		123 33 36	303 33 32	Ref. Mon. 539	136.5	2.13511
Ref. Mon. 541	48 21 12.57	12 23 53	192 23 52	Ref. Mon. 539	173.2	2.23848
	92 10 45.23	167 34 49	347 34 47	Ref. Mon. 543	251.2	2.40004
		342 37 09	162 37 12	Ref. Mon. 540	256.3	2.40873
Ref. Mon. 542	48 21 09.66	15 23 57	195 23 56	Ref. Mon. 540	160.4	2.20527
	92 10 39.45	63 07 50	243 07 45	Ref. Mon. 539	175.3	2.24368
		127 02 29	307 02 25	Ref. Mon. 541	149.3	2.17400
		152 40 53	332 40 47	Ref. Mon. 543	377.4	2.57674
Ref. Mon. 544	48 21 23.58	19 30 22	199 30 16	Ref. Mon. 542	456.0	2.65897
	92 10 32.05	38 36 28	218 36 18	Ref. Mon. 541	435.0	2.63846
		73 47 51	253 47 39	Ref. Mon. 543	338.9	2.53006
		215 03 14	35 03 25	Ref. Mon. 545	562.4	2.75006
Ref. Mon. 546	48 21 39.93	212 31	32 31	Brush	2.68	0.42814
	92 09 34.45					
Net	48 21 39.84	90 25 18	270 24 52	Brush	717.8	2.85600
	92 08 59.51	117 18 57	297 18 18	Ref. Mon. 547	1,221.6	3.08694

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 548	48 22 12.10	32 31 45	212 31 22	Ref. Mon. 546	1,178.3	3.07125
	92 09 03.67	32 31 45	212 31 22	Brush	1,175.6	3.07026
		66 26 45	246 26 09	Ref. Mon. 547	1,090.7	3.03770
		355 05 20	175 05 23	Net	1,000.1	3.00005
Isle 26	48 21 39.82	15 10 42	195 10 02	Ely	4,240.1	3.62737
	92 08 16.53	90 02 37	270 02 05	Net	884.7	2.94681
		135 47 06	315 46 31	Ref. Mon. 548	1,391.2	3.14340
		161 39 18	341 38 56	Village	1,913.7	3.28187
Camp 2	48 22 11.33	13 24 08	193 24 00	Isle 26	1,000.3	3.00014
	92 08 05.27	48 56 58	228 56 17	Net	1,480.6	3.17045
		91 08 55	271 08 11	Ref. Mon. 548	1,202.2	3.07999
		135 19 02	315 18 32	Village	1,186.2	3.07415
Bluff	48 21 59.92	30 33 23	210 31 42	Ely	5,472.4	3.73818
	92 06 55.37	69 37 18	249 36 17	Isle 26	1,782.3	3.25098
		103 45 50	283 44 58	Camp 2	1,481.2	3.17060
		117 45 26	297 44 04	Village	2,568.0	3.40960
Ref. Mon. 552	48 21 06.42	111 57 38	291 56 05	Isle 26	2,760.8	3.44104
	92 06 12.14	130 44 25	310 43 01	Camp 2	3,072.8	3.48754
		151 42 29	331 41 57	Bluff	1,877.0	3.27347
Ref. Mon. 549	48 21 39.86	69 36	249 36	Isle 26	2.98	0.47422
	92 08 16.39					
Ref. Mon. 550	48 21 10.22	217 17 59	37 18 24	Isle 26	1,149.6	3.06054
	92 08 50.37	237 01 28	57 02 54	Bluff	2,821.7	3.45050
		272 02 55	92 04 53	Ref. Mon. 552	3,259.7	3.51319
Ref. Mon. 551	48 21 47.67	8 24 42	188 24 35	Ref. Mon. 552	1,288.1	3.10993
	92 06 02.99	109 21 12	289 20 33	Bluff	1,142.6	3.05789
Ref. Mon. 553	48 21 23.95	64 17 59	244 17 18	Ref. Mon. 552	1,248.6	3.09643
	92 05 17.50	128 02 21	308 01 47	Ref. Mon. 551	1,189.0	3.07520
Ref. Mon. 554	48 21 08.52	84 54 56	264 54 29	Ref. Mon. 552	732.4	2.86477
	92 05 36.71	134 26 48	314 25 49	Bluff	2,267.8	3.35561
		155 53 49	335 53 29	Ref. Mon. 551	1,324.8	3.12214
		219 41 06	39 41 20	Ref. Mon. 553	619.4	2.79195
Ref. Mon. 555	48 21 19.51	63 35 04	243 34 39	Ref. Mon. 554	763.1	2.88261
	92 05 03.51	115 27 50	295 27 39	Ref. Mon. 553	318.9	2.50362
Ref. Mon. 556	48 21 09.46	87 55 29	267 55 00	Ref. Mon 554	798.4	2.90221
	92 04 57.95	138 03 27	318 03 12	Ref. Mon. 553	601.9	2.77951
		159 46 52	339 46 48	Ref. Mon. 555	331.0	2.51980
Ref. Mon. 557	48 21 40.51	8 21 36	188 21 31	Ref. Mon. 556	969.4	2.98650
	92 04 51.11	21 29 24	201 29 15	Ref. Mon. 555	697.0	2.84320
Ref. Mon. 558	48 21 17.57	66 13 40	246 13 19	Ref. Mon. 556	621.3	2.79331
	92 04 30.34	95 01 57	275 01 32	Ref. Mon. 555	685.6	2.83607
		148 53 36	328 53 20	Ref. Mon. 557	827.6	2.91784
Tepee	48 21 49.38	30 55 37	210 55 16	Ref. Mon. 558	1,145.6	3.05903
	92 04 01.74	74 54 33	254 53 56	Ref. Mon. 557	1,052.6	3.02225
Ref. Mon. 559	48 21 36.63	42 57 37	222 57 17	Ref. Mon. 558	804.4	2.90546
	92 04 03.71	97 00 43	277 00 07	Ref. Mon. 557	983.0	2.99257
		185 52 52	5 52.53	Tepee	396.1	2.59784
Canoe	48 21 47.78	47 26 36	227 26 22	Ref. Mon. 559	509.5	2.70718
	92 03 45.48	98 24 04	278 23 51	Tepee	338.3	2.52936
Ref. Mon. 560	48 21 31.80	138 25 02	318 24 57	Ref. Mon. 559	199.4	2.29973
	92 03 57.28	206 12 02	26 12 11	Canoe	550.3	2.74062
Ref. Mon. 562	48 21 19.86	124 50 48	304 50 21	Ref. Mon. 559	906.5	2.95736
	92 03 27.57	142 21 42	322 21 16	Tepee	1,151.7	3.06133
		156 51 43	336 51 30	Canoe	938.0	2.97220
Bay	48 21 50.40	24 08 12	204 07 57	Ref. Mon. 562	1,033.6	3.01436
	92 03 07.04	69 58 17	249 57 35	Ref. Mon. 559	1,241.7	3.09400
		84 10 36	264 10 08	Canoe	795.3	2.90052
Ref. Mon. 561	48 21 50.43	69 58	249 58	Bay	2.86	0.45637
	92 03 06.91	69 58 17	249 57 35	Ref. Mon. 559	1,244.5	3.09500
Pine	48 21 12.39	102 27 33	282 26 55	Ref. Mon. 562	1,068.9	3.02895
	92 02 36.87	127 44 41	307 43 51	Canoe	1,785.9	3.25185
		152 07 11	332 06 48	Bay	1,328.0	3.12319
Trap	48 20 51.71	140 37 46	320 37 20	Ref. Mon. 562	1,124.7	3.05105
	92 02 52.91	170 53 16	350 53 05	Bay	1,835.9	3.26385
		207 20 14	27 20 26	Pine	719.3	2.85689
Grass	48 20 54.79	81 02 47	261 02 25	Trap	611.8	2.78660
	92 02 23.56	153 15 25	333 15 15	Pine	608.8	2.78448
Ref. Mon. 566	48 20 28.30	182 28 33	2 28 34	Trap	723.6	2.85950
	92 02 54.43	194 52 06	14 52 19	Pine	1,409.1	3.14893
		217 50 22	37 50 46	Grass	1,036.1	3.01539

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Mid	48 20 30.13	81 09 29	261 09 16	Ref. Mon. 566	365.8	2.56322
	92 02 36.88	153 39 25	333 39 13	Trap	744.0	2.87155
		199 47 31	19 47 41	Grass	809.8	2.90837
Ref. Mon. 563	48 20 53.35	24 29 06	204 28 53	Ref. Mon. 566	850.0	2.92940
	92 02 37.33	81 02 37	261 02 25	Trap	324.9	2.51178
Ref. Mon. 564	48 20 51.86	81 02	261 02	Trap	29.80	1.47422
	92 02 51.48					
Ref. Mon. 565	48 20 30.12	81 09 29	261 09 16	Ref. Mon. 566	364.8	2.56203
	92 02 36.93	261 09	81 09	Mid	1.00	0.00000
Ref. Mon. 568	48 19 57.49	163 34 38	343 34 28	Ref. Mon. 566	992.2	2.99661
	92 02 40.81	184 35 22	4 35 25	Mid	1,011.2	3.00484
Ref. Mon. 567	48 20 08.26	34 57 39	214 57 31	Ref. Mon. 568	405.7	2.60817
	92 02 29.52	140 21 58	320 21 40	Ref. Mon. 566	804.1	2.90533
		167 21 32	347 21 27	Mid	692.3	2.84028
Fall	48 19 57.18	91 58 35	271 58 25	Ref. Mon. 568	278.9	2.44550
	92 02 27.27	172 17 25	352 17 23	Ref. Mon. 567	345.2	2.53807
Isle 18	48 20 06.86	33 09 15	213 09 08	Fall	357.1	2.55280
	92 02 17.79	58 36 09	238 35 52	Ref. Mon. 568	555.4	2.74460
		100 07 00	280 06 51	Ref. Mon. 567	245.4	2.38990
Ref. Mon. 570	48 19 56.45	96 46 07	276 46 00	Fall	190.6	2.28010
	92 02 18.08	181 04 34	1 04 34	Isle 18	321.5	2.50717
Ref. Mon. 569	48 20 04.13	33 51 43	213 51 37	Ref. Mon. 570	285.5	2.45560
	92 02 10.36	58 21 49	238 21 36	Fall	409.1	2.61187
		118 52 01	298 51 55	Isle 18	174.7	2.24240
Ref. Mon. 572	48 19 52.97	143 17 52	323 17 49	Ref. Mon. 570	134.2	2.12774
	92 02 14.19	192 53 21	12 53 24	Ref. Mon. 569	353.6	2.54848
Ref. Mon. 571	48 19 54.94	67 17 03	247 16 58	Ref. Mon. 572	157.6	2.19757
	92 02 07.13	101 42 16	281 42 08	Ref. Mon. 570	230.4	2.36243
		166 48 44	346 48 42	Ref. Mon. 569	291.5	2.46463
Ref. Mon. 574	48 19 45.74	190 33 12	10 33 14	Ref. Mon. 572	227.2	2.35636
	92 02 16.21	213 20 33	33 20 40	Ref. Mon. 571	340.2	2.53173
Ref. Mon. 573	48 19 48.32	77 00 59	257 00 46	Ref. Mon. 574	354.4	2.54954
	92 01 59.44	115 19 03	295 18 52	Ref. Mon. 572	336.0	2.52638
		142 15 06	322 15 00	Ref. Mon. 571	258.7	2.41280
Ref. Mon. 576	48 19 30.39	145 01 42	325 01 30	Ref. Mon. 574	578.5	2.76227
	92 02 00.11	181 25 49	1 25 50	Ref. Mon. 573	553.8	2.74337
Ref. Mon. 575	48 19 44.28	23 29 37	203 29 30	Ref. Mon. 576	467.7	2.66999
	92 01 51.06	94 58 23	274 58 04	Ref. Mon. 574	519.9	2.71596
		125 50 40	305 50 34	Ref. Mon. 573	212.9	2.32826
Shade	48 19 26.71	101 14 57	281 14 36	Ref. Mon. 576	584.0	2.76638
	92 01 32.31	144 34 01	324 33 47	Ref. Mon. 575	666.2	2.82363
Ref. Mon. 577	48 19 38.23	49 28 36	229 28 21	Shade	547.9	2.73866
	92 01 12.10	76 15 07	256 14 31	Ref. Mon. 576	1,018.3	3.00790
		103 06 30	283 06 01	Ref. Mon. 575	824.1	2.91600
Ref. Mon. 578	48 19 23.76	103 33 53	283 33 39	Shade	388.5	2.58941
	92 01 13.98	184 57 19	4 57 20	Ref. Mon. 577	448.8	2.65203
Ref. Mon. 580	48 19 20.98	97 46 55	277 46 32	Ref. Mon. 578	634.0	2.80210
	92 00 43.48	132 07 19	312 06 57	Ref. Mon. 577	794.6	2.90014
Camp 3	48 19 27.00	16 34 19	196 34 17	Ref. Mon. 580	194.0	2.28774
	92 00 40.80	81 40 17	261 39 52	Ref. Mon. 578	690.8	2.83934
		118 17 37	298 17 13	Ref. Mon. 577	732.1	2.86460
Ref. Mon. 579	48 19 27.09	16 34	196 34	Camp 3	2.89	0.46090
	92 00 40.76	16 34 19	196 34 17	Ref. Mon. 580	196.9	2.29416
Ref. Mon. 582	48 19 17.37	103 09 27	283 09 10	Ref. Mon. 580	489.3	2.68956
	92 00 20.36	125 13 15	305 13 00	Camp 3	515.5	2.71220
Ranger	48 19 25.16	62 41 20	242 41 11	Ref. Mon. 580	281.4	2.44932
	92 00 31.35	106 15 51	286 15 44	Camp 3	202.8	2.30710
		316 43 26	136 43 34	Ref. Mon. 582	330.3	2.51889
Ref. Mon. 581	48 19 29.03	49 41 04	229 40 49	Ref. Mon. 582	556.4	2.74541
	91 59 59.76	79 35 32	259 35 09	Ranger	661.5	2.82056
Ref. Mon. 584	48 19 06.49	162 58 49	342 58 45	Ref. Mon. 582	351.7	2.54620
	92 00 15.36	204 46 07	24 46 19	Ref. Mon. 581	766.9	2.88474
Ref. Mon. 583	48 19 10.77	74 28 23	254 28 06	Ref. Mon. 584	494.4	2.69406
	91 59 52.24	109 24 00	289 23 39	Ref. Mon. 582	614.1	2.78826
		118 53 11	298 52 42	Ranger	920.1	2.96385
		164 38 05	344 37 59	Ref. Mon. 581	584.9	2.76707
Ref. Mon. 586	48 18 55.35	217 56 23	37 56 33	Ref. Mon. 584	436.2	2.63968
	92 00 28.38	237 23 04	57 23 32	Ref. Mon. 583	883.9	2.94640

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 585	48 18 49.97	109 46 06	289 45 49	Ref. Mon. 586	491.7	2.69169
	92 00 05.92	159 08 08	339 08 01	Ref. Mon. 584	546.1	2.73727
		203 40 47	23 40 57	Ref. Mon. 583	701.7	2.84617
Ref. Mon. 588	48 18 25.84	211 11 42	31 12 02	Ref. Mon. 586	1,065.7	3.02763
	92 00 55.17	233 42 01	53 42 38	Ref. Mon. 585	1,259.1	3.10005
Ref. Mon. 587	48 17 50.00	156 08 54	336 08 36	Ref. Mon. 588	1,210.3	3.08289
	92 00 31.42	181 46 40	1 46 42	Ref. Mon. 586	2,019.4	3.30523
		195 50 10	15 50 29	Ref. Mon. 585	1,925.3	3.28449
Ref. Mon. 589	48 17 52.45	188 33 11	8 33 16	Ref. Mon. 588	1,042.9	3.01824
	92 01 02.69	199 59 50	20 00 15	Ref. Mon. 586	2,067.6	3.31546
		213 21 41	33 22 23	Ref. Mon. 585	2,127.2	3.32782
		276 41 09	96 41 32	Ref. Mon. 587	649.0	2.81228
Dive	48 17 40.13	124 11 14	304 10 54	Ref. Mon. 589	677.1	2.83064
	92 00 35.52	195 30 04	15 30 07	Ref. Mon. 587	316.3	2.50014
Ref. Mon. 590	48 17 22.97	163 51 56	343 51 47	Ref. Mon. 589	947.7	2.97669
	92 00 49.92	204 32 46	24 33 00	Ref. Mon. 587	917.8	2.96273
		209 14 38	29 14 49	Dive	607.4	2.78348
Ref. Mon. 591	48 17 20.69	106 17 40	286 17 31	Ref. Mon. 590	251.5	2.40046
	92 00 38.21	152 46 31	332 46 13	Ref. Mon. 589	1,103.2	3.04265
		185 16 15	5 16 17	Dive	603.1	2.78037
Ref. Mon. 592	48 16 48.96	167 02 32	347 02 23	Ref. Mon. 590	1,078.2	3.03269
	92 00 38.19	179 58 33	359 58 33	Ref. Mon. 591	980.2	2.99130
Ref. Mon. 593	48 16 51.67	80 28 38	260 28 20	Ref. Mon. 592	506.6	2.70470
	92 00 13.95	142 31 23	322 30 56	Ref. Mon. 590	1,218.4	3.08579
		150 50 50	330 50 32	Ref. Mon. 591	1,026.4	3.01130
Isle 9	48 16 37.22	183 52 13	3 52 14	Ref. Mon. 592	363.4	2.56036
	92 00 39.38	229 34 51	49 35 10	Ref. Mon. 593	688.5	2.83791
Pebble	48 16 28.28	117 19 57	297 19 38	Isle 9	601.4	2.77914
	92 00 13.47	141 24 34	321 24 16	Ref. Mon. 592	817.1	2.91228
		179 12 23	359 12 23	Ref. Mon. 593	722.6	2.85887
Ref. Mon. 594	48 15 57.69	185 11 58	5 12 02	Isle 9	1,225.9	3.08847
	92 00 44.77	214 20 05	34 20 28	Pebble	1,144.2	3.05850
Ref. Mon. 595	48 16 16.10	52 04 44	232 04 18	Ref. Mon. 594	925.3	2.96628
	92 00 09.37	64 59 10	244 56 43	Winton	4,478.8	3.65117
		136 30 39	316 30 17	Isle 9	899.0	2.95374
		167 20 32	347 20 29	Pebble	385.4	2.58596
Ref. Mon. 597	48 15 53.88	97 15 27	277 14 54	Ref. Mon. 594	932.6	2.96969
	91 59 59.91	164 07 45	344 07 38	Ref. Mon. 595	713.7	2.85349
Ref. Mon. 596	48 15 37.38	115 48 01	295 47 14	Ref. Mon. 594	1,442.2	3.15903
	91 59 41.80	143 47 06	323 46 52	Ref. Mon. 597	631.9	2.80066
		154 35 00	334 34 40	Ref. Mon. 595	1,324.5	3.12205
Len	48 15 45.62	40 28 01	220 27 53	Ref. Mon. 596	334.6	2.52451
	91 59 31.28	113 22 54	293 22 33	Ref. Mon. 597	643.3	2.80841
Ref. Mon. 599	48 15 40.14	80 46 47	260 46 28	Ref. Mon. 596	533.1	2.72682
	91 59 16.29	118 41 08	298 40 57	Len	352.3	2.5469
Ref. Mon. 598	48 15 33.52	110 23 57	290 23 45	Ref. Mon. 596	341.6	2.53349
	91 59 26.28	164 35 10	344 35 06	Len	387.5	2.58832
		225 13 07	45 13 14	Ref. Mon. 599	290.3	2.46288
Don	48 15 04.88	93 00 23	272 56 51	Winton	5,867.3	3.76844
	91 58 42.09	134 08 49	314 08 16	Ref. Mon. 598	1,270.3	3.10389
		140 43 00	320 41 55	Ref. Mon. 595	2,842.6	3.45372
		147 04 21	327 03 55	Ref. Mon. 599	1,297.7	3.11316
Mouth	48 14 52.87	151 18 12	331 17 47	Ref. Mon. 598	1,431.7	3.15585
	91 58 52.95	161 45 23	341 45 06	Ref. Mon. 599	1,537.6	3.18684
		211 07 17	31 07 25	Don	433.5	2.63701
Ref. Mon. 600	48 14 52.79	252 53	72 53	Mouth	8.32	0.92012
	91 58 53.34					
Ref. Mon. 601	48 14 52.95	88 41 31	268 41 27	Mouth	120.5	2.08094
	91 58 47.11	195 42 39	15 42 42	Don	382.7	2.58282
River	48 14 47.50	121 12 40	301 12 30	Mouth	319.9	2.50497
	91 58 39.69	174 44 01	354 43 59	Don	539.1	2.73171
Wasp	48 14 48.64	78 03 12	258 03 06	River	169.5	2.22927
	91 58 31.65	106 33 36	286 33 20	Mouth	458.4	2.66129
		156 46 24	336 46 16	Don	546.0	2.73722
Ref. Mon. 603	48 14 50.51	29 58 40	209 58 38	River	107.2	2.03038
	91 58 37.10	102 33 17	282 33 05	Mouth	335.2	2.52527
Ref. Mon. 602	48 14 47.84	78 03	258 03	River	51.42	1.71113
	91 58 37.25					
Ref. Mon. 604	48 14 46.82	132 37	312 37	River	30.88	1.48968
	91 58 38.59					

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 605	48 14 48.79	286 34	106 34	Wasp	16.91	1.22814
	91 58 32.44					
Ref. Mon. 607	48 14 45.81	132 36 55	312 36 54	Ref. Mon. 604	46.4	1.66633
	91 58 36.94	132 37	312 37	River	77.26	1.88796
Ref. Mon. 608	48 14 42.68	162 09 15	342 09 13	River	156.4	2.19428
	91 58 37.37	212 39 31	32 39 35	Wasp	218.5	2.33953
Night	48 14 44.06	57 49 04	237 49 02	Ref. Mon. 608	79.9	1.90261
	91 58 34.09	132 36 57	312 36 53	River	157.0	2.19601
		199 34 42	19 34 44	Wasp	150.1	2.17639
Ref. Mon. 606	48 14 44.70	328 12	148 12	Ref. Mon. 608	73.44	1.86593
	91 58 39.24					
Ref. Mon. 609	48 14 44.88	351 39	171 39	Ref. Mon. 608	68.81	1.83765
	91 58 37.85					
Ref. Mon. 610	48 14 39.84	116 11 11	296 11 05	Ref. Mon. 608	199.1	2.29913
	91 58 28.71	139 35 18	319 35 14	Night	171.3	2.23378
Bird	48 14 43.40	80 14 16	260 14 11	Ref. Mon. 608	130.6	2.11590
	91 58 31.13	108 29 22	288 29 20	Night	64.4	1.80878
		335 33 42	155 33 44	Ref. Mon. 610	120.8	2.08222
Ref. Mon 611	48 14 43.40	37 51	217 51	Bird	0.33	9.51851–10
	91 58 31.12					
Dead	48 14 47.22	10 21 58	190 21 57	Ref. Mon. 610	231.8	2.36512
	91 58 26.69	37 51 02	217 50 59	Bird	149.5	2.17449
Ref. Mon. 613	48 14 47.20	10 21 58	190 21 57	Ref. Mon. 610	231.2	2.36399
	91 58 26.69	190 22	10 22	Dead	0.61	9.78505–10
Moose	48 14 46.48	33 58 30	213 58 25	Ref. Mon. 610	247.6	2.39374
	91 58 22.00	63 09 36	243 09 29	Bird	211.1	2.32448
		103 12 57	283 12 53	Dead	99.3	1.99685
Ref. Mon. 612	48 14 46.83	103 12 55	283 12 53	Dead	51.9	1.71517
	91 58 24.24	283 13	103 13	Moose	47.38	1.67560
Bush	48 14 56.90	0 51 56	180 51 56	Moose	321.9	2.50767
	91 58 21.77	18 44 42	198 44 38	Dead	315.9	2.49952
Ref. Mon. 614	48 14 53.69	48 31 29	228 31 20	Moose	336.0	2.52637
	91 58 09.80	60 09 42	240 09 29	Dead	401.7	2.60385
		111 54 21	291 54 12	Bush	266.1	2.42504
Ref. Mon. 617	48 15 02.88	317 07 39	137 07 48	Ref. Mon. 614	387.2	2.58791
	91 58 22.57	354 52 42	174 52 42	Bush	185.2	2.26770
Bed	48 15 02.24	26 05 53	206 05 50	Bush	183.8	2.26424
	91 58 17.85	101 18 21	281 18 18	Ref. Mon. 617	99.3	1.99693
		327 51 32	147 51 38	Ref. Mon. 614	312.1	2.49433
Ref. Mon. 615	48 14 59.33	137 07 39	317 07 35	Ref. Mon. 617	149.3	2.17395
	91 58 17.65	177 20 06	357 20 06	Bed	90.0	1.95434
Ref. Mon. 616	48 15 02.25	101 18 21	281 18 18	Ref. Mon. 617	98.3	1.99253
	91 58 17.90	281 18	101 18	Bed	1.00	0.00000
Dam	48 15 10.41	12 33 05	192 33 03	Ref. Mon. 617	238.3	2.37704
	91 58 20.06	349 44 45	169 44 47	Bed	256.1	2.40844
Ref. Mon. 619	48 15 10.39	262 39	82 39	Dam	3.29	0.51720
	91 58 20.22					
Sick	48 15 08.42	13 24 31	193 24 29	Bed	196.1	2.29255
	91 58 15.65	39 49 19	219 49 14	Ref. Mon. 617	223.1	2.34843
		123 55 05	303 55 02	Dam	109.7	2.04038
Ref. Mon. 622	48 15 17.17	29 12 38	209 12 33	Sick	309.4	2.49055
	91 58 08.33	49 12 59	229 12 51	Dam	319.7	2.50474
Lake	48 15 11.29	53 48 36	233 48 32	Sick	150.0	2.17611
	91 58 09.78	82 39 28	262 39 20	Ref. Mon. 619	217.2	2.33682
		82 39 28	262 39 20	Dam	213.8	2.33019
		189 21 58	9 21 59	Ref. Mon. 622	184.0	2.26470
Ref. Mon. 618	48 15 10.92	211 41 55	31 41 59	Ref. Mon. 622	226.8	2.35572
	91 58 14.10	262 39 25	82 39 28	Lake	90.0	1.95423
Ref. Mon. 621	48 15 11.52	226 19 22	46 19 29	Ref. Mon. 622	252.6	2.40244
	91 58 17.18	272 38 37	92 38 43	Lake	152.9	2.18447
Ref. Mon. 623	48 15 17.47	75 51 41	255 51 14	Lake	780.9	2.89257
	91 57 33.07	89 16 18	269 15 52	Ref. Mon. 622	727.3	2.86171
Ref. Mon. 620	48 15 12.47	189 31 27	9 31 28	Ref. Mon. 622	147.0	2.16722
	91 58 09.50	258 23 58	78 24 25	Ref. Mon. 623	767.2	2.88492
Ref. Mon. 624	48 15 10.63	104 46 27	284 45 59	Ref. Mon. 622	791.5	2.89847
	91 57 31.22	169 45 42	349 45 41	Ref. Mon. 623	214.5	2.33144

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Plank	48 15 08.95	95 46 52	275 46 26	Lake	716.7	2.85534
	91 57 35.21	110 22 25	290 22 00	Ref. Mon. 622	728.7	2.86254
		189 31 42	9 31 43	Ref. Mon. 623	266.6	2.42588
Ref. Mon. 626	48 15 07.00	103 14 57	283 14 48	Plank	263.9	2.42143
	91 57 22.76	146 39 54	326 39 46	Ref. Mon. 623	387.1	2.58783
Age	48 15 03.58	134 22 37	314 22 31	Plank	237.3	2.37530
	91 57 26.99	219 35 58	39 36 01	Ref. Mon. 623	136.9	2.13640
Ref. Mon. 627	48 15 06.22	74 13 48	254 13 38	Age	300.3	2.47754
	91 57 12.98	96 44 52	276 44 45	Ref. Mon. 626	203.1	2.30777
		129 57 44	309 57 29	Ref. Mon. 623	540.7	2.73297
Ref. Mon. 625	48 15 09.32	3 12 20	183 12 20	Ref. Mon. 626	71.9	1.85677
	91 57 22.56	295 49 10	115 49 17	Ref. Mon. 627	219.6	2.34169
Ref. Mon. 628	48 15 06.43	276 45	96 45	Ref. Mon. 627	53.11	1.72518
	91 57 15.54					
Mount	48 14 54.14	134 46 24	314 46 13	Age	414.3	2.61730
	91 57 12.73	179 12 55	359 12 55	Ref. Mon. 627	373.4	2.57221
Ref. Mon. 630	48 14 53.96	158 49	338 49	Mount	5.63	0.75051
	91 57 12.63					
Ref. Mon. 629	48 14 57.68	39 41 48	219 41 45	Mount	142.5	2.15376
	91 57 08.32	115 18 52	295 18 38	Age	426.0	2.62942
		159 58 42	339 58 38	Ref. Mon. 627	280.7	2.44829
Draw	48 14 50.11	158 48 51	338 48 49	Mount	133.2	2.12462
	91 57 10.40	190 23 04	10 23 05	Ref. Mon. 629	237.8	2.37614
Ref. Mon. 632	48 14 45.92	123 21 39	303 21 32	Draw	235.6	2.37220
	91 57 00.86	136 01 05	316 00 56	Mount	352.7	2.54742
		157 02 44	337 02 38	Ref. Mon. 629	394.7	2.59624
Ref. Mon. 631	48 14 48.67	69 09 25	249 09 17	Ref. Mon. 632	239.3	2.37888
	91 56 50.02	109 47 56	289 47 39	Mount	498.0	2.69720
Becky	48 14 30.28	183 37 57	3 37 58	Draw	613.9	2.78806
	91 57 12.28	206 00 28	26 00 36	Ref. Mon. 632	537.5	2.73037
Ref. Mon. 635	48 14 33.19	207 37 57	27 38 07	Draw	589.9	2.77076
	91 57 23.66	230 07 06	50 07 23	Ref. Mon. 632	613.0	2.78745
		290 59 00	110 59 09	Becky	251.4	2.40035
Ref. Mon. 633	48 14 41.72	70 01 40	250 01 14	Ref. Mon. 635	770.8	2.88695
	91 56 48.54	117 02 54	297 02 45	Ref. Mon. 632	285.2	2.45519
Ref. Mon. 636	48 14 20.94	205 11 16	25 11 22	Ref. Mon. 635	418.4	2.62156
	91 57 32.29	235 02 33	55 02 48	Becky	503.6	2.70212
Ref. Mon. 637	48 14 11.40	79 39 19	259 38 22	Center III	1,605.4	3.20559
	91 57 25.26	153 47 08	333 47 03	Ref. Mon. 636	328.3	2.51624
		182 48 40	2 48 41	Ref. Mon. 635	673.9	2.82860
		204 40 00	24 40 10	Becky	641.6	2.80728
		341 10 39	161 11 28	Falls	4,189.9	3.62221
Tree	48 14 17.51	256 23 36	76 23 52	Ref. Mon. 636	450.4	2.65361
	91 57 53.50	287 55 33	107 55 54	Ref. Mon. 637	612.5	2.78714
Ref. Mon. 638	48 14 00.88	168 03 12	348 03 08	Tree	525.1	2.72023
	91 57 48.24	207 58 15	27 58 27	Ref. Mon. 636	701.6	2.84611
		235 33 20	55 33 37	Ref. Mon. 637	574.9	2.75960
Ref. Mon. 634	48 14 49.92	4 13 37	184 13 33	Ref. Mon. 638	1,519.0	3.18157
	91 57 42.81	12 25 42	192 25 34	Tree	1,025.2	3.01082
Before	48 14 04.04	84 18 44	264 18 08	Ref. Mon. 638	986.8	2.99421
	91 57 00.66	114 07 00	294 06 41	Ref. Mon. 637	556.3	2.74530
Ref. Mon. 640	48 13 58.20	95 38 28	275 37 57	Ref. Mon. 638	840.3	2.92442
	91 57 07.72	138 23 42	318 23 29	Ref. Mon. 637	545.2	2.73659
		218 55 29	38 55 34	Before	231.9	2.36531
Ref. Mon. 639	48 14 00.33	236 30 09	56 30 15	Before	208.6	2.31798
	91 57 09.06	337 06 30	157 06 31	Ref. Mon. 640	71.3	1.85280
Isle 4	48 13 55.52	94 27 07	274 25 33	Center III	2,609.9	3.41663
	91 56 35.70	96 18 38	276 17 44	Ref. Mon. 638	1,506.0	3.17783
		97 08 53	277 08 29	Ref. Mon. 640	665.9	2.82338
		115 37 41	295 37 04	Ref. Mon. 637	1,134.3	3.05471
		117 04 36	297 04 17	Before	578.3	2.76219
		248 27 08	68 28 57	Curtain	3,258.0	3.51295
		354 36 05	174 36 17	Falls	3,491.0	3.54295
Ref. Mon. 641	48 13 48.15	104 58 07	284 57 14	Ref. Mon. 638	1,522.2	3.18246
	91 56 36.98	116 04 46	296 04 23	Ref. Mon. 640	706.2	2.84895
		125 47 12	305 46 36	Ref. Mon. 637	1,228.2	3.08927
		135 07 58	315 07 46	Before	692.6	2.84048
		186 36 22	6 36 23	Isle 4	229.1	2.36010
Ref. Mon. 643	48 14 07.21	36 48 54	216 48 38	Ref. Mon. 641	735.2	2.86641
	91 56 15.63	48 55 37	228 55 22	Isle 4	549.4	2.73989

RAINIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 642	48 13 59.81	52 46 24	232 46 07	Ref. Mon. 641	595.1	2.77456
	91 56 14.02	73 31 08	253 30 52	Isle 4	466.6	2.66895
		171 43 25	351 43 24	Ref. Mon. 643	231.0	2.36361
Ref. Mon. 645	48 14 14.55	58 25 22	238 24 55	Ref. Mon. 642	869.7	2.93936
	91 55 38.12	73 40 12	253 39 44	Ref. Mon. 643	806.7	2.90670
Ref. Mon. 644	48 14 03.75	76 33 20	256 33 02	Ref. Mon. 642	523.0	2.71850
	91 55 49.37	101 10 10	281 09 51	Ref. Mon. 643	552.4	2.74222
		214 49 26	34 49 35	Ref. Mon. 645	406.7	2.60925
Ref. Mon. 647	48 14 15.55	59 44 13	239 43 50	Ref. Mon. 644	723.3	2.85931
	91 55 19.10	85 31 37	265 31 23	Ref. Mon. 645	393.6	2.59511
Ref. Mon. 646	48 14 10.13	75 36 41	255 36 13	Ref. Mon. 644	793.5	2.89954
	91 55 12.12	104 17 32	284 17 13	Ref. Mon. 645	553.5	2.74308
		139 18 30	319 18 25	Ref. Mon. 647	220.7	2.34375
Ref. Mon. 649	48 14 21.00	37 34 28	217 34 19	Ref. Mon. 646	423.6	2.62697
	91 54 59.61	67 16 46	247 16 31	Ref. Mon. 647	436.0	2.63951
Ref. Mon. 648	48 14 17.60	80 42 32	260 42 18	Ref. Mon. 647	391.8	2.59305
	91 55 00.36	188 24 17	8 24 18	Ref. Mon. 649	106.3	2.02652
Fair	48 14 14.56	62 46 34	242 46 24	Ref. Mon. 646	299.0	2.47560
	91 54 59.24	94 16 01	274 15 46	Ref. Mon. 647	410.8	2.61368
		177 50 07	357 50 07	Ref. Mon. 649	199.1	2.29911
Ref. Mon. 651	48 14 19.41	63 38 18	243 38 07	Fair	337.7	2.52854
	91 54 44.58	98 58 59	278 58 48	Ref. Mon. 649	314.0	2.49686
Ref. Mon. 650	48 14 16.52	77 08 57	257 08 47	Fair	271.9	2.43437
	91 54 46.40	116 56 13	296 56 03	Ref. Mon. 649	305.7	2.48536
		202 44 57	22 44 58	Ref. Mon. 651	97.0	1.98693
Ref. Mon. 653	48 14 20.30	65 23 54	245 23 45	Ref. Mon. 650	280.4	2.44771
	91 54 34.04	82 51 38	262 51 30	Ref. Mon. 651	219.1	2.34060
Ref. Mon. 652	48 14 16.34	91 19 00	271 18 52	Ref. Mon. 650	235.7	2.37239
	91 54 34.97	115 35 40	295 35 33	Ref. Mon. 651	219.7	2.34179
		188 57 30	8 57 31	Ref. Mon. 653	123.6	2.09216
Ref. Mon. 655	48 14 18.02	79 08 41	259 08 31	Ref. Mon. 652	274.9	2.43917
	91 54 21.89	105 40 33	285 40 24	Ref. Mon. 653	260.4	2.41565
Ref. Mon. 654	48 14 15.46	99 27 58	279 27 52	Ref. Mon. 652	165.8	2.21969
	91 54 27.05	135 59 26	315 59 21	Ref. Mon. 653	207.7	2.31750
		233 23 15	53 23 19	Ref. Mon. 655	132.5	2.12237
Ref. Mon. 657	48 14 16.84	77 14 01	257 13 54	Ref. Mon. 654	193.1	2.28576
	91 54 17.92	113 56 41	293 56 38	Ref. Mon. 655	89.6	1.95247
Ref. Mon. 656	48 14 14.64	107 35 57	287 35 54	Ref. Mon. 654	84.1	1.92460
	91 54 23.16	194 06 49	14 06 50	Ref. Mon. 655	107.7	2.03228
		237 48 55	57 48 59	Ref. Mon. 657	127.8	2.10663

GEOGRAPHIC POSITIONS OF TRIANGULATION STATIONS, CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 659	48 14 17.14	73 58 23	253 58 13	Ref. Mon. 656	280.4	2.44771
	91 54 10.11	86 41 33	266 41 27	Ref. Mon. 657	161.5	2.20828
Ref. Mon. 658	48 14 09.01	114 28 21	294 28 07	Ref. Mon. 656	419.3	2.62255
	91 54 04.67	131 28 57	311 28 47	Ref. Mon. 657	365.0	2.56232
		155 55 33	335 55 29	Ref. Mon. 659	275.0	2.43938
		307 53 38	127 55 32	Mutt	4,004.2	3.60252
Ref. Mon. 660	48 14 15.67	67 56 07	247 55 49	Ref. Mon. 658	547.5	2.73840
	91 53 40.08	87 56 34	267 56 02	Ref. Mon. 656	889.6	2.94921
		94 11 40	274 11 18	Ref. Mon. 659	621.3	2.79327
Ref. Mon. 661	48 14 22.73	6 29 20	186 29 09	Tree	2,650.8	3.42337
	91 53 13.57	41 42 34	221 40 15	Falls	5,779.5	3.76189
		68 06 54	248 06 16	Ref. Mon. 658	1,136.3	3.05548
		68 16 36	248 16 16	Ref. Mon. 660	588.7	2.76993
		81 35 33	261 34 51	Ref. Mon. 659	1,179.2	3.07159
		107 19 14	287 18 33	Curtain	1,194.3	3.07712
		323 52 08	143 53 24	Mutt	3,570.2	3.55269
Johnny	48 13 43.13	148 33 24	328 33 06	Ref. Mon. 658	937.0	2.97176
	91 53 40.98	181 03 38	1 03 38	Ref. Mon. 660	1,005.3	3.00229
		204 48 53	24 49 13	Ref. Mon. 661	1,347.5	3.12953
Ref. Mon. 663	48 13 42.30	91 42 23	271 41 52	Johnny	861.2	2.93508
	91 52 59.27	121 26 41	301 25 52	Ref. Mon. 658	1,581.8	3.19914
		140 45 18	320 44 47	Ref. Mon. 660	1,331.0	3.12417
		166 42 16	346 42 05	Ref. Mon. 661	1,283.0	3.10824
		312 05 37	132 06 42	Mutt	2,439.0	3.38722
Ref. Mon. 662	48 13 27.38	134 39 23	314 39 05	Johnny	692.1	2.84020
	91 53 17.12	162 22 58	342 22 40	Ref. Mon. 660	1,565.0	3.19452
		182 27 17	2 27 19	Ref. Mon. 661	1,711.1	3.23327
		218 38 16	38 38 29	Ref. Mon. 663	590.1	2.77089
Ipse	48 13 38.51	76 56 40	256 55 47	Ref. Mon. 662	1,521.7	3.18232
	91 52 05.30	95 59 59	275 59 19	Ref. Mon. 663	1,119.9	3.04919
		134 06 54	314 06 03	Ref. Mon. 661	1,962.0	3.29270
Jingle	48 13 16.36	111 01 37	291 01 05	Ref. Mon. 662	948.5	2.97704
	91 52 34.23	147 10 24	327 10 05	Ref. Mon. 663	953.4	2.97928
		221 06 16	41 06 37	Ipse	908.0	2.95810
Ref. Mon. 666	48 13 14.27	95 04 37	275 04 11	Jingle	731.9	2.86444
	91 51 58.91	170 00 27	350 00 22	Ipse	760.4	2.88106
Ref. Mon. 664	48 13 03.69	125 13 37	305 13 17	Jingle	679.1	2.83194
	91 52 07.35	138 04 09	318 03 30	Ref. Mon. 663	1,603.5	3.20507
		182 15 03	2 15 04	Ipse	1,076.7	3.03210
		208 03 16	28 03 22	Ref. Mon. 666	370.5	2.56880
Knit	48 12 47.16	126 28 30	306 28 05	Ref. Mon. 664	858.7	2.93383
	91 51 33.90	129 06 33	309 04 40	Ref. Mon. 658	4,009.4	3.60308
		134 02 09	314 01 05	Ref. Mon. 663	2,450.8	3.38930
		145 08 21	325 07 06	Ref. Mon. 661	3,598.0	3.55606
		148 21 01	328 20 42	Ref. Mon. 666	983.7	2.99288
		214 57 36	34 57 37	Mutt	82.9	1.91879
Ref. Mon. 665	48 12 43.67	165 24 15	345 24 09	Ref. Mon. 664	638.9	2.80546
	91 51 59.55	180 48 12	0 48 12	Ref. Mon. 666	945.4	2.97561
		258 28 50	78 29 09	Knit	540.4	2.73272
Ref. Mon. 667	48 12 20.39	165 21 10	345 21 03	Ref. Mon. 665	743.2	2.87110
	91 51 50.45	202 26 42	22 26 54	Knit	894.7	2.95168
Jerry	48 12 32.06	116 46 16	296 45 50	Ref. Mon. 665	796.5	2.90117
	91 51 25.10	158 44 16	338 44 09	Knit	500.7	2.69957
India	48 12 45.07	8 38 34	188 38 32	Jerry	406.5	2.60906
	91 51 22.14	86 48 15	266 47 47	Ref. Mon. 665	773.4	2.88840
		104 56 13	284 56 04	Knit	251.1	2.39991
Ref. Mon. 668	48 12 39.39	72 38 03	252 37 37	Jerry	758.3	2.87983
	91 50 50.05	95 16 37	275 15 45	Ref. Mon. 665	1,440.9	3.15863
		104 50 20	284 49 56	India	685.5	2.83598
Luck	48 12 26.99	102 37 42	282 37 17	Jerry	715.9	2.85486
	91 50 51.26	131 13 02	311 12 39	India	847.4	2.92811
		183 45 19	3 45 20	Ref. Mon. 668	383.7	2.58396
Ref. Mon. 670	48 12 30.40	82 33 01	262 32 32	Luck	811.8	2.90947
	91 50 12.28	109 35 38	289 35 10	Ref. Mon. 668	827.8	2.91790
		241 55 52	61 58 35	Gape	5,124.8	3.70968
Ref. Mon. 669	48 12 20.93	115 22 45	295 22 31	Luck	436.6	2.64005
	91 50 32.16	147 03 38	327 03 25	Ref. Mon. 668	679.1	2.83196
		234 32 14	54 32 29	Ref. Mon. 670	504.1	2.70248

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Lofty	48 12 15.35	61 02 30	241 00 25	Jeff	3,965.2	3.59826
	91 50 10.14	112 56 33	292 56 02	Luck	922.1	2.96477
		121 59 43	301 58 43	Mutt	1,982.9	3.29729
		132 00 53	312 00 23	Ref. Mon. 668	1,109.0	3.04494
		174 34 21	354 34 19	Ref. Mon. 670	466.8	2.66911
		237 17 19	57 20 00	Gape	5,321.9	3.72607
		299 25 23	119 28 29	Hargo	5,922.6	3.77251
Yet	48 11 43.83	55 28 29	235 27 40	Jeff	1,670.7	3.22290
	91 51 51.47	65 52 37	245 50 45	Lister	3,426.0	3.53479
		191 27 21	11 27 37	Mutt	2,065.3	3.31499
		245 01 55	65 03 11	Lofty	2,307.9	3.36322
Not	48 12 00.26	102 56 11	282 54 58	Lofty	2,083.6	3.31882
	91 48 31.79	216 14 00	36 15 28	Gape	4,141.9	3.61720
		308 01 17	128 03 10	Hargo	3,969.2	3.59870
Trouble	48 09 52.30	117 03 57	297 01 01	Jeff	5,494.0	3.73989
	91 49 01.25	134 25 45	314 23 38	Yet	4,922.5	3.69219
		162 09 22	342 08 31	Lofty	4,642.2	3.66672
		188 44 59	8 45 21	Not	3,999.2	3.60197
		248 00 54	68 03 09	Hargo	4,028.4	3.60513
Lady	48 12 29.91	57 34 43	237 34 18	Lofty	838.7	2.92362
	91 49 35.85	91 08 36	271 08 09	Ref. Mon. 670	752.2	2.87636
Ref. Mon 672	48 12 41.45	1 28 02	181 28 02	Lady	356.4	2.55196
	91 49 35.41	41 39 41	221 39 16	Lofty	1,078.8	3.03295
		65 51 04	245 50 37	Ref. Mon. 670	834.2	2.92128
Ref. Mon. 671	48 12 32.43	18 30 35	198 30 29	Lofty	556.3	2.74532
	91 50 01.59	74 06 25	254 06 17	Ref. Mon. 670	229.5	2.36082
		242 44 11	62 44 30	Ref. Mon. 672	608.0	2.78389
		278 19 46	98 20 05	Lady	537.0	2.72998
Lander	48 12 35.78	65 14 51	245 14 37	Lady	432.9	2.63635
	91 49 16.81	114 30 38	294 30 24	Ref. Mon. 672	422.0	2.62528
Ref. Mon. 673	48 12 45.70	35 35 28	215 35 16	Lady	599.5	2.77778
	91 49 18.95	68 53 07	248 52 55	Ref. Mon. 672	364.2	2.56134
		351 47 18	171 47 20	Lander	309.4	2.49056
Ref. Mon. 675	48 12 32.52	109 57 25	289 57 15	Lander	295.6	2.47066
	91 49 03.35	141 39 37	321 39 25	Ref. Mon. 673	519.1	2.71523
Lash	48 12 37.18	45 39 05	225 39 00	Ref. Mon. 675	205.8	2.31336
	91 48 56.23	84 13 47	264 13 32	Lander	427.1	2.63055
		119 18 18	299 18 01	Ref. Mon. 673	538.0	2.73076
Ref. Mon. 674	48 12 42.26	40 44 01	220 43 56	Lash	207.1	2.31619
	91 48 49.68	70 21 42	250 21 22	Lander	594.7	2.77430
		99 59 08	279 58 46	Ref. Mon. 673	613.6	2.78786
Large	48 12 24.92	123 39 06	303 38 53	Ref. Mon. 675	423.8	2.62712
	91 48 46.27	151 29 55	331 29 47	Lash	430.9	2.63434
Ref. Mon. 676	48 12 29.49	22 55 32	202 55 30	Large	153.3	2.18564
	91 48 43.38	102 47 08	282 46 53	Ref. Mon. 675	423.0	2.62630
		131 49 25	311 49 15	Lash	356.0	2.55151
Ref. Mon. 678	48 12 19.24	124 21 20	304 21 10	Large	310.7	2.49234
	91 48 33.84	148 08 10	328 08 02	Ref. Mon. 676	372.7	2.57139
Ref. Mon. 677	48 12 26.41	2 38 24	182 38 24	Ref. Mon. 678	221.6	2.34561
	91 48 33.35	80 12 14	260 12 04	Large	270.7	2.43241
		114 41 40	294 41 32	Ref. Mon. 676	227.8	2.35756
Love	48 12 15.60	105 39 39	285 39 25	Ref. Mon. 678	416.1	2.61923
	91 48 14.44	130 31 11	310 30 57	Ref. Mon. 677	513.6	2.71066
Knoll	48 12 34.00	22 23 34	202 23 25	Love	614.4	2.78842
	91 48 03.10	54 19 28	234 19 05	Ref. Mon. 678	781.4	2.89285
		69 26 06	249 25 43	Ref. Mon. 677	667.0	2.82412
Lame	48 12 04.79	176 38 47	356 38 46	Love	334.6	2.52457
	91 48 13.49	193 22 19	13 22 27	Knoll	927.2	2.96719
Ref. Mon. 681	48 12 31.40	62 29 23	242 28 26	Lame	1,778.9	3.25014
	91 46 57.08	73 01 24	253 00 26	Love	1,670.0	3.22271
		93 22 27	273 21 38	Knoll	1,365.4	3.13526
Ref. Mon. 679	48 12 07.41	79 14 02	259 13 47	Lame	432.7	2.63619
	91 47 52.90	119 39 45	299 39 29	Love	511.7	2.70901
		165 37 06	345 36 59	Knoll	847.8	2.92831
Ref. Mon. 680	48 12 12.66	38 49 40	218 49 35	Ref. Mon. 679	208.2	2.31846
	91 47 46.58	98 59 47	278 59 26	Love	582.3	2.76517
		152 38 13	332 38 01	Knoll	742.1	2.87047
Ref. Mon. 683	48 11 25.31	154 42 44	334 42 23	Lame	1,348.7	3.12993
	91 47 45.59	206 07 51	26 08 27	Ref. Mon. 681	2,273.8	3.35676
Ref. Mon. 684	48 11 37.10	69 55 01	249 54 25	Ref. Mon. 683	1,060.5	3.02551
	91 46 57.36	118 33 19	298 32 22	Lame	1,789.6	3.25276
		180 11 54	0 11 54	Ref. Mon. 681	1,677.1	3.22457

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 682	48 11 50.46	39 24 16	219 23 53	Ref. Mon. 683	1,005.6	3.00241
	91 47 14.68	319 05 28	139 05 41	Ref. Mon. 684	546.2	2.73733
Left	48 11 48.72	1 10 19	181 10 19	Ref. Mon. 684	358.9	2.55496
	91 46 57.01	54 13 31	234 12 55	Ref. Mon. 683	1,236.7	3.09226
		98 24 47	278 24 34	Ref. Mon. 682	369.0	2.56697
Lamb	48 11 33.08	107 03 05	287 02 51	Ref. Mon. 684	423.4	2.62676
	91 46 37.76	140 32 57	320 32 43	Left	625.5	2.79621
Lax	48 11 47.81	48 06 08	228 05 55	Ref. Mon. 684	495.4	2.69499
	91 46 39.51	94 25 24	274 25 11	Left	362.5	2.55929
		355 28 22	175 28 23	Lamb	456.4	2.65938
Laddy	48 11 39.10	54 47 20	234 47 10	Lamb	322.3	2.50827
	91 46 25.01	131 57 44	311 57 33	Lax	402.6	2.60484
Lagoon	48 11 49.44	18 03 18	198 03 12	Lamb	531.5	2.72551
	91 46 29.79	75 55 31	255 55 24	Lax	207.0	2.31588
		342 50 56	162 51 00	Laddy	334.4	2.52422
Law	48 11 53.58	17 08 57	197 08 52	Laddy	468.2	2.67042
	91 46 18.33	61 36 52	241 36 43	Lagoon	269.0	2.42971
Jump	48 11 49.72	50 43 53	230 43 39	Laddy	518.1	2.71442
	91 46 05.59	89 01 58	269 01 40	Lagoon	499.8	2.69876
		114 25 07	294 24 58	Law	288.9	2.46072
Lass	48 11 53.04	45 47 39	225 47 35	Jump	147.1	2.16749
	91 46 00.49	92 37 31	272 37 18	Law	368.8	2.56685
Jehu	48 11 57.30	57 41 59	237 41 53	Law	214.9	2.33221
	91 46 09.53	305 10 59	125 11 06	Lass	228.6	2.35904
		340 50 08	160 50 11	Jump	248.0	2.39444
Ref. Mon. 686	48 12 06.98	20 33 42	200 33 37	Lass	459.9	2.66271
	91 45 52.66	49 22 01	229 21 49	Jehu	459.0	2.66184
Ref. Mon. 687	48 12 06.10	48 35 42	228 35 26	Lass	609.9	2.78524
	91 45 38.34	67 08 20	247 07 57	Jehu	699.2	2.84458
		95 16 07	275 15 56	Ref. Mon. 686	297.1	2.47294
Ref. Mon. 688	48 12 21.65	25 49 18	205 49 10	Ref. Mon. 686	503.5	2.70204
	91 45 42.04	350 56 59	170 57 02	Ref. Mon. 687	486.6	2.68718
Ref. Mon. 689	48 12 13.00	17 49 25	197 49 23	Ref. Mon. 687	224.0	2.35025
	91 45 35.02	62 57 57	242 57 44	Ref. Mon. 686	409.1	2.61187
		151 30 21	331 30 16	Ref. Mon. 688	304.1	2.48307
Ref. Mon. 685	48 11 58.88	83 26 17	263 26 02	Jehu	425.6	2.62903
	91 45 49.06	163 25 38	343 25 35	Ref. Mon. 686	261.1	2.41685
		191 37 57	11 38 02	Ref. Mon. 688	718.3	2.85631
		224 47 29	44 47 37	Ref. Mon. 687	314.2	2.49726
Jasper	48 12 11.54	100 14 04	280 13 55	Ref. Mon. 689	254.4	2.40558
	91 45 22.89	128 19 00	308 18 46	Ref. Mon. 688	504.0	2.70247
Ref. Mon. 690	48 12 30.44	8 00 51	188 00 48	Jasper	589.7	2.77063
	91 45 18.91	31 41 26	211 41 14	Ref. Mon. 689	633.1	2.80149
		60 23 41	240 23 24	Ref. Mon. 688	549.4	2.73989
Kid	48 12 28.37	39 36 03	219 35 47	Jasper	674.7	2.82913
	91 45 02.06	100 25 56	280 25 43	Ref. Mon. 690	353.7	2.54863
Ken	48 12 13.68	79 18 56	259 18 43	Jasper	357.0	2.55265
	91 45 05.90	152 35 05	332 34 55	Ref. Mon. 690	583.3	2.76586
		189 54 51	9 54 54	Kid	460.6	2.66331
Lag	48 12 07.80	165 28 56	345 28 55	Jasper	119.1	2.07577
	91 45 21.44	240 30 57	60 31 09	Ken	368.7	2.56666
King	48 12 10.45	74 44 00	254 43 49	Lag	310.2	2.49167
	91 45 06.95	95 49 31	275 49 19	Jasper	330.8	2.51959
		192 15 38	12 15 39	Ken	102.1	2.00899
Ref. Mon. 692	48 12 00.07	184 10 50	4 10 50	Lag	239.7	2.37961
	91 45 22.29	224 38 29	44 38 40	King	450.8	2.65395
Ref. Mon. 693	48 12 05.75	63 09 12	243 09 00	Ref. Mon. 692	388.9	2.58981
	91 45 05.49	100 53 37	280 53 25	Lag	335.5	2.52572
		168 14 24	348 14 23	King	148.2	2.17086
Ref. Mon. 694	48 11 46.53	192 40 39	12 40 42	Ref. Mon. 692	428.5	2.63194
	91 45 26.84	216 36 17	36 36 32	Ref. Mon. 693	739.6	2.86897
Ref. Mon. 695	48 11 51.90	80 52 18	260 51 41	Ref. Mon. 694	1,044.6	3.01895
	91 44 36.90	105 04 00	285 03 26	Ref. Mon. 692	970.6	2.98705
		125 56 18	305 55 56	Ref. Mon. 693	729.1	2.86276
Jar	48 11 46.10	90 36 46	270 36 01	Ref. Mon. 694	1,250.9	3.09722
	91 44 26.27	110 27 14	290 26 32	Ref. Mon. 692	1,234.5	2.09149
		129 12 57	309 12 49	Ref. Mon. 695	283.2	2.45214

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 696	48 11 59.98	34 57 24	214 56 23	Hargo	2,973.3	3.47324
	91 44 37.97	67 37 52	247 37 16	Ref. Mon. 694	1,091.5	3.03801
		90 09 57	270 09 24	Ref. Mon. 692	915.2	2.96153
		330 36 37	150 36 46	Jar	492.0	2.69199
		354 57 30	174 57 31	Ref. Mon. 695	250.6	2.39902
Lad	48 11 28.14	168 30 36	348 30 32	Ref. Mon. 694	579.6	2.76311
	91 45 21.25	178 45 23	358 45 22	Ref. Mon. 692	986.2	2.99398
		195 39 19	15 39 30	Ref. Mon. 693	1,206.4	3.08149
		222 15 55	42 16 27	Ref. Mon. 696	1,329.0	3.12352
		231 17 48	51 18 21	Ref. Mon. 695	1,173.6	3.06953
		243 57 21	63 58 02	Jar	1,263.7	3.10164
Jaxe	48 11 29.86	47 51 14	227 50 14	Hargo	2,245.1	3.35124
	91 44 39.85	86 27 13	266 26 42	Lad	856.6	2.93280
		117 57 20	297 56 45	Ref. Mon. 694	1,098.6	3.04083
		136 47 48	316 47 16	Ref. Mon. 692	1,280.0	3.10721
		151 20 53	331 19 28	Gape	4,877.0	3.68815
		154 28 43	334 28 23	Ref. Mon. 693	1,228.5	3.08937
		182 23 53	2 23 54	Ref. Mon. 696	931.2	2.96904
		185 07 11	5 07 13	Ref. Mon. 695	683.5	2.83471
Ref. Mon. 691	48 12 08.47	15 35 51	195 35 24	Hargo	2,802.5	3.44755
	91 45 23.95	285 25 50	105 26 24	Ref. Mon. 696	985.2	2.99351
		322 37 39	142 38 12	Jaxe	1,500.6	3.17626
Ref. Mon. 698	48 11 56.55	55 08 30	235 08 22	Ref. Mon. 695	251.0	2.39967
	91 44 26.93	114 58 37	294 58 28	Ref. Mon. 696	251.5	2.40053
		357 36 32	177 36 32	Jar	322.8	2.50894
Ref. Mon. 697	48 12 00.74	15 22 50	195 22 47	Ref. Mon. 695	283.1	2.45200
	91 44 33.26	314 42 27	134 42 32	Ref. Mon. 698	184.1	2.26512
		342 17 31	162 17 36	Jar	474.5	2.67627
Last	48 12 08.60	27 23 11	207 23 06	Ref. Mon. 697	273.2	2.43654
	91 44 27.18	359 12 13	179 12 13	Ref. Mon. 698	372.2	2.57076
Kitty	48 12 07.92	262 12 11	82 12 17	Last	154.7	2.18956
	91 44 34.60	335 42 37	155 42 43	Ref. Mon. 698	385.3	2.58576
Ref. Mon. 700	48 12 18.06	17 36 12	197 36 08	Kitty	328.8	2.51696
	91 44 29.78	349 33 59	169 34 01	Last	297.4	2.47328
Ref. Mon. 699	48 12 13.77	217 57 33	37 57 37	Ref. Mon. 700	168.3	2.22607
	91 44 34.80	315 25 43	135 25 49	Last	224.2	2.35072
		358 42 26	178 42 26	Kitty	180.8	2.25716
Lamp	48 12 15.55	76 09 25	256 09 17	Ref. Mon. 699	230.6	2.36280
	91 44 23.96	122 47 11	302 47 07	Ref. Mon. 700	143.2	2.15581
Koble	48 12 16.62	66 22 50	246 22 47	Lamp	81.9	1.91334
	91 44 20.32	73 35 57	253 35 46	Ref. Mon. 699	311.6	2.49360
		102 53 12	282 53 05	Ref. Mon. 700	200.4	2.30200
Ref. Mon. 701	48 12 16.48	80 12 44	260 12 38	Lamp	168.2	2.22586
	91 44 15.93	92 39 49	272 39 46	Koble	90.8	1.95816
Ref. Mon. 702	48 12 14.80	97 54 45	277 54 39	Lamp	169.5	2.22927
	91 44 15.82	121 09 29	301 09 26	Koble	108.5	2.03557
		177 37 03	357 37 03	Ref. Mon. 701	52.0	1.71584
Ref. Mon. 703	48 12 13.46	105 21 44	285 21 39	Ref. Mon. 702	156.4	2.19413
	91 44 08.52	121 24 07	301 24 02	Ref. Mon. 701	179.2	2.25329
Jock	48 11 51.93	59 02 38	239 02 27	Jar	349.9	2.54393
	91 44 11.74	114 40 26	294 40 06	Ref. Mon. 696	595.9	2.77516
Jaw	48 11 39.06	115 10 42	295 10 25	Jar	511.5	2.70888
	91 44 03.86	132 32 31	312 32 05	Ref. Mon. 696	956.0	2.98045
		157 43 21	337 43 15	Jock	429.7	2.63313
Jig	48 12 04.45	20 04 17	200 04 07	Jaw	834.8	2.92158
	91 43 49.98	49 18 05	229 17 49	Jock	592.7	2.77284
Ref. Mon. 705	48 11 57.26	49 44 39	229 44 15	Jaw	869.8	2.93944
	91 43 31.71	78 44 51	258 44 21	Jock	842.9	2.92576
		120 28 21	300 28 07	Jig	437.7	2.64122
Ref. Mon. 704	48 12 08.86	4 29 29	184 29 28	Ref. Mon. 705	359.4	2.55559
	91 43 30.35	36 56 13	216 55 48	Jaw	1,151.5	3.06126
		58 33 05	238 32 34	Jock	1,002.0	3.00087
		71 24 57	251 24 42	Jig	427.7	2.63117
Ref. Mon. 707	48 11 49.76	108 32 33	288 32 08	Ref. Mon. 705	728.2	2.86223
	91 42 58.28	131 41 41	311 41 17	Ref. Mon. 704	886.8	2.94783
Ref. Mon. 706	48 12 02.25	14 29 17	194 29 14	Ref. Mon. 707	398.2	2.60006
	91 42 53.46	78 58 26	258 57 58	Ref. Mon. 705	804.8	2.90570
		105 01 06	285 00 39	Ref. Mon. 704	788.7	2.89692
Ref. Mon. 708	48 11 55.23	65 38 03	245 37 50	Ref. Mon. 707	409.3	2.61201
	91 42 40.23	128 24 53	308 24 43	Ref. Mon. 706	348.7	2.54241
Ref. Mon. 710	48 11 32.08	159 37 19	339 37 12	Ref. Mon. 707	582.7	2.76548
	91 42 48.46	173 40 25	353 40 21	Ref. Mon. 706	937.5	2.97196
		193 21 50	13 21 56	Ref. Mon. 708	735.0	2.86631

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 709	48 11 34.47	79 20 08	259 19 54	Ref. Mon. 710	399.6	2.60158
	91 42 29.44	128 25 10	308 24 49	Ref. Mon. 707	760.1	2.88088
		160 50 44	340 50 36	Ref. Mon. 708	678.8	2.83172
Jane	48 11 25.31	167 43 46	347 43 40	Ref. Mon. 707	772.9	2.88812
	91 42 50.33	190 28 55	10 28 56	Ref. Mon. 710	212.5	2.32738
		236 44 08	56 44 23	Ref. Mon. 709	515.8	2.71251
Ref. Mon. 711	48 11 16.14	136 20 01	316 19 51	Jane	391.8	2.59309
	91 42 37.23	154 47 05	334 46 56	Ref. Mon. 710	544.3	2.73581
		177 03 49	357 03 46	Ref. Mon. 708	1,209.1	3.08247
		195 50 58	15 51 03	Ref. Mon. 709	588.7	2.76992
In	48 11 02.87	175 24 20	355 24 18	Jane	695.6	2.84236
	91 42 47.63	207 39 25	27 39 33	Ref. Mon. 711	462.8	2.66541
Ref. Mon. 712	48 11 13.58	212 09 08	32 09 16	Jane	428.0	2.63144
	91 43 01.36	260 59 53	81 00 11	Ref. Mon. 711	504.5	2.70290
		319 25 07	139 25 17	In	435.8	2.63932
Ref. Mon. 713	48 10 57.27	213 04 42	33 04 54	Ref. Mon. 712	601.2	2.77901
	91 43 17.24	254 13 39	74 14 01	In	635.6	2.80318
Gum	48 10 48.58	148 58 42	328 58 36	Ref. Mon. 713	313.3	2.49594
	91 43 09.42	192 10 48	12 10 54	Ref. Mon. 712	790.0	2.89763
		225 34 38	45 34 54	In	630.4	2.79960
Ref. Mon. 715	48 10 37.77	211 20 27	31 20 40	Ref. Mon. 713	705.5	2.84848
	91 43 35.00	237 41 54	57 42 13	Gum	625.2	2.79599
Ibex	48 10 34.42	104 13 36	284 13 21	Ref. Mon. 715	420.6	2.62386
	91 43 15.27	176 41 56	356 41 54	Ref. Mon. 713	707.0	2.84945
		195 25 57	15 26 01	Gum	453.8	2.65683
Ref. Mon 714	48 10 44.41	62 34 22	242 34 08	Ref. Mon. 715	445.7	2.64908
	91 43 15.85	175 52 26	355 52 25	Ref. Mon. 713	398.2	2.60013
		225 53 43	45 53 48	Gum	185.0	2.26706
		357 45 43	177 45 44	Ibex	308.9	2.48984
Ice	48 10 46.90	16 35 50	196 35 46	Ibex	402.1	2.60436
	91 43 09.71	61 38 47	241 38 28	Ref. Mon. 715	593.8	2.77363
		154 06 35	334 06 29	Ref. Mon. 713	356.3	2.55177
Ref. Mon. 716	48 10 26.11	151 02 29	331 02 22	Ref. Mon. 715	411.6	2.61444
	91 43 25.36	219 04 06	39 04 14	Ibex	330.7	2.51944
Genus	48 10 29.83	48 17 26	228 17 21	Ref. Mon. 716	172.8	2.23756
	91 43 19.12	126 45 03	306 44 51	Ref. Mon. 715	409.7	2.61246
		209 15 33	29 15 36	Ibex	162.5	2.21088
Ref. Mon. 717	48 10 24.38	117 45 08	297 45 04	Ref. Mon. 716	114.3	2.05814
	91 43 20.46	143 59 19	323 59 08	Ref. Mon. 715	511.0	2.70842
		189 23 38	9 23 39	Genus	170.5	2.23172
Ref. Mon. 718	48 10 15.70	215 17 53	35 18 01	Ref. Mon. 716	394.0	2.59550
	91 43 36.38	230 47 07	50 47 19	Ref. Mon. 717	424.4	2.62782
George	48 10 16.23	86 54 06	266 53 55	Ref. Mon. 718	304.9	2.48411
	91 43 21.64	165 52 56	345 52 53	Ref. Mon. 716	314.6	2.49774
		185 32 36	5 32 37	Ref. Mon. 717	253.0	2.40317
Honk	48 09 58.47	172 00 41	352 00 38	Ref. Mon. 718	537.2	2.73016
	91 43 32.76	202 43 39	22 43 47	George	594.7	2.77429
Ref. Mon. 721	48 10 03.17	71 41 30	251 41 14	Honk	461.6	2.66430
	91 43 11.56	127 02 12	307 01 53	Ref. Mon. 718	642.5	2.80789
		152 40 29	332 40 21	George	454.2	2.65720
Ref. Mon. 720	48 10 21.04	1 02 01	181 02 01	Ref. Mon. 721	552.1	2.74199
	91 43 11.07	55 47 28	235 47 20	George	264.1	2.42182
Ref. Mon. 719	48 10 13.51	25 24 17	205 24 09	Honk	514.3	2.71120
	91 43 22.09	102 52 19	282 52 08	Ref. Mon. 718	302.9	2.48128
		224 23 32	44 23 40	Ref. Mon. 720	325.3	2.51230
		325 44 22	145 44 30	Ref. Mon. 721	386.6	2.58726
Ref. Mon. 722	48 10 16.90	47 08 26	227 08 10	Ref. Mon. 721	623.6	2.79494
	91 42 49.43	81 10 58	261 10 34	Ref. Mon. 719	682.8	2.83430
		88 13 03	268 12 39	George	665.9	2.82342
		105 56 48	285 56 32	Ref. Mon. 720	465.0	2.66749
Ref. Mon. 724	48 10 26.13	49 38 34	229 38 22	Ref. Mon. 722	440.1	2.64351
	91 42 33.20	78 38 33	258 38 05	Ref. Mon. 720	798.1	2.90266
Hire	48 10 10.33	118 01 33	298 01 11	Ref. Mon. 720	703.9	2.84751
	91 42 41.00	139 21 30	319 21 24	Ref. Mon. 722	267.5	2.42728
		198 16 24	18 16 30	Ref. Mon. 724	513.8	2.71083
Ref. Mon. 723	48 10 18.99	78 52 14	258 52 02	Ref. Mon. 722	334.1	2.52388
	91 42 33.56	94 40 11	274 39 43	Ref. Mon. 720	777.5	2.89072
		181 57 12	1 57 12	Ref. Mon. 724	220.6	2.34361
Herd	48 10 10.06	91 17 08	271 16 54	Hire	380.7	2.58060
	91 42 22.58	156 09 04	336 08 56	Ref. Mon. 724	542.8	2.73465

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 725	48 10 06.56	98 50 31	278 50 04	Hire	757.7	2.87950
	91 42 04.76	106 20 17	286 20 04	Herd	383.6	2.58385
		122 49 40	302 49 19	Ref. Mon. 723	708.2	2.85013
		135 48 36	315 48 15	Ref. Mon. 724	842.9	2.92577
Hide	48 09 57.28	191 56 05	11 56 08	Herd	403.2	2.60549
	91 42 26.61	237 35 38	57 35 54	Ref. Mon. 725	534.7	2.72815
Ref. Mon. 726	48 09 52.42	120 10 10	300 10 01	Hide	299.3	2.47610
	91 42 14.09	134 52 03	314 51 43	Hire	784.5	2.89457
		159 14 09	339 13 55	Ref. Mon. 724	1,113.7	3.04676
		162 09 34	342 09 28	Herd	572.4	2.75769
		203 48 00	23 48 07	Ref. Mon. 725	477.6	2.67905
Ref. Mon. 727	48 09 49.03	160 46 51	340 46 48	Hide	270.0	2.43132
	91 42 22.31	238 24 00	58 24 06	Ref. Mon. 726	199.5	2.29986
Grog	48 09 44.30	134 28 18	314 28 13	Ref. Mon. 727	208.5	2.31911
	91 42 15.11	149 20 48	329 20 40	Hide	466.1	2.66850
		184 48 52	4 48 53	Ref. Mon. 726	251.5	2.40048
Ref. Mon. 729	48 09 40.09	172 41 43	352 41 42	Ref. Mon. 727	278.4	2.44463
	91 42 20.60	199 27 39	19 27 44	Ref. Mon. 726	403.7	2.60605
		221 05 10	41 05 14	Grog	172.5	2.23690
Ref. Mon. 728	48 09 40.12	89 30 33	269 30 29	Ref. Mon. 729	102.2	2.00960
	91 42 15.65	153 26 03	333 26 01	Ref. Mon. 727	307.7	2.48817
		184 56 26	4 56 26	Grog	129.7	2.11279
Ref. Mon. 730	48 09 30.03	163 01 03	343 00 59	Ref. Mon. 729	325.1	2.51207
	91 42 16.00	181 20 04	1 20 04	Ref. Mon. 728	311.9	2.49405
Ref. Mon. 731	48 09 22.77	200 45 09	20 45 16	Ref. Mon. 729	572.1	2.75748
	91 42 30.41	233 02 15	53 02 26	Ref. Mon. 730	372.6	2.57121
Hint	48 09 39.28	219 43 48	39 43 57	Ref. Mon. 727	391.5	2.59273
	91 42 34.42	265 00 12	85 00 22	Ref. Mon. 729	286.7	2.45747
		350 45 50	170 45 53	Ref. Mon. 731	516.7	2.71325
Ref. Mon. 732	48 09 13.28	149 21 32	329 21 25	Ref. Mon. 731	340.8	2.53245
	91 42 22.01	193 29 09	13 29 13	Ref. Mon. 730	531.9	2.72580
Harp	48 09 15.09	166 33 46	346 33 44	Ref. Mon. 731	243.9	2.38715
	91 42 27.67	207 35 30	27 35 39	Ref. Mon. 730	520.4	2.71634
		295 34 16	115 34 21	Ref. Mon. 732	129.7	2.11299
Ha	48 09 30.43	2 23 43	182 23 42	Ref. Mon. 732	530.3	2.72449
	91 42 20.93	277 03 05	97 03 08	Ref. Mon. 730	102.7	2.01137
Ref. Mon. 733	48 09 14.49	193 39 56	13 40 02	Ha	506.8	2.70484
	91 42 26.73	204 47 20	24 47 28	Ref. Mon. 730	528.6	2.72309
		290 56 44	110 56 48	Ref. Mon. 732	104.5	2.01908
Ref. Mon. 735	48 09 03.95	162 42 31	342 42 25	Harp	360.4	2.55678
	91 42 22.48	181 57 56	1 57 56	Ref. Mon. 732	288.3	2.45982
Ref. Mon. 734	48 09 04.10	191 14 44	11 14 45	Harp	346.1	2.53920
	91 42 30.93	213 03 35	33 03 42	Ref. Mon. 732	338.2	2.52920
		271 31 34	91 31 41	Ref. Mon. 735	174.7	2.24226
Ref. Mon. 736	48 08 50.99	137 11 42	317 11 29	Ref. Mon. 734	551.9	2.74188
	91 42 12.79	153 24 11	333 24 05	Ref. Mon. 735	447.6	2.65093
Ref. Mon. 737	48 08 48.88	154 56 26	334 56 18	Ref. Mon. 734	519.1	2.71522
	91 42 20.30	174 27 05	354 27 04	Ref. Mon. 735	467.7	2.67000
		247 11 21	67 11 26	Ref. Mon. 736	168.4	2.22626
Ref. Mon. 739	48 08 44.31	122 13 20	302 13 12	Ref. Mon. 737	264.8	2.42293
	91 42 09.46	161 33 55	341 33 52	Ref. Mon. 736	217.6	2.33772
Ref. Mon. 738	48 08 42.18	142 00 36	322 00 30	Ref. Mon. 737	262.4	2.41904
	91 42 12.48	178 39 53	358 39 52	Ref. Mon. 736	272.2	2.43486
		223 35 00	43 35 02	Ref. Mon. 739	90.6	1.95726
Goal	48 08 44.16	75 30 19	255 30 11	Ref. Mon. 738	243.8	2.38702
	91 42 01.06	91 31 37	271 31 31	Ref. Mon. 739	173.6	2.23959
Ref. Mon. 740	48 08 39.23	125 28 34	305 28 30	Ref. Mon. 738	157.1	2.19617
	91 42 06.29	157 20 43	337 20 41	Ref. Mon. 739	169.9	2.23028
		215 23 03	35 23 07	Goal	186.7	2.27110
Ref. Mon. 741	48 08 39.26	89 46 45	269 46 37	Ref. Mon. 740	232.1	2.36568
	91 41 55.06	104 04 40	284 04 28	Ref. Mon. 738	371.2	2.56958
		117 39 24	297 39 14	Ref. Mon. 739	335.9	2.52625
		140 39 49	320 39 45	Goal	195.6	2.29141
Ref. Mon. 742	48 08 38.54	97 12 26	277 12 19	Ref. Mon. 741	176.4	2.24641
	91 41 46.60	120 07 06	300 06 55	Goal	345.6	2.53860
Hail	48 08 35.33	163 44 36	343 44 34	Goal	283.9	2.45324
	91 41 57.22	200 09 02	20 09 04	Ref. Mon. 741	129.2	2.11129
		245 40 57	65 41 06	Ref. Mon. 742	240.8	2.38174
Ref. Mon. 744	48 08 28.44	138 33 10	318 33 03	Hail	284.2	2.45360
	91 41 48.12	156 45 18	336 45 13	Ref. Mon. 741	363.8	2.56092
		185 44 18	5 44 20	Ref. Mon. 742	313.8	2.49660

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Him	48 08 29.71	178 11 45	358 11 45	Ref. Mon. 741	295.2	2.47016
	91 41 54.62	211 15 19	31 15 26	Ref. Mon. 742	319.3	2.50421
		286 16 46	106 16 51	Ref. Mon. 744	139.9	2.14588
Ref. Mon. 743	48 08 31.79	219 29 46	39 29 52	Ref. Mon. 742	270.2	2.43169
	91 41 54.91	306 25 40	126 25 44	Ref. Mon. 744	174.6	2.24206
		354 31 27	174 31 27	Him	64.8	1.81128
Glib	48 08 23.00	162 22 44	342 22 42	Him	217.4	2.33721
	91 41 51.43	202 11 25	22 11 28	Ref. Mon. 744	181.4	2.25860
Hen	48 08 19.30	187 51 57	7 51 59	Him	324.6	2.51140
	91 41 56.76	212 20 04	32 20 11	Ref. Mon. 744	334.2	2.52398
		223 56 09	43 56 13	Glib	158.9	2.20106
Ref. Mon. 745	48 08 15.90	162 36 13	342 36 12	Hen	109.9	2.04111
	91 41 55.17	199 25 56	19 25 59	Glib	232.6	2.36653
Ref. Mon. 746	48 08 14.87	201 14 49	21 14 51	Hen	146.5	2.16584
	91 41 59.33	213 03 25	33 03 31	Glib	299.4	2.47628
		249 47 27	69 47 30	Ref. Mon. 745	91.6	1.96188
Glow	48 08 08.18	153 57 57	333 57 53	Ref. Mon. 746	230.3	2.36222
	91 41 54.44	176 22 37	356 22 36	Ref. Mon. 745	239.0	2.37843
Hilt	48 08 04.58	189 07 05	9 07 07	Ref. Mon. 746	322.1	2.50800
	91 42 01.80	201 23 41	21 23 46	Ref. Mon. 745	375.6	2.57468
		233 50 44	53 50 50	Glow	188.4	2.27506
Ref. Mon. 748	48 07 53.87	151 44 00	331 43 53	Hilt	375.4	2.57444
	91 41 53.20	176 40 40	356 40 39	Glow	442.5	2.64589
Ref. Mon. 749	48 07 50.76	191 20 34	11 20 38	Glow	548.7	2.73932
	91 41 59.66	234 13 38	54 13 43	Ref. Mon. 748	164.6	2.21650
Ref. Mon. 750	48 07 50.82	202 02 45	22 02 53	Glow	578.5	2.76227
	91 42 04.95	248 44 50	68 44 59	Ref. Mon. 748	260.5	2.41581
		270 56 59	90 57 03	Ref. Mon. 749	109.2	2.03836
Ref. Mon. 747	48 07 57.01	183 18 25	3 18 25	Hilt	234.1	2.36946
	91 42 02.45	205 39 03	25 39 09	Glow	382.6	2.58274
		296 51 14	116 51 21	Ref. Mon. 748	214.4	2.33122
		343 21 33	163 21 35	Ref. Mon. 749	201.5	2.30432
Inn	48 07 46.81	152 59 15	332 59 13	Ref. Mon. 750	138.9	2.14258
	91 42 01.90	200 44 09	20 44 11	Ref. Mon. 749	130.3	2.11510
Ref. Mon. 751	48 07 42.28	196 36 38	16 36 41	Ref. Mon. 750	275.2	2.43957
	91 42 08.75	215 39 29	35 39 36	Ref. Mon. 749	322.3	2.50824
		225 21 36	45 21 41	Inn	199.2	2.29926
Ref. Mon. 752	48 07 41.04	108 26 09	288 26 05	Ref. Mon. 751	121.6	2.08486
	91 42 03.17	173 04 41	353 04 40	Ref. Mon. 750	304.3	2.48335
		188 24 54	8 24 55	Inn	180.3	2.25611
Ref. Mon. 753	48 07 33.20	205 46 41	25 46 46	Ref. Mon. 751	311.4	2.49331
	91 42 15.30	226 01 23	46 01 32	Ref. Mon. 752	348.5	2.54216
Ref. Mon. 754	48 07 26.71	157 40 59	337 40 56	Ref. Mon. 753	216.8	2.33596
	91 42 11.32	186 18 10	6 18 12	Ref. Mon. 751	483.8	2.68471
		200 50 34	20 50 40	Ref. Mon. 752	473.5	2.67528
Ref. Mon. 755	48 07 30.68	257 50 22	77 50 35	Ref. Mon. 753	369.3	2.56737
	91 42 32.76	285 28 22	105 28 38	Ref. Mon. 754	460.0	2.66276
Ref. Mon. 756	48 07 18.55	151 16 27	331 16 20	Ref. Mon. 755	427.3	2.63070
	91 42 22.83	198 59 03	18 59 09	Ref. Mon. 753	478.5	2.67987
		223 21 57	43 22 06	Ref. Mon. 754	346.6	2.53978
Ref. Mon. 757	48 07 09.09	175 02 08	355 02 06	Ref. Mon. 755	669.5	2.82578
	91 42 29.95	206 45 32	26 45 37	Ref. Mon. 756	327.4	2.51511
Ref. Mon. 758	48 07 11.15	186 37 18	6 37 21	Ref. Mon. 755	607.4	2.78349
	91 42 36.14	230 17 41	50 17 51	Ref. Mon. 756	358.0	2.55386
		296 26 49	116 26 54	Ref. Mon. 757	143.0	2.15522
Ref. Mon. 759	48 07 05.48	215 30 29	35 30 33	Ref. Mon. 758	215.2	2.33289
	91 42 42.19	246 12 39	66 12 48	Ref. Mon. 757	276.5	2.44170
Ref. Mon. 760	48 07 00.21	174 47 52	354 47 51	Ref. Mon. 759	163.4	2.21323
	91 42 41.47	180 24 43	0 24 43	Flag	1,560.8	3.19335
		198 03 39	18 03 42	Ref. Mon. 758	355.4	2.55076
		220 58 31	40 58 39	Ref. Mon. 757	363.2	2.56020
Ref. Mon. 761	48 06 54.32	194 16 22	14 16 25	Ref. Mon. 759	355.7	2.55103
	91 42 46.43	209 23 34	29 23 38	Ref. Mon. 760	208.8	2.31983
Ref. Mon. 762	48 06 56.55	74 58 15	254 58 06	Ref. Mon. 761	266.0	2.42485
	91 42 34.01	126 12 02	306 11 57	Ref. Mon. 760	191.3	2.28173
		148 27 53	328 27 47	Ref. Mon. 759	323.5	2.50984
		175 06 46	355 06 41	Flag	1,679.8	3.22527
Ref. Mon. 763	48 06 51.68	111 22 38	291 22 30	Ref. Mon. 761	223.6	2.34952
	91 42 36.36	158 08 03	338 07 59	Ref. Mon. 760	283.9	2.45316
		197 54 45	17 54 46	Ref. Mon. 762	158.2	2.19908

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Hades	48 06 48.38	193 42 25	13 42 42	Flag	1,982.7	3.29726
	91 43 03.65	231 27 21	51 27 38	Ref. Mon. 760	586.5	2.76827
		247 37 02	67 37 24	Ref. Mon. 762	663.1	2.82155
		259 45 28	79 45 49	Ref. Mon. 763	573.6	2.75863
		266 58 23	87 02 34	Gill	6,971.4	3.84332
Ref. Mon. 764	48 06 53.88	80 21 55	260 21 19	Hades	1,014.3	3.00618
	91 42 15.30	81 08 35	261 08 20	Ref. Mon. 763	440.8	2.64422
		102 03 17	282 03 03	Ref. Mon. 762	395.6	2.59725
Ref. Mon. 765	48 06 46.84	92 24 55	272 24 14	Hades	1,131.9	3.05379
	91 42 08.98	104 47 42	284 47 22	Ref. Mon. 763	585.8	2.76773
		120 05 50	300 05 31	Ref. Mon. 762	598.4	2.77697
		148 57 57	328 57 52	Ref. Mon. 764	253.8	2.40442
Grab	48 07 12.07	27 46 13	207 45 58	Ref. Mon. 765	880.8	2.94489
	91 41 49.14	64 36 27	244 35 31	Hades	1,706.1	3.23200
Harem	48 06 55.52	73 52 37	253 52 03	Ref. Mon. 765	965.8	2.98487
	91 41 24.12	83 53 30	263 52 15	Hades	2,070.4	3.31605
		85 27 53	265 26 59	Ref. Mon. 763	1,498.8	3.17575
		134 39 23	314 39 04	Grab	727.2	2.86168
Halter	48 07 09.96	18 53 07	198 53 02	Harem	471.4	2.67342
	91 41 16.75	95 33 04	275 32 40	Grab	673.0	2.82804
Girl	48 06 45.98	91 36 17	271 34 41	Hades	2,662.5	3.42529
	91 40 54.98	116 02 58	296 02 37	Harem	671.0	2.82671
		125 44 01	305 43 21	Grab	1,379.8	3.13983
		132 24 07	312 22 48	Flag	2,966.7	3.47228
		148 42 32	328 42 16	Halter	866.8	2.93791
Gout	48 07 31.00	14 40 21	194 40 08	Girl	1,437.5	3.15760
	91 40 37.38	41 25 18	221 24 44	Harem	1,461.5	3.16479
		51 24 21	231 23 52	Halter	1,041.8	3.01778
Gong	48 06 49.38	84 19 36	264 18 58	Girl	1,059.3	3.02501
	91 40 04.02	96 32 37	276 31 38	Harem	1,667.7	3.22212
		151 47 16	331 46 51	Gout	1,459.2	3.16411
Gift	48 06 57.40	66 39 13	246 38 52	Gong	625.5	2.79625
	91 39 36.26	77 47 09	257 46 10	Girl	1,666.1	3.22171
		129 23 36	309 22 50	Gout	1,635.6	3.21367
Havoc	48 05 53.47	151 12 58	331 12 24	Gong	1,970.3	3.29453
	91 39 18.15	169 15 53	349 15 40	Gift	2,009.9	3.30317
		228 07 04	48 08 27	Gill	3,086.2	3.48942
		295 57 46	115 59 37	Have	3,416.8	3.53362
Good	48 07 03.24	15 33 39	195 33 17	Havoc	2,236.9	3.34964
	91 38 49.15	79 31 34	259 30 59	Gift	990.7	2.99596
		273 11 43	93 12 44	Gill	1,700.5	3.23058
		325 54 07	145 55 36	Have	4,409.0	3.64434
Ref. Mon. 805	48 05 41.99	25 43 18	205 42 58	Have	1,267.8	3.10304
	91 36 23.14	95 36 31	275 34 20	Havoc	3,638.6	3.56094
		151 17 39	331 16 51	Gill	2,752.8	3.43977
Ref. Mon. 766	48 06 56.39	56 17 11	236 16 55	Ref. Mon. 765	531.5	2.72549
	91 41 47.60	82 17 29	262 17 08	Ref. Mon. 764	578.1	2.76202
Ref. Mon. 767	48 06 59.50	48 02 56	228 02 40	Ref. Mon. 765	585.0	2.76719
	91 41 47.94	72 56 27	252 56 06	Ref. Mon. 764	592.0	2.77230
		355 50 36	175 50 36	Ref. Mon. 766	96.4	1.98392
Ref. Mon. 769	48 07 00.19	69 46 57	249 46 46	Ref. Mon. 766	340.0	2.53144
	91 41 32.18	86 14 55	266 14 44	Ref. Mon. 767	326.7	2.51415
This	48 07 02.04	58 46 35	238 46 25	Ref. Mon. 766	336.9	2.52746
	91 41 33.68	75 05 56	255 05 46	Ref. Mon. 767	305.3	2.48475
		331 33 34	151 33 35	Ref. Mon. 769	65.0	1.81277
Ref. Mon. 768	48 07 07.08	9 26 50	189 26 49	Ref. Mon. 769	215.6	2.33369
	91 41 30.47	23 05 43	203 05 41	This	169.1	2.22818
Ref. Mon. 770	48 07 07.02	28 11 58	208 11 54	Ref. Mon. 769	239.2	2.37879
	91 41 26.71	43 08 00	223 07 55	This	210.6	2.32345
		91 22 57	271 22 54	Ref. Mon. 768	77.7	1.89024
Isle	48 07 10.02	22 43 42	202 43 41	Ref. Mon. 768	98.6	1.99379
	91 41 28.63	336 54 45	156 54 47	Ref. Mon. 770	100.9	2.00379
Little	48 07 10.34	4 31 34	184 31 34	Ref. Mon. 770	103.0	2.01285
	91 41 26.32	40 23 35	220 23 32	Ref. Mon. 768	132.4	2.12176
		78 17 22	258 17 20	Isle	48.7	1.68752
Ref. Mon. 772	48 07 13.70	313 51 49	133 51 53	Little	149.7	2.17532
	91 41 31.54	332 03 36	152 03 38	Isle	128.6	2.10937
		353 48 37	173 48 38	Ref. Mon. 768	205.8	2.31338
Point	48 07 16.55	15 59 25	195 59 23	Little	199.7	2.30036
	91 41 23.66	26 57 57	206 57 53	Isle	226.5	2.35501
		61 34 32	241 34 26	Ref. Mon. 772	185.3	2.26788
Ref. Mon. 771	48 07 13.22	53 46 52	233 46 47	Isle	166.9	2.22245
	91 41 22.11	94 24 34	274 24 27	Ref. Mon. 772	195.5	2.29113
		162 48 10	342 48 09	Point	108.1	2.03368

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Lefty	48 07 17.72	43 31 21	223 31 16	Ref. Mon. 771	191.8	2.28281
	91 41 15.73	77 40 39	257 40 33	Point	167.9	2.22501
Round	48 07 14.23	110 26 42	290 26 35	Point	205.5	2.31272
	91 41 14.35	165 09 55	345 09 54	Lefty	111.3	2.04652
Up	48 07 13.72	74 23 03	254 23 01	Ref. Mon. 771	58.6	1.76774
	91 41 19.39	134 42 23	314 42 20	Point	124.3	2.09459
		211 31 55	31 31 58	Lefty	144.7	2.16034
		261 25 36	81 25 40	Round	105.3	2.02254
Cut	48 07 20.48	34 44 47	214 44 42	Round	234.6	2.37037
	91 41 07.88	62 17 38	242 17 32	Lefty	183.2	2.26299
Ref. Mon. 773	48 07 17.74	65 39 48	245 39 39	Round	252.6	2.41927
	91 41 02.78	89 52 09	269 51 59	Lefty	267.7	2.42772
		128 42 39	308 42 35	Cut	135.2	2.13108
		232 01 57	52 02 16	Gout	666.3	2.82364
		350 39 42	170 39 48	Girl	993.9	2.99735
Log	48 07 22.20	35 49 57	215 49 54	Ref. Mon. 773	170.2	2.23105
	91 40 57.96	75 24 05	255 23 58	Cut	212.0	2.32639
Black	48 07 19.72	84 04 42	264 04 21	Ref. Mon. 773	592.5	2.77272
	91 40 34.28	91 55 58	271 55 33	Cut	695.3	2.84217
		98 55 17	278 54 59	Log	495.7	2.69523
Ref. Mon. 774	48 07 24.36	54 26 57	234 23 47	Ref. Mon. 773	352.1	2.54666
	91 40 48.92	70 20 56	250 20 49	Log	198.4	2.29745
		295 21 26	115 21 37	Black	335.2	2.52531
Ref. Mon. 776	48 07 04.82	0 23 48	180 23 48	Girl	582.0	2.76489
	91 40 54.78	109 15 51	289 15 35	Halter	481.2	2.68229
		157 29 22	337 29 16	Ref. Mon. 773	431.7	2.63518
		173 01 51	353 01 48	Log	540.8	2.73305
		191 21 13	11 21 17	Ref. Mon. 774	615.6	2.78928
		203 59 47	24 00 00	Gout	885.2	2.94703
		222 40 33	42 40 48	Black	625.6	2.79633
Ref. Mon. 775	48 07 03.79	180 37 42	0 37 42	Ref. Mon. 773	430.7	2.63413
	91 41 03.00	190 24 05	10 24 08	Log	578.1	2.76204
		204 37 18	24 37 28	Ref. Mon. 774	698.9	2.84441
		230 22 51	50 23 12	Black	771.3	2.88720
		259 23 52	79 23 58	Ref. Mon. 776	173.0	2.23796
Fine	48 06 50.88	189 07 11	9 07 13	Ref. Mon. 775	403.9	2.60624
	91 41 05.10	208 31 27	28 31 35	Ref. Mon. 776	490.1	2.69026
Wood	48 06 53.26	207 59 50	27 59 56	Ref. Mon. 775	368.5	2.56646
	91 41 11.37	223 50 14	43 50 26	Ref. Mon. 776	495.2	2.69481
		303 56 58	123 57 02	Fine	131.4	2.11855
Jumpy	48 06 47.81	161 22 03	341 22 01	Wood	177.7	2.24968
	91 41 08.62	208 47 29	28 47 31	Fine	108.4	2.03508
Ref. Mon. 777	48 06 45.71	209 08 11	29 08 16	Wood	266.9	2.42639
	91 41 17.65	236 13 51	56 14 00	Fine	287.4	2.45856
		250 52 19	70 52 26	Jumpy	197.7	2.29591
Hump	48 06 43.60	103 52 45	283 52 35	Ref. Mon. 777	271.1	2.43311
	91 41 04.93	149 30 28	329 30 25	Jumpy	150.6	2.17787
Ref. Mon. 778	48 06 37.60	142 40 25	322 40 18	Ref. Mon. 777	314.8	2.49810
	91 41 08.42	179 14 35	359 14 35	Jumpy	315.2	2.49852
		201 18 03	21 18 06	Hump	198.9	2.29870
Ref. Mon. 779	48 06 34.16	101 17 58	281 17 39	Ref. Mon. 778	543.3	2.73501
	91 40 42.67	122 21 43	302 21 27	Hump	545.1	2.73648
Ref. Mon. 780	48 06 32.49	103 51 41	283 51 18	Ref. Mon. 778	658.9	2.81882
	91 40 37.50	115 39 43	295 39 39	Ref. Mon. 779	118.7	2.07442
Ref. Mon. 781	48 06 23.67	121 49 16	301 48 51	Ref. Mon. 778	816.5	2.91198
	91 40 34.88	134 44 17	314 43 55	Hump	875.0	2.94200
		153 34 08	333 34 02	Ref. Mon. 779	361.9	2.55860
		168 46 34	348 46 32	Ref. Mon. 780	278.0	2.44404
Ref. Mon. 782	48 06 37.57	39 12 54	219 12 41	Ref. Mon. 781	554.2	2.74370
	91 40 17.94	68 49 12	248 48 57	Ref. Mon. 780	433.8	2.63729
Ref Mon. 783	48 06 26.63	78 24 24	258 24 08	Ref. Mon. 781	455.8	2.65876
	91 40 13.30	109 53 17	289 52 59	Ref. Mon. 780	532.3	2.72617
		164 07 31	344 07 28	Ref. Mon. 782	351.2	2.54557
Ref. Mon. 784	48 06 36.42	56 11 36	236 11 20	Ref. Mon. 783	543.5	2.73521
	91 39 51.47	93 42 00	273 41 41	Ref. Mon. 782	548.8	2.73942
Saw	48 06 25.53	97 24 19	277 24 10	Ref. Mon. 783	265.1	2.42348
	91 40 00.59	136 01 10	316 00 58	Ref. Mon. 782	517.0	2.71346
		209 16 20	29 16 27	Ref. Mon. 784	385.9	2.58644
Ref. Mon. 785	48 06 23.73	113 23 09	293 23 04	Saw	139.4	2.14428
	91 39 54.40	131 16 14	311 15 57	Ref. Mon. 782	64.8	1.81148
		188 48 28	8 48 30	Ref. Mon. 784	396.6	2.59836

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 786	48 06 30.28	58 05 06	238 04 54	Ref. Mon. 785	382.6	2.58276
	91 39 38.70	72 01 09	252 00 52	Saw	476.0	2.67758
		125 41 22	305 41 12	Ref. Mon. 784	325.1	2.51199
Ref. Mon. 787	48 06 35.82	10 02 38	190 02 37	Ref. Mon. 786	173.5	2.23936
	91 39 37.24	43 34 35	223 34 22	Ref. Mon. 785	515.1	2.71186
		93 39 07	273 38 56	Ref. Mon. 784	294.9	2.46966
Ref. Mon. 788	48 06 39.63	42 39 24	222 39 21	Ref. Mon. 787	160.1	2.20436
	91 39 32.00	76 11 51	256 11 37	Ref. Mon. 784	414.7	2.61778
		96 31 55	276 30 53	Girl	1,727.7	3.23746
		114 26 54	294 26 30	Gong	727.6	2.86189
		170 53 22	350 53 19	Gift	556.0	2.74510
		230 32 50	50 33 22	Good	1,147.7	3.05981
		348 38 23	168 38 33	Havoc	1,454.2	3.16262
Ref. Mon. 789	48 06 44.61	24 34 31	204 34 27	Ref Mon. 784	278.0	2.44402
	91 39 45.88	298 10 45	118 10 55	Ref. Mon. 788	325.8	2.51290
		326 39 26	146 39 33	Ref. Mon. 787	325.1	2.51199
Near	48 06 41.40	22 33 27	202 33 26	Ref. Mon. 788	59.3	1.77330
	91 39 30.90	107 43 32	287 43 21	Ref. Mon. 789	325.4	2.51235
Ref. Mon. 791	48 06 50.71	3 00 56	183 00 55	Near	287.9	2.45926
	91 39 30.17	6 19 09	186 19 07	Ref. Mon. 788	344.4	2.53707
		59 53 43	239 53 31	Ref. Mon. 789	375.7	2.57488
Fly	48 06 43.20	69 46 31	249 46 25	Near	160.3	2.20493
	91 39 23.63	95 25 00	275 24 43	Ref. Mon. 789	462.4	2.66500
		149 46 02	329 45 57	Ref. Mon. 791	268.6	2.42917
Ref. Mon. 790	48 06 43.08	249 47	69 47	Fly	10.77	1.03222
	91 39 24.12					
Ref. Mon. 792	48 06 52.99	30 27 56	210 27 50	Fly	350.9	2.54521
	91 39 15.02	77 20 12	257 20 01	Ref. Mon. 791	321.0	2.50649
Ref. Mon. 794	48 06 48.21	58 59 52	238 59 43	Fly	300.5	2.47785
	91 39 11.17	101 08 08	281 07 54	Ref. Mon. 791	400.4	2.60246
		151 39 42	331 39 39	Ref. Mon. 792	167.8	2.22478
Ref. Mon. 793	48 06 58.15	25 46 47	205 46 44	Ref. Mon. 792	177.1	2.24825
	91 39 11.30	359 30 41	179 30 41	Ref. Mon. 794	307.2	2.48740
Bean	48 06 48.06	91 10 26	271 10 18	Ref. Mon. 794	229.3	2.36049
	91 39 00.09	116 15 20	296 15 09	Ref. Mon. 792	344.5	2.53716
		143 21 58	323 21 50	Ref. Mon. 793	388.6	2.58955
Birch	48 06 46.45	170 41 22	350 41 22	Ref. Mon. 794	54.9	1.73955
	91 39 10.74	257 20 48	77 20 56	Bean	225.9	2.35392
Ref. Mon. 795	48 06 45.00	104 07 53	284 07 47	Birch	183.4	2.26343
	91 39 02.15	117 55 08	297 55 02	Ref. Mon. 794	211.3	2.32498
		204 17 53	24 17 55	Bean	103.4	2.01459
Big	48 06 41.53	177 06 14	357 06 14	Birch	152.1	2.18225
	91 39 10.37	237 47 52	57 47 58	Ref. Mon. 795	201.1	2.30344
Burn	48 06 41.57	89 34 35	269 34 30	Big	144.3	2.15926
	91 39 03.40	134 47 33	314 47 28	Birch	214.2	2.33073
		193 42 31	13 42 32	Ref. Mon. 795	109.2	2.03828
Blow	48 06 36.74	132 37 24	312 37 18	Burn	220.0	2.34248
	91 38 55.57	151 56 02	331 55 57	Ref. Mon. 795	289.1	2.46104
Ref. Mon. 797	48 06 35.98	199 46 19	19 46 21	Big	182.2	2.26053
	91 39 13.35	219 45 32	39 45 40	Ref. Mon. 795	362.4	2.55924
		230 02 39	50 02 46	Burn	268.6	2.42918
		266 20 21	86 20 34	Blow	368.6	2.56655
Ref. Mon. 796	48 06 32.64	100 12 38	280 12 18	Ref. Mon. 797	582.0	2.76490
	91 38 45.66	121 43 19	301 43 12	Blow	240.9	2.38183
Ref. Mon. 800	48 06 19.18	144 03 55	324 03 42	Ref. Mon. 797	640.9	2.80682
	91 38 55.17	179 07 24	359 07 24	Blow	542.5	2.73443
		205 18 23	25 18 30	Ref. Mon. 796	460.0	2.66272
Ref. Mon. 801	48 06 19.23	89 30 09	269 30 03	Ref. Mon. 800	174.7	2.24239
	91 38 46.72	133 12 32	313 12 13	Ref. Mon. 797	755.8	2.87840
		183 01 29	3 01 30	Ref. Mon. 796	414.9	2.61791
Ref. Mon. 799	48 06 20.58	147 59 10	327 59 00	Ref. Mon. 797	561.2	2.74911
	91 38 58.97	279 19 16	99 19 25	Ref. Mon. 801	256.8	2.40955
		298 43 46	118 43 49	Ref. Mon. 800	89.7	1.95277
Ref. Mon. 798	48 06 23.85	14 35 36	194 35 35	Ref. Mon. 800	149.1	2.17334
	91 38 53.35	48 58 07	228 58 03	Ref. Mon. 799	154.0	2.18766
		132 10 11	312 09 57	Ref. Mon. 797	558.2	2.74677
		316 08 05	136 08 10	Ref. Mon. 801	198.0	2.29657
Ref. Mon. 802	48 05 45.47	150 33 03	330 32 41	Ref. Mon. 799	1,245.2	3.09525
	91 38 29.38	161 00 35	341 00 22	Ref. Mon. 801	1,102.7	3.04247
		272 20 43	92 22 17	Ref. Mon. 805	2,614.4	3.41737
		301 12 21	121 13 35	Have	2,411.5	3.38228

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 803	48 05 54.87	42 12 49	222 12 40	Ref. Mon. 802	392.0	2.59334
	91 38 16.64	132 12 07	312 11 36	Ref. Mon. 799	1,182.0	3.07261
		133 17 41	313 17 13	Ref. Mon. 800	1,094.9	3.03939
		140 24 32	320 24 10	Ref. Mon. 801	976.3	2.98959
		279 36 18	99 37 43	Ref. Mon. 805	2,382.2	3.37697
		310 33 40	130 34 45	Have	2,368.0	3.37439
Harpy	48 05 42.80	129 14 15	309 14 12	Ref. Mon. 802	130.5	2.11576
	91 38 24.49	148 33 48	328 33 23	Ref. Mon. 799	1,367.7	3.13598
		150 32 39	330 32 17	Ref. Mon. 800	1,290.6	3.11080
		157 46 09	337 45 53	Ref. Mon. 801	1,215.7	3.08481
		203 31 02	23 31 08	Ref. Mon. 803	406.7	2.60932
		270 33 28	90 34 59	Ref. Mon. 805	2,511.2	3.39988
		300 44 56	120 46 07	Have	2,282.2	3.35836
Ref. Mon. 804	48 06 19.85	54 55 15	234 54 16	Harpy	1,990.5	3.29897
	91 37 05.77	58 28 17	238 27 15	Ref. Mon. 802	2,029.7	3.30743
		62 15 58	242 15 05	Ref. Mon. 803	1,656.9	3.21930
		322 57 58	142 58 30	Ref. Mon. 805	1,464.6	3.16571
		351 49 29	171 49 41	Have	2,335.1	3.36831
Ref. Mon. 806	48 05 53.38	53 45 35	233 44 22	Have	2,526.7	3.40256
	91 35 11.25	76 41 46	256 40 53	Ref. Mon. 805	1,528.4	3.18424
		109 02 41	289 01 16	Ref. Mon. 804	2,506.2	3.39902
Glue	48 06 19.40	36 05 34	216 04 34	Have	2,843.2	3.45381
	91 35 28.79	44 13 19	224 12 39	Ref. Mon. 805	1,612.3	3.20745
		72 44 31	252 42 20	Harpy	3,806.9	3.58057
		80 26 29	260 23 38	Havoc	4,812.5	3.68237
		90 23 58	270 22 46	Ref. Mon. 804	2,006.2	3.30238
		335 41 55	155 42 08	Ref. Mon. 806	881.8	2.94536
Gin	48 06 10.87	20 57 59	200 57 47	Ref. Mon. 805	955.1	2.98005
	91 36 06.62	251 22 31	71 22 59	Glue	825.8	2.91689
		295 13 56	115 14 37	Ref. Mon. 806	1,266.4	3.10258
Ref. Mon. 808	48 06 34.54	33 05 32	213 05 02	Ref. Mon. 806	1,517.0	3.18099
	91 34 31.22	68 34 50	248 34 07	Glue	1,279.4	3.10699
Ref. Mon. 809	48 06 08.69	59 30 54	239 30 25	Ref. Mon. 806	931.8	2.96930
	91 34 32.44	105 51 13	285 50 31	Glue	1,211.8	3.08342
		181 48 56	1 48 57	Ref. Mon. 808	798.6	2.90235
High	48 05 56.04	74 45 10	254 44 59	Ref. Mon. 806	311.7	2.49367
	91 34 56.72	137 24 30	317 24 06	Glue	980.3	2.99138
		203 55 20	23 55 39	Ref. Mon. 808	1,300.8	3.11421
		232 06 44	52 07 02	Ref. Mon. 809	636.4	2.80371
Ref. Mon. 807	48 06 15.73	50 15 33	230 14 48	Ref. Mon. 805	1,629.6	3.21207
	91 35 22.58	241 19 27	61 20 05	Ref. Mon. 808	1,210.9	3.08312
		281 49 34	101 50 11	Ref. Mon. 809	1,059.7	3.02520
		341 14 24	161 14 32	Ref. Mon. 806	728.7	2.86257
Ref. Mon. 811	48 06 39.82	41 17 05	221 16 35	Ref. Mon. 809	1,279.6	3.10706
	91 33 51.64	68 25 28	248 24 21	Ref. Mon. 807	2,023.2	3.30603
		78 43 26	258 42 57	Ref. Mon. 808	834.9	2.92166
Ref. Mon. 812	48 06 13.82	77 55 43	257 54 11	High	2,623.7	3.41892
	91 32 52.71	85 37 03	265 35 49	Ref. Mon. 809	2,069.4	3.31584
		123 22 59	303 22 15	Ref. Mon. 811	1,459.7	3.16427
Ref. Mon. 813	48 05 43.58	101 06 27	281 05 17	High	1,998.3	3.30067
	91 33 21.95	118 00 11	297 59 19	Ref. Mon. 809	1,651.9	3.21799
		160 31 39	340 31 17	Ref. Mon. 811	1,842.4	3.26538
		212 55 31	32 55 53	Ref. Mon. 812	1,112.7	3.04637
Gown	48 05 09.67	153 28 02	333 27 37	High	1,600.8	3.20434
	91 34 22.16	173 20 28	353 20 21	Ref. Mon. 809	1,835.4	3.26372
		229 56 21	49 57 06	Ref. Mon. 813	1,627.8	3.21161
Ref. Mon. 810	48 06 07.57	18 51 32	198 51 10	Gown	1,889.9	3.27643
	91 33 52.64	261 08 39	81 09 24	Ref. Mon. 812	1,254.8	3.09856
		319 23 40	139 24 03	Ref. Mon. 813	975.8	2.98938
Ref. Mon. 814	48 05 33.58	190 56 13	10 56 21	Ref. Mon. 809	1,104.6	3.04319
	91 34 42.58	224 31 58	44 32 35	Ref. Mon. 810	1,473.1	3.16822
		241 19 02	61 20 24	Ref. Mon. 812	2,590.8	3.41343
		259 29 47	79 30 47	Ref. Mon. 813	1,696.8	3.22962
		330 13 21	150 13 36	Gown	850.8	2.92981
Hold	48 05 18.82	189 19 13	9 19 20	High	1,164.9	3.06630
	91 35 05.84	226 33 42	46 33 59	Ref. Mon. 814	663.0	2.82151
		250 24 14	70 25 31	Ref. Mon. 813	2,281.9	3.35829
		287 21 26	107 21 58	Gown	947.1	2.97640
Hasp	48 05 32.52	61 57 16	241 56 48	Hold	899.5	2.95400
	91 34 27.48	96 00 21	276 00 10	Ref. Mon. 814	314.1	2.49711
		255 50 24	75 51 13	Ref. Mon. 813	1,398.4	3.14564
		351 07 59	171 08 03	Gown	714.1	2.85378
Ref. Mon. 815	48 03 57.13	170 59 38	350 59 24	Hold	2,554.6	3.40733
	91 34 46.51	192 40 44	12 41 02	Gown	2,296.6	3.36108
Ref. Mon. 816	48 04 02.25	71 53 46	251 53 29	Ref. Mon. 815	508.6	2.70635
	91 34 23.17	159 31 32	339 31 01	Hold	2,524.6	3.40220
		180 34 26	0 34 27	Gown	2,082.6	3.31860

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Gore	48 03 34.02	138 35 58	318 35 36	Ref. Mon. 815	951.8	2.97854
	91 34 16.11	170 29 31	350 29 26	Ref. Mon. 816	884.1	2.94650
Halo	48 03 07.75	174 36 37	354 36 32	Ref. Mon. 815	1,531.9	3.18523
	91 34 39.56	191 24 12	11 24 24	Ref. Mon. 816	1,717.1	3.23479
		210 54 17	30 54 34	Gore	945.5	2.97565
Goat	48 02 56.94	129 18 02	309 17 48	Halo	527.2	2.72200
	91 34 19.86	183 52 49	3 52 52	Gore	1,147.8	3.05986
Ref. Mon. 817	48 02 56.90	140 58	320 58	Goat	1.80	0.25527
	91 34 19.81					
Hawk	48 04 57.36	208 18 50	28 19 17	Harpy	1,594.4	3.20259
	91 39 01.04	247 06 35	67 08 33	Ref. Mon. 805	3,546.6	3.54981
		265 00 55	85 02 33	Have	2,728.0	3.43585
Haw	48 04 41.50	110 50 02	290 49 16	Hawk	1,377.6	3.13911
	91 37 58.83	164 20 06	344 19 47	Harpy	1,966.4	3.29368
		199 52 09	19 52 49	Ref. Mon. 804	3,230.0	3.50920
		226 39 28	46 40 40	Ref. Mon. 805	2,722.7	3.43500
		243 04 34	63 05 26	Have	1,604.2	3.20525
Haze	48 03 58.40	176 20 01	356 19 57	Hawk	1,824.6	3.26117
	91 38 55.40	221 20 05	41 20 47	Haw	1,772.9	3.24868
Hunch	48 04 24.73	231 14 17	51 15 02	Hawk	1,609.7	3.20675
	91 40 01.68	252 35 40	72 38 03	Have	4,163.5	3.61946
		258 28 36	78 30 07	Haw	2,595.2	3.41417
		300 38 44	120 39 33	Haze	1,595.1	3.20278
Hate	48 03 43.21	115 49 44	295 48 09	Fear	2,950.1	3.46984
	91 40 10.70	188 16 34	8 16 41	Hunch	1,295.9	3.11257
		236 34 56	56 36 34	Haw	3,270.0	3.51455
		238 42 34	58 45 04	Have	4,867.3	3.68729
		253 14 30	73 15 26	Haze	1,628.0	3.21165
		263 27 51	83 28 55	Fluke	1,787.7	3.25229
		326 17 45	146 19 39	Handy	5,762.1	3.76058
		349 51 12	169 51 43	Finn	4,943.2	3.69401
Hockey	48 00 51.84	232 57 58	52 58 22	Handy	828.1	2.91807
	91 38 08.30	263 10 24	83 11 42	Frump	2,181.4	3.33874
Hoist	48 00 29.74	171 17 04	351 17 00	Hockey	690.4	2.83908
	91 38 03.25	205 13 31	25 13 51	Handy	1,305.6	3.11582
Hoist north base	48 01 01.20	29 39 13	209 38 53	Hoist	1,117.94	3.04842
	91 37 36.56	66 16 06	246 15 42	Hockey	718.4	2.85637
Hale	48 01 01.59	52 35 58	232 35 12	Hoist	1,619.4	3.20936
	91 37 01.18	77 46 55	257 46 05	Hockey	1,423.2	3.15326
		89 03 02	269 02 36	Hoist north base	733.4	2.86532
		105 08 03	285 07 37	Handy	756.0	2.87853
Half	48 01 25.10	11 41 23	191 41 17	Hale	741.5	2.87009
	91 36 53.93	59 00 15	238 59 43	Handy	1,026.6	3.01141
Hard	48 01 06.69	78 54 36	258 54 07	Hale	817.5	2.91249
	91 36 22.47	91 30 16	271 29 21	Handy	1,532.5	3.18541
		131 06 19	311 05 56	Half	865.2	2.93712
Hair	48 01 12.64	70 30 15	250 29 56	Hard	551.4	2.74143
	91 35 57.38	108 11 07	288 10 25	Half	1,233.2	3.09104
Hub	48 01 44.95	24 13 14	204 12 58	Hair	1,093.9	3.03899
	91 35 35.73	39 20 27	219 19 52	Hard	1,527.8	3.18408
		69 17 17	249 16 19	Half	1,732.3	3.23863
Hit	48 01 51.60	5 18 58	185 18 53	Hard	1,393.3	3.14403
	91 36 16.24	283 45 29	103 45 59	Hub	864.1	2.93656
		342 00 46	162 01 00	Hair	1,265.0	3.10210
Hilda	48 02 21.26	316 27 44	136 28 22	Hub	1,547.0	3.18948
	91 36 27.16	343 46 01	163 46 23	Hair	2,207.1	3.34383
		346 07 19	166 07 27	Hit	943.5	2.97475
Habit	48 02 15.58	8 25 32	188 25 27	Hub	956.6	2.98071
	91 35 28.96	98 16 46	278 16 03	Hilda	1,218.2	3.08573
Hat	48 02 29.62	31 06 39	211 05 47	Hair	2,776.8	3.44354
	91 34 48.15	35 32 35	215 31 59	Hub	1,695.8	3.22938
		62 50 53	242 50 22	Habit	950.2	2.97782
		82 49 47	262 48 33	Hilda	2,067.2	3.31538
Hand	48 01 55.95	110 09 40	290 08 23	Hilda	2,268.9	3.35581
	91 34 44.34	123 15 52	303 15 18	Habit	1,105.5	3.04356
		175 39 50	355 39 47	Hat	1,043.0	3.01828
Ref. Mon. 818	48 02 45.34	9 03 48	189 03 39	Hand	1,544.8	3.18888
	91 34 32.59	51 47 34	231 46 51	Habit	1,486.0	3.17203
		72 36 21	252 34 55	Hilda	2,486.9	3.39566
		168 13 11	348 13 06	Halo	707.0	2.84941
		192 47 26	12 47 38	Gore	1,541.6	3.18796
		216 21 30	36 21 39	Goat	444.8	2.64812

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Hardy	48 02 22.09	24 32 24	204 32 11	Hand	887.5	2.94816
	91 34 26.55	117 28 39	297 28 23	Hat	564.3	2.70267
		170 06 36	350 06 32	Ref. Mon. 818	729.0	2.86275
Ref. Mon. 819	48 02 36.10	56 46 35	236 46 11	Hardy	789.5	2.89733
	91 33 54.67	109 59 03	289 58 35	Ref. Mon. 818	835.9	2.92214
		140 58 26	320 58 07	Goat	828.7	2.91841
Hank	48 02 02.62	76 05 52	256 05 22	Hand	857.6	2.93328
	91 34 04.16	142 21 10	322 20 53	Hardy	759.3	2.88044
		190 45 59	10 46 06	Ref. Mon. 819	1,052.3	3.02216
Hang	48 02 22.31	49 05 06	229 04 41	Hank	928.3	2.96767
	91 33 30.30	89 40 22	269 39 40	Hardy	1,165.2	3.06641
		130 09 07	310 08 49	Ref. Mon. 819	660.4	2.81981
Grain	48 02 36.61	13 34 10	193 34 01	Hank	1,079.7	3.03329
	91 33 51.93	57 59 26	237 59 00	Hardy	845.7	2.92720
		314 34 29	134 34 45	Hang	629.1	2.79870
Gate	48 03 22.33	31 12 23	211 11 43	Hang	2,167.3	3.33591
	91 32 36.08	48 02 54	228 01 58	Grain	2,112.2	3.32474
Ref. Mon. 821	48 03 22.32	101 26	281 26	Gate	2.05	0.31175
	91 32 35.99					
Guess	48 03 20.16	39 08 51	219 07 59	Hang	2,303.7	3.36242
	91 32 20.08	54 44 23	234 43 18	Grain	2,329.7	3.36730
		101 26 23	281 23 11	Gate	338.1	2.52900
Ham	48 02 45.44	76 34 46	256 34 05	Grain	1,174.7	3.06994
	91 32 56.76	200 35 34	20 35 49	Gate	1,217.3	3.08539
		215 18 17	35 18 44	Guess	1,314.2	3.11866
Ref. Mon. 826	48 03 01.40	57 35 45	237 35 17	Ham	919.7	2.96365
	91 32 19.27	151 41 50	331 41 37	Gate	734.4	2.86592
		178 20 05	358 20 04	Guess	579.8	2.76327
Hag	48 03 05.70	63 09 19	243 09 10	Ref. Mon. 820	294.7	2.46944
	91 32 06.57	130 02 19	310 01 57	Gate	798.3	2.90214
		147 55 24	327 55 14	Guess	526.9	2.72171
Haft	48 03 09.89	70 14 45	250 14 32	Hag	382.3	2.58245
	91 31 49.20	116 22 50	296 22 27	Guess	714.0	2.85368
		244 43 47	64 45 60	Had	2,246.2	3.35145
Gas	48 03 33.09	4 35 26	184 35 24	Haft	719.0	2.85673
	91 31 46.42	26 15 45	206 15 30	Hag	943.3	2.97464
		60 11 19	240 10 54	Guess	803.5	2.90498
		263 00 17	83 01 28	Had	1,988.5	3.29853
Gap	48 03 55.92	53 30 03	233 28 54	Haft	2,389.8	3.37837
	91 30 16.43	69 16 48	249 15 41	Gas	1,992.2	3.29933
		346 35 24	166 35 28	Had	476.3	2.67787
Ref. Mon. 822	48 04 19.37	40 38 15	220 37 38	Had	1,564.8	3.19445
	91 29 21.87	57 20 11	237 19 30	Gap	1,341.6	3.12763
		259 20 24	79 21 56	Garb	2,438.0	3.38704
Ref. Mon. 823	48 03 52.48	73 48 26	253 47 42	Had	1,279.3	3.10696
	91 29 11.76	94 33 05	274 32 17	Gap	1,343.1	3.12811
		165 51 02	345 50 55	Ref. Mon. 822	856.6	2.93278
		239 37 33	59 38 52	Garb	2,534.5	3.40389
Game	48 05 19.92	12 15 53	192 15 39	Ref. Mon. 822	1,913.9	3.28193
	91 29 02.23	24 59 58	204 59 07	Had	3,373.6	3.52810
		305 30 25	125 31 37	Garb	2,443.9	3.38808
Ref. Mon. 824	48 03 47.87	94 26 37	274 25 31	Ref. Mon. 823	1,841.2	3.26510
	91 27 43.10	115 27 17	295 26 04	Ref. Mon. 822	2,264.6	3.35500
		150 03 36	330 02 37	Game	3,281.4	3.51606
Ref. Mon. 825	48 04 08.25	72 21 01	252 20 06	Ref. Mon. 823	160.6	2.20574
	91 27 57.84	101 10 46	281 09 38	Ref. Mon. 822	1,773.3	3.24877
		148 57 19	328 56 31	Game	2,584.0	3.41230
		334 07 45	154 07 56	Ref. Mon. 824	699.6	2.84485
Spin	48 04 06.50	3 05 53	183 05 52	Ref. Mon. 824	576.4	2.76072
	91 27 41.59	99 06 48	279 06 36	Ref. Mon. 825	340.7	2.53235
Top	48 04 07.94	32 42 38	212 42 24	Ref. Mon. 824	736.6	2.86723
	91 27 23.87	83 07 27	263 07 14	Spin	369.5	2.56764
Ref. Mon. 827	48 04 00.46	66 35 35	246 35 03	Ref. Mon. 824	978.5	2.99054
	91 26 59.73	84 51 45	264 50 07	Ref. Mon. 823	2,744.6	3.43848
		101 14 35	281 12 50	Ref. Mon. 822	3,000.1	3.47714
		102 09 55	282 09 24	Spin	886.6	2.94774
		114 48 32	294 48 14	Top	550.6	2.74087
		134 04 46	314 03 15	Game	3,529.1	3.54766
Ref. Mon. 826	48 04 13.59	0 36 37	180 36 37	Ref. Mon. 827	405.6	2.60809
	91 26 59.52	70 54 19	250 54 01	Top	533.5	2.72714
Ref. Mon. 828	48 04 06.95	67 30 20	247 30 03	Ref. Mon. 827	523.8	2.71918
	91 26 36.35	91 47 11	271 46 36	Top	984.2	2.99310
		113 09 37	293 09 20	Ref. Mon. 826	521.6	2.71738

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Rap	48 03 51.35	125 59 39	305 59 25	Ref. Mon. 827	478.5	2.67991
	91 26 41.03	191 21 44	11 21 47	Ref. Mon. 828	491.3	2.69133
Ref. Mon. 830	48 03 45.21	94 58 02	274 57 28	Ref. Mon. 824	950.7	2.97805
	91 26 57.35	174 02 11	354 02 09	Ref. Mon. 827	473.6	2.67539
		212 55 17	32 55 32	Ref. Mon. 828	799.9	2.90304
		240 40 57	60 41 09	Rap	387.6	2.58842
Ref. Mon. 829	48 03 48.61	72 13 10	252 12 58	Ref. Mon. 830	344.4	2.53706
	91 26 41.51	88 58 33	268 57 47	Ref. Mon. 824	1,275.3	3.10561
		134 07 50	314 07 36	Ref. Mon. 827	525.4	2.72051
Fire	48 03 31.06	156 00 29	336 00 22	Ref. Mon. 830	478.1	2.67954
	91 26 47.96	192 54 21	12 54 26	Rap	642.9	2.80811
Till	48 03 27.61	102 32 27	282 32 10	Fire	492.1	2.69209
	91 26 24.76	128 51 36	308 51 12	Ref. Mon. 830	866.6	2.93780
		155 20 16	335 20 04	Rap	807.1	2.90692
Trap	48 03 09.57	148 48 11	328 47 57	Fire	776.2	2.88996
	91 26 28.54	188 00 23	8 00 26	Till	562.6	2.75017
Ref. Mon. 831	48 03 10.95	75 17 40	255 17 34	Trap	167.5	2.22407
	91 26 20.72	137 46 12	317 45 52	Fire	839.2	2.92388
		170 45 54	350 45 51	Till	521.3	2.71709
Ref. Mon. 832	48 03 04.90	116 06 47	296 06 33	Ref. Mon. 831	424.5	2.62788
	91 26 02.31	122 28 01	302 26 46	Ref. Mon. 824	2,473.2	3.39326
		137 32 10	317 31 29	Ref. Mon. 830	1,687.9	3.22734
		145 17 36	325 16 53	Ref. Mon. 827	2,087.6	3.31965
		146 28 07	326 27 50	Till	841.4	2.92501
		148 59 33	328 59 04	Ref. Mon. 829	1,575.4	3.19739
		336 44 22	156 45 02	Fang	2,809.2	3.44858
Ref. Mon. 833	48 03 02.31	144 43 48	324 43 42	Trap	274.7	2.43884
	91 26 20.88	174 08 11	354 08 08	Till	785.5	2.89512
		180 44 03	0 44 03	Ref. Mon. 831	266.8	2.42621
		258 15 10	78 15 24	Ref. Mon. 832	392.8	2.59420
Ref. Mon. 834	48 02 59.01	138 13 49	318 13 46	Ref. Mon. 833	136.5	2.13523
	91 26 16.49	166 38 35	346 38 32	Ref. Mon. 831	378.9	2.57849
		238 14 19	58 14 30	Ref. Mon. 832	345.4	2.53829
Ref. Mon. 835	48 03 01.29	20 27 24	200 27 23	Ref. Mon. 834	75.0	1.87506
	91 26 15.23	105 04 33	285 04 29	Ref. Mon. 833	121.3	2.08399
		159 07 57	339 07 53	Ref. Mon. 831	319.3	2.50419
Rub	48 02 55.37	110 58 01	290 57 50	Ref. Mon. 834	314.2	2.49714
	91 26 02.33	180 03 42	0 03 42	Ref. Mon. 832	294.2	2.46864
Ref. Mon. 838	48 03 01.83	64 36 12	244 35 57	Rub	465.0	2.66741
	91 25 42.05	83 02 55	263 02 29	Ref. Mon. 834	718.7	2.85652
		102 43 37	282 43 22	Ref. Mon. 832	430.2	2.63372
Ref. Mon. 836	48 02 54.31	97 34 27	277 34 18	Rub	248.6	2.39556
	91 25 50.43	143 01 42	323 01 33	Ref. Mon. 832	409.3	2.61200
		216 46 31	36 46 37	Ref. Mon. 838	289.9	2.46223
Ref. Mon. 837	48 02 58.02	67 19 18	247 19 08	Ref. Mon. 836	297.4	2.47333
	91 25 37.18	81 03 59	261 03 40	Rub	527.3	2.72202
		139 22 11	319 22 07	Ref. Mon. 838	154.9	2.18993
Ref. Mon. 839	48 02 58.60	81 50 02	261 49 58	Ref. Mon. 837	125.8	2.09968
	91 25 31.16	113 51 21	293 51 13	Ref. Mon. 838	246.4	2.39166
Ref. Mon. 841	48 03 05.18	48 31 12	228 31 04	Ref. Mon. 839	306.8	2.48685
	91 25 20.07	58 02 32	238 02 20	Ref. Mon. 837	417.7	2.62084
		77 11 07	257 10 51	Ref. Mon. 838	466.8	2.66916
Feel	48 03 01.01	36 59 24	216 59 22	Ref. Mon. 837	115.6	2.06281
	91 25 33.82	98 25 18	278 25 12	Ref. Mon. 838	172.2	2.23610
		245 40 11	65 40 21	Ref. Mon. 841	312.6	2.49498
		323 32 30	143 32 32	Ref. Mon. 839	92.5	1.96635
Ref. Mon. 840	48 03 01.38	72 23 25	252 23 15	Ref. Mon. 839	283.8	2.45302
	91 25 18.10	87 59 23	267 59 11	Feel	325.7	2.51282
		91 35 42	271 35 24	Ref. Mon. 838	496.1	2.69553
		160 53 25	340 53 23	Ref. Mon. 841	124.2	2.09409
Fop	48 02 46.44	142 46 35	322 45 43	Ref. Mon. 824	2,383.1	3.37714
	91 26 33.47	164 45 44	344 45 26	Ref. Mon. 830	1,881.4	3.27448
		166 37 27	346 37 07	Ref. Mon. 827	2,350.0	3.37107
		175 02 38	355 02 32	Ref. Mon. 829	1,927.6	3.28502
		225 15 03	45 16 11	Echo	2,660.3	3.42493
		228 31 49	48 32 12	Ref. Mon. 832	861.1	2.93503
		318 53 03	138 54 06	Fang	2,668.6	3.42629
Fent	48 02 49.17	31 37 57	211 37 11	Fang	2,460.7	3.39105
	91 24 06.48	88 25 34	268 23 45	Fop	3,045.5	3.48366
		101 27 29	281 26 03	Ref. Mon. 832	2,447.6	3.38874
		147 09 52	327 09 11	Echo	2,128.2	3.32802
Fourth	48 03 24.24	51 02 11	230 59 50	Fang	5,052.2	3.70348
	91 21 59.17	67 40 51	247 39 16	Fent	2,850.3	3.45489
		100 33 24	280 31 08	Echo	3,855.2	3.58605
		254 06 11	74 07 54	Higher	2,967.2	3.47234

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Fitz	48 02 34.15	133 14 17	313 14 03	Fop	554.1	2.74356
	91 26 13.98	194 16 17	14 16 26	Ref. Mon. 832	980.0	2.99121
		260 01 17	80 02 52	Fent	2,681.2	3.42833
		320 21 50	140 22 39	Fang	2,118.0	3.32592
Ref. Mon. 842	48 03 21.83	8 54 12	188 53 55	Fang	3,141.8	3.49718
	91 24 45.30	47 05 22	227 04 58	Ref. Mon. 840	927.4	2.96727
		51 16 58	231 15 52	Fitz	2,354.1	3.37183
		54 28 09	234 27 43	Ref. Mon. 841	884.6	2.94675
		321 26 36	141 27 05	Fent	1,289.9	3.11056
Ref. Mon. 843	48 03 09.81	77 05 59	257 05 36	Ref. Mon. 841	639.2	2.80564
	91 24 49.98	194 36 42	14 36 45	Ref. Mon. 842	383.8	2.58410
Fat	48 03 10.04	88 54 39	268 54 26	Ref. Mon. 843	370.0	2.56815
	91 24 32.11	143 09 07	323 08 57	Ref. Mon. 842	455.3	2.65830
		320 30 57	140 31 16	Fent	834.9	2.92165
Eckley	48 03 23.11	6 01 44	186 01 40	Fent	1,054.2	3.02292
	91 24 01.13	57 48 23	237 48 00	Fat	758.1	2.87973
		67 53 26	247 52 50	Ref. Mon. 843	1,091.7	3.03811
		87 31 30	267 30 57	Ref. Mon. 842	915.4	2.96162
Ref. Mon. 844	48 03 21.86	74 22 37	254 21 50	Fat	1,355.4	3.13207
	91 23 29.08	89 58 40	269 57 43	Ref. Mon. 842	1,578.3	3.19819
		93 20 46	273 20 22	Eckley	664.9	2.82274
Ref. Mon. 845	48 03 52.61	19 41 25	199 41 13	Ref. Mon. 844	1,008.7	3.00375
	91 23 12.67	29 38 01	209 37 21	Fent	2,254.0	3.35296
		47 46 26	227 45 50	Eckley	1,355.3	3.13204
		63 38 50	243 37 41	Ref. Mon. 842	2,140.6	3.33054
		299 55 27	119 56 22	Fourth	1,756.1	3.24455
Ref. Mon. 848	48 04 17.86	39 49 41	219 48 19	Fent	3,566.1	3.55219
	91 22 16.20	41 06 42	221 05 48	Ref. Mon. 844	2,295.2	3.36083
		56 18 03	236 17 21	Ref. Mon. 845	1,405.3	3.14777
		347 58 42	167 58 55	Fourth	1,693.2	3.22870
Ref. Mon. 846	48 03 59.46	46 10 17	226 09 34	Ref. Mon. 844	1,676.8	3.22447
	91 22 30.66	76 19 47	256 19 16	Ref. Mon. 845	895.0	2.95182
		207 47 24	27 47 35	Ref. Mon. 848	642.3	2.80776
Ref. Mon. 847	48 04 08.12	52 38 26	232 38 13	Ref. Mon. 846	440.9	2.64434
	91 22 13.74	68 33 54	248 33 10	Ref. Mon. 845	1,310.8	3.11752
		170 23 07	350 23 05	Ref. Mon. 848	305.0	2.48425
Eave	48 04 07.39	94 58 36	274 58 27	Ref. Mon. 847	258.4	2.41236
	91 22 01.30	136 20 06	316 19 55	Ref. Mon. 848	446.7	2.64997
Fit	48 04 03.45	126 10 44	306 10 37	Ref. Mon. 847	244.2	2.38770
	91 22 04.22	150 51 27	330 51 18	Ref. Mon. 848	509.3	2.70697
		206 22 55	26 22 57	Eave	135.9	2.13313
Ref. Mon. 849	48 04 00.09	106 22 23	286 22 10	Fit	368.2	2.56607
	91 21 47.15	114 15 09	294 14 49	Ref. Mon. 847	603.6	2.78076
		127 35 43	307 35 32	Eave	369.6	2.56777
Erd	48 04 30.55	30 02 03	210 01 21	Fourth	2,365.7	3.37396
	91 21 01.98	66 35 29	246 33 52	Ref. Mon. 845	2,948.4	3.46958
First	48 03 53.07	72 23 54	252 22 14	Fourth	2,942.9	3.46878
	91 19 43.70	89 49 51	269 47 16	Ref. Mon. 845	4,326.5	3.63614
		125 32 40	305 31 42	Erd	1,991.6	3.29921
		328 06 09	148 06 11	Higher	92.6	1.96649
Econd	48 04 39.40	47 30 36	227 30 25	Erd	404.8	2.60726
	91 20 47.56	317 15 32	137 16 19	First	1,948.3	3.28965
Enough	48 04 35.22	18 22 45	198 22 29	First	1,371.6	3.13724
	91 19 22.81	85 59 39	265 58 25	Erd	2,057.9	3.31343
		94 13 28	274 12 25	Econd	1,759.1	3.24530
Faith	48 04 09.34	56 44 00	236 43 32	First	916.0	2.96189
	91 19 06.71	105 21 42	285 20 16	Erd	2,474.6	3.39351
		113 59 11	293 57 56	Econd	2,285.0	3.35888
		157 21 39	337 21 27	Enough	865.9	2.93748
Ref. Mon. 859	48 04 30.34	90 26 47	270 26 17	Erd	837.5	2.92301
	91 20 21.52	117 26 44	297 26 25	Econd	607.4	2.78344
		325 46 12	145 46 40	First	1,392.2	3.14370
Flora	48 04 14.97	189 51 06	9 51 11	Econd	765.9	2.88418
	91 20 53.89	234 40 54	54 41 18	Ref. Mon. 859	821.2	2.91445
Ref. Mon. 858	48 04 15.04	89 48 07	269 47 47	Flora	547.4	2.73829
	91 20 27.45	123 50 35	303 50 09	Erd	860.6	2.93481
		151 03 23	331 03 08	Econd	860.1	2.93457
		194 33 04	14 33 08	Ref. Mon. 859	488.4	2.68882
Ref. Mon. 854	48 04 19.00	203 31 37	23 31 47	Econd	687.3	2.83712
	91 21 00.82	280 03 36	100 04 01	Ref. Mon. 858	701.5	2.84601
		310 58 50	130 58 55	Flora	189.8	2.27836
Ref. Mon. 856	48 04 21.31	248 11 50	68 12 15	Ref. Mon. 859	750.9	2.87556
	91 20 55.20	288 39 09	108 39 30	Ref. Mon. 858	606.3	2.78270

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 857	48 04 19.18	154 06 36	334 06 35	Ref. Mon. 856	73.4	1.86579
	91 20 53.65	242 35 18	62 35 42	Ref. Mon. 859	749.2	2.87460
		283 15 55	103 16 15	Ref. Mon. 858	557.3	2.74608
Ref. Mon. 850	48 04 16.23	241 50 33	61 50 39	Ref. Mon. 854	181.7	2.25929
	91 21 08.55	277 16 38	97 16 49	Flora	305.9	2.48565
Ref. Mon. 851	48 04 17.55	255 43 31	75 43 37	Ref. Mon. 854	182.4	2.26109
	91 21 09.36	337 48 32	157 48 32	Ref. Mon. 850	44.0	1.64355
Ref. Mon. 852	48 04 17.15	67 44 09	247 44 06	Ref. Mon. 850	74.8	1.87370
	91 21 05.21	98 14 15	278 14 12	Ref. Mon. 851	86.7	1.93806
Ref. Mon. 853	48 04 17.70	71 54 09	251 54 07	Ref. Mon. 852	54.7	1.73772
	91 21 02.70	88 06 20	268 06 15	Ref. Mon. 851	137.9	2.13941
		223 59 28	43 59 29	Ref. Mon. 854	56.2	1.74960
Ref. Mon. 855	48 04 20.16	26 39 35	206 39 34	Ref. Mon. 853	85.2	1.93068
	91 21 00.85	44 04 38	224 04 35	Ref. Mon. 852	129.7	2.11289
		52 41 12	232 41 06	Ref. Mon. 850	200.4	2.30195
		65 21 34	245 21 28	Ref. Mon. 851	193.7	2.28704
		358 45 55	178 45 55	Ref. Mon. 854	35.8	1.55357
Ref. Mon. 863	48 04 12.79	97 06 49	277 06 29	Ref. Mon. 858	559.1	2.74751
	91 20 00.65	141 26 27	321 26 11	Ref. Mon. 859	693.1	2.84082
Ref. Mon. 861	48 04 00.05	158 40 44	338 40 38	Ref. Mon. 858	496.7	2.69613
	91 20 18.73	176 27 35	356 27 33	Ref. Mon. 859	937.3	2.97188
		223 33 27	43 33 41	Ref. Mon. 863	543.1	2.73484
Ref. Mon. 860	48 04 16.52	26 16 21	206 16 12	Ref. Mon. 861	567.2	2.75376
	91 20 06.60	83 55 57	263 55 42	Ref. Mon. 858	434.1	2.63759
		144 06 33	324 06 22	Ref. Mon. 859	526.9	2.72176
		313 04 10	133 04 15	Ref. Mon. 863	168.6	2.22678
Ref. Mon. 862	48 04 09.42	57 53 58	237 53 41	Ref. Mon. 861	544.2	2.73574
	91 19 56.46	105 08 23	285 08 00	Ref. Mon. 858	664.6	2.82257
		140 15 42	320 15 39	Ref. Mon. 863	135.7	2.13251
Ref. Mon. 865	48 04 11.39	78 01 11	258 01 01	Ref. Mon. 862	294.0	2.46833
	91 19 42.57	96 36 02	276 35 49	Ref. Mon. 863	376.8	2.57612
Ref. Mon. 867	48 04 14.71	3 57 06	183 57 06	Ref. Mon. 865	102.7	2.01162
	91 19 42.23	60 58 35	240 58 25	Ref. Mon. 862	337.0	2.52760
		81 11 00	261 10 47	Ref. Mon. 863	386.0	2.58654
Ref. Mon. 864	48 04 16.13	37 46 52	217 46 49	Ref. Mon. 863	130.3	2.11500
	91 19 56.80	296 25 02	116 25 12	Ref. Mon. 865	328.8	2.51695
		358 05 39	178 05 39	Ref. Mon. 862	207.4	2.31690
Fest	48 04 15.99	2 16 16	182 16 15	Ref. Mon. 867	39.57	1.59734
	91 19 42.15	3 29 04	183 29 03	Ref. Mon. 865	142.3	2.15311
		55 34 28	235 34 17	Ref. Mon. 862	359.1	2.55525
Ref. Mon. 866	48 04 18.62	2 11 52	182 11 52	Fest	81.1	1.90919
	91 19 42.00	3 01 02	183 01 01	Ref. Mon. 865	223.4	2.34914
		46 29 48	226 29 37	Ref. Mon. 862	412.7	2.61563
Ref. Mon. 868	48 04 22.13	31 57 42	211 57 38	Fest	223.6	2.34950
	91 19 36.44	46 41 31	226 41 27	Ref. Mon. 866	158.4	2.19975
		214 54 32	34 54 42	Enough	492.9	2.69276
		302 41 20	122 41 42	Faith	731.3	2.86410
Ref. Mon. 869	48 04 19.42	64 23 00	244 22 52	Fest	245.0	2.38908
	91 19 31.48	83 29 39	263 29 31	Ref. Mon. 866	219.2	2.34078
		129 16 19	309 16 15	Ref. Mon. 868	132.4	2.12189
		200 12 11	20 12 17	Enough	520.0	2.71601
		301 14 25	121 14 43	Faith	600.0	2.77813
Ref. Mon. 870	48 04 25.83	35 37 28	215 37 23	Ref. Mon. 869	243.6	2.38670
	91 19 24.63	58 13 02	238 12 49	Ref. Mon. 866	423.1	2.62644
		64 57 10	244 57 01	Ref. Mon. 868	269.8	2.43098
		187 24 25	7 24 26	Enough	292.4	2.46602
Ref. Mon. 871	48 04 25.31	67 41 43	247 41 27	Ref. Mon. 869	479.4	2.68073
	91 19 10.06	79 48 39	259 48 19	Ref. Mon. 868	554.8	2.74414
		93 02 44	273 02 33	Ref. Mon. 870	302.1	2.48014
		139 13 25	319 13 15	Enough	404.1	2.60653
Ref. Mon. 872	48 04 22.36	89 21 05	269 20 43	Ref. Mon. 868	610.5	2.78569
	91 19 06.94	106 20 02	286 19 49	Ref. Mon. 870	381.5	2.58145
		140 25 33	320 25 21	Enough	515.4	2.71214
		144 46 42	324 46 40	Ref. Mon. 871	111.7	2.04795
Ref. Mon. 873	48 04 23.52	80 58 53	260 58 45	Ref. Mon. 872	229.6	2.36106
	91 18 55.99	100 44 21	280 44 11	Ref. Mon. 871	296.4	2.47188
		123 03 21	303 03 01	Enough	662.4	2.82109
Ref. Mon. 874	48 04 25.86	58 31 18	238 31 12	Ref. Mon. 872	207.4	2.31674
	91 18 58.40	85 57 26	265 57 18	Ref. Mon. 871	241.9	2.38355
		325 20 48	145 20 50	Ref. Mon. 873	87.9	1.94381
Ref. Mon. 876	48 04 25.62	74 07 39	254 07 31	Ref. Mon. 873	236.9	2.37456
	91 18 44.98	91 32 39	271 32 29	Ref. Mon. 874	277.9	2.44392

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 877	48 04 23.19	91 49 47	271 49 36	Ref. Mon. 873	323.0	2.50926
	91 18 40.39	102 29 28	282 29 15	Ref. Mon. 874	381.9	2.58192
		112 56 28	292 55 57	Enough	953.4	2.97928
		128 19 27	308 19 24	Ref. Mon. 876	121.1	2.08318
Ref. Mon. 875	48 04 26.87	21 22 29	201 22 28	Ref. Mon. 873	111.0	2.04532
	91 18 54.03	281 37 41	101 37 48	Ref. Mon. 876	191.3	2.28179
		291 55 21	111 55 31	Ref. Mon. 877	304.4	2.48351
Ref. Mon. 879	48 04 25.16	39 58 49	219 58 47	Ref. Mon. 877	79.3	1.89906
	91 18 37.93	95 37 23	275 37 18	Ref. Mon. 876	146.6	2.16627
Ref. Mon. 878	48 04 21.61	120 27 22	300 27 19	Ref. Mon. 877	96.0	1.98238
	91 18 36.39	124 50 45	304 50 39	Ref. Mon. 876	216.6	2.33572
		163 46 12	343 46 11	Ref. Mon. 879	113.9	2.05671
Ref. Mon. 880	48 04 25.86	11 35 35	191 35 34	Ref. Mon. 878	134.0	2.12712
	91 18 35.09	69 35 44	249 35 42	Ref. Mon. 879	62.7	1.79738
Ref. Mon. 881	48 04 20.57	128 19 11	308 19 10	Ref. Mon. 878	52.0	1.71574
	91 18 34.42	152 51 14	332 51 12	Ref. Mon. 879	159.2	2.20184
		175 09 37	355 09 37	Ref. Mon. 880	164.1	2.21505
Ref. Mon. 883	48 04 24.40	45 53 23	225 53 18	Ref. Mon. 881	170.0	2.23056
	91 18 28.52	62 07 37	242 07 31	Ref. Mon. 878	184.2	2.26538
		108 22 10	288 22 05	Ref. Mon. 880	143.2	2.15604
Ref. Mon. 882	48 04 20.26	67 55 35	247 55 05	Faith	896.9	2.95272
	91 18 26.56	93 24 14	273 24 08	Ref. Mon. 881	163.1	2.21256
		111 39 10	291 38 28	Enough	1,252.7	3.09785
		134 25 32	314 25 26	Ref. Mon. 880	247.4	2.39341
		162 20 34	342 20 33	Ref. Mon. 883	134.4	2.12831
Ref. Mon. 884	48 04 25.90	25 47 55	205 47 52	Ref. Mon. 882	193.5	2.28676
	91 18 22.49	56 20 09	236 20 00	Ref. Mon. 881	296.9	2.47256
		60 48 52	240 48 19	Faith	1,048.5	3.02055
		69 42 45	249 42 41	Ref. Mon. 883	133.3	2.12467
		102 59 21	282 58 36	Enough	1,281.3	3.10766
Ref. Mon. 885	48 04 20.72	80 13 33	260 13 30	Ref. Mon. 882	84.7	1.92789
	91 18 22.53	132 27 25	312 27 21	Ref. Mon. 883	168.4	2.22629
		180 16 18	0 16 18	Ref. Mon. 884	159.9	2.20376
Exit	48 04 29.26	66 13 05	246 12 43	Ref. Mon. 882	689.6	2.83858
	91 17 56.08	67 11 14	247 10 22	Faith	1,586.2	3.20037
		79 14 50	259 14 31	Ref. Mon. 884	556.5	2.74549
Face	48 04 15.46	83 47 07	263 46 05	Faith	1,743.2	3.24135
	91 17 43.00	99 19 54	279 19 22	Ref. Mon. 882	913.9	2.96090
		106 27 52	286 26 38	Enough	2,154.4	3.33332
		111 31 23	291 30 54	Ref. Mon. 884	878.8	2.94391
		147 34 21	327 34 11	Exit	505.0	2.70327
Egg	48 04 39.14	26 05 41	206 05 28	Face	814.3	2.91077
	91 17 25.70	64 07 36	244 07 13	Exit	699.0	2.84447
Fink	48 04 31.42	61 20 41	241 20 09	Face	1,028.0	3.01199
	91 16 59.42	86 44 43	266 44 01	Exit	1,174.7	3.06993
		113 39 33	293 39 14	Egg	593.8	2.77362
Ref. Mon. 886	48 04 22.37	69 24 28	249 24 08	Face	606.8	2.78306
	91 17 15.56	94 30 04	274 29 15	Ref. Mon. 884	1,389.9	3.14297
		104 14 15	284 13 45	Exit	865.4	2.93720
Flood	48 04 29.29	12 06 24	192 06 22	Ref. Mon. 886	218.7	2.33977
	91 17 13.34	55 09 58	235 09 36	Face	747.9	2.87387
		89 56 16	269 55 44	Exit	884.6	2.94677
Ref. Mon. 887	48 04 32.16	28 51 48	208 51 38	Face	588.7	2.76993
	91 17 29.27	285 00 06	105 00 18	Flood	341.3	2.53317
		316 47 23	136 47 33	Ref. Mon. 886	414.6	2.61759
Early	48 04 41.86	13 03 49	193 03 46	Fink	331.0	2.51986
	91 16 55.80	82 15 09	262 14 47	Egg	624.4	2.79545
Felix	48 04 36.13	58 36 23	238 36 14	Fink	279.1	2.44569
	91 16 47.91	96 46 37	276 46 09	Egg	787.6	2.89628
		137 18 23	317 18 17	Early	240.9	2.38191
Ember	48 04 48.82	59 05 16	239 04 52	Felix	762.6	2.88232
	91 16 16.30	75 17 19	255 16 49	Early	845.4	2.92705
Edna	48 04 48.90	31 22 04	211 21 55	Felix	462.0	2.66466
	91 16 36.29	61 42 24	241 42 09	Early	458.7	2.66149
		270 22 02	90 22 17	Ember	413.8	2.61679
Ref. Mon. 888	48 04 49.23	338 18	158 18	Edna	10.86	1.03583
	91 16 36.49					
Ref. Mon 889	48 04 38.79	99 49 48	279 49 28	Early	556.4	2.74535
	91 16 29.32	155 12 11	335 12 06	Edna	344.1	2.53668
		221 01 34	41 01 44	Ember	410.5	2.61334
Ref. Mon. 890	48 04 40.56	85 22 17	265 21 53	Ref. Mon. 889	675.4	2.82958
	91 15 56.80	107 30 28	287 29 59	Edna	857.2	2.93309
		122 17 41	302 17 27	Ember	477.6	2.67906

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Flay	48 04 25.85	136 42 56	316 42 42	Ref. Mon. 889	549.0	2.73960
	91 16 11.13	143 49 19	323 49 00	Edna	882.2	2.94555
		171 25 37	351 25 33	Ember	717.4	2.85575
		213 09 41	33 09 51	Ref. Mon. 890	542.6	2.73447
Ref. Mon. 891	48 04 50.49	8 40 49	188 40 45	Flay	769.8	2.88636
	91 16 05.52	53 44 40	233 44 22	Ref. Mon. 889	610.9	2.78595
		329 30 27	149 30 33	Ref. Mon. 890	356.0	2.55141
Flick	48 04 49.43	72 58 09	252 57 37	Ref. Mon. 890	935.4	2.97099
	91 15 13.89	91 44 54	271 44 16	Ref. Mon. 891	1,075.4	3.03158
Elbow	48 05 02.42	51 34 52	231 34 22	Ref. Mon. 890	1,086.9	3.03620
	91 15 15.65	70 20 43	250 20 07	Ref. Mon. 891	1,096.0	3.03982
		353 55 08	173 55 10	Flick	403.7	2.60608
Ref. Mon. 893	48 04 58.06	60 20 41	240 20 24	Flick	538.8	2.73143
	91 14 50.96	104 47 07	284 46 48	Elbow	528.5	2.72301
Eben	48 05 17.36	31 27 46	211 27 33	Ref. Mon. 893	699.0	2.84450
	91 14 33.34	43 59 46	223 59 16	Flick	1,199.4	3.07896
		62 13 13	242 12 41	Elbow	989.9	2.99559
Ref. Mon. 892	48 05 09.06	12 01 23	192 01 18	Flick	620.0	2.79238
	91 15 07.35	249 58 30	69 58 55	Eben	749.1	2.87456
		315 03 35	135 03 47	Ref. Mon. 893	480.0	2.68125
Ref. Mon. 894	48 05 43.23	19 30 58	199 30 48	Eben	847.7	2.92823
	91 14 19.65	24 54 52	204 54 29	Ref. Mon. 893	1,538.4	3.18707
		43 05 04	223 04 29	Ref. Mon. 892	1,445.0	3.15988
Ref. Mon. 895	48 05 52.20	45 43 10	225 42 30	Eben	1,540.9	3.18778
	91 13 40.03	53 36 14	233 35 09	Ref. Mon. 892	2,245.0	3.35122
		71 20 23	251 19 53	Ref. Mon. 894	865.4	2.93720
Ref. Mon. 896	48 06 04.09	36 46 33	216 45 54	Eben	1,801.8	3.25571
	91 13 41.21	50 59 35	230 59 06	Ref. Mon. 894	1,023.6	3.01014
		356 11 34	176 11 35	Ref. Mon. 895	368.2	2.56610
Factor	48 05 40.88	16 28 19	196 27 23	Ewing	5,539.1	3.74344
	91 13 46.54	129 20 04	309 19 32	Paddy	1,155.4	3.06272
		285 03 12	105 06 33	Saunders	5,785.4	3.76233
Factotum	48 05 46.93	76 55 16	256 54 48	Factor	825.4	2.91666
	91 13 07.69	107 49 12	287 48 11	Paddy	1,783.0	3.25116
		289 27 46	109 30 38	Saunders	5,072.5	3.70522
Ref. Mon 897	48 06 17.17	12 26 39	192 26 32	Factotum	956.8	2.98080
	91 12 57.72	42 01 20	222 00 44	Factor	1,509.0	3.17869
		48 36 47	228 36 16	Ref. Mon. 895	1,166.7	3.06696
		58 16 23	238 15 22	Ref. Mon. 894	1,993.1	3.29953
		65 49 17	245 48 45	Ref. Mon. 896	986.2	2.99398
		299 50 03	119 52 48	Saunders	5,275.6	3.72227
Ref. Mon. 898	48 06 04.19	70 44 53	250 44 15	Ref. Mon. 895	1,123.3	3.05049
	91 12 48.78	89 50 35	269 49 56	Ref. Mon. 896	1,084.9	3.03538
		155 12 59	335 12 52	Ref. Mon. 897	441.6	2.64505
Frank	48 05 58.82	71 06 47	251 06 26	Ref. Mon. 895	631.7	2.80051
	91 13 11.14	104 40 33	284 40 11	Ref. Mon. 896	643.1	2.80826
		206 05 26	26 05 36	Ref. Mon. 897	631.2	2.80019
		250 16 06	70 16 23	Ref. Mon. 898	491.6	2.69164
Fad	48 06 34.74	34 18 21	214 17 58	Ref. Mon. 898	1,142.1	3.05769
	91 12 17.66	35 01 42	215 01 05	Factotum	1,803.3	3.25606
		47 52 24	227 51 18	Factor	2,479.6	3.39439
		56 47 43	236 47 13	Ref. Mon. 897	990.5	2.99584
Earth	48 06 44.56	23 10 03	203 09 44	Ref. Mon. 898	1,356.0	3.13226
	91 12 22.99	40 21 15	220 20 49	Ref. Mon. 897	1,109.7	3.04521
		340 01 51	160 01 55	Fad	322.6	2.50871
Front	48 06 42.25	46 13 38	226 13 29	Fad	335.4	2.52562
	91 12 05.96	101 25 13	281 25 00	Earth	359.5	2.55570
Fain	48 07 07.01	45 14 51	225 14 23	Front	1,086.2	3.03589
	91 11 28.67	58 19 13	238 18 32	Earth	1,320.4	3.12072
Earn	48 07 17.21	10 30 30	190 30 23	Front	1,098.2	3.04068
	91 11 56.27	18 38 26	198 38 10	Fad	1,384.5	3.14128
		28 43 16	208 42 56	Earth	1,150.1	3.06073
		298 53 14	118 53 35	Fain	652.1	2.81431
Ear	48 06 54.14	213 08 10	33 08 26	Earn	850.9	2.92986
	91 12 18.76	249 00 34	69 01 11	Fain	1,109.7	3.04522
		324 12 04	144 12 13	Front	452.9	2.65597
Ref. Mon. 899	48 07 15.36	39 25 36	219 25 29	Fain	333.7	2.52338
	91 11 18.42	62 18 26	242 17 42	Ear	1,409.6	3.14909
		94 11 15	274 10 47	Earn	784.9	2.89484
Ref. Mon. 900	48 07 40.02	1 55 32	181 55 31	Fain	1,020.0	3.00859
	91 11 27.01	40 40 16	220 39 54	Earn	928.6	2.96784
		346 52 09	166 52 15	Ref. Mon. 899	782.1	2.89324
Fall	48 07 20.74	58 17 30	238 17 20	Ref. Mon. 899	316.3	2.50005
	91 11 05.41	84 05 28	264 04 50	Earn	1,057.5	3.02429
		143 07 24	323 07 08	Ref. Mon. 900	744.3	2.87176

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 904	48 07 27.77	38 29 10	218 29 04	Fall	277.5	2.44331
	91 10 57.06	75 05 24	255 04 40	Earn	1,267.3	3.10288
		121 24 29	301 24 07	Ref. Mon. 900	725.7	2.86075
Ref. Mon. 901	48 07 21.05	85 53 59	265 53 54	Fall	134.8	2.12962
	91 10 58.91	190 26 49	10 26 50	Ref. Mon. 904	211.1	2.32449
Ref. Mon. 902	48 07 18.94	106 25 24	286 25 17	Fall	196.4	2.29319
	91 10 56.30	140 22 09	320 22 07	Ref. Mon. 901	84.6	1.92746
		176 42 27	356 42 26	Ref. Mon. 904	273.2	2.43652
Ref. Mon. 903	48 07 22.80	79 56 49	259 56 36	Fall	365.4	2.56282
	91 10 48.01	129 21 12	309 21 05	Ref. Mon. 904	242.0	2.38378
Ref. Mon. 906	48 07 27.67	64 08 27	244 08 16	Ref. Mon. 903	344.9	2.53767
	91 10 33.00	90 20 55	270 20 37	Ref. Mon. 904	497.5	2.69676
Ref. Mon. 905	48 07 38.50	22 00 08	202 00 01	Ref. Mon. 903	522.8	2.71831
	91 10 38.54	49 08 28	229 08 14	Ref. Mon. 904	506.3	2.70444
		341 05 33	161 05 37	Ref. Mon. 906	353.3	2.54818
Fail	48 08 14.13	43 06 31	223 05 42	Ref. Mon. 906	1,965.3	3.29343
	91 09 28.06	52 56 40	232 55 47	Ref. Mon. 905	1,826.3	3.26157
Civil	48 08 12.51	30 22 52	210 22 22	Ref. Mon. 906	1,605.3	3.20555
	91 09 53.74	41 24 14	221 23 40	Ref. Mon. 905	1,400.6	3.14632
		264 36 42	84 37 01	Fail	533.4	2.72707
Ease	48 08 05.87	31 14 50	211 14 24	Ref. Mon. 906	1,379.7	3.13978
	91 09 58.39	44 28 51	224 28 21	Ref. Mon. 905	1,184.9	3.07368
		205 05 29	25 05 33	Civil	226.5	2.35515
		247 51 07	67 51 36	Fail	677.1	2.83065
Ref. Mon. 908	48 08 29.40	33 47 19	213 46 32	Ref. Mon. 906	2,293.7	3.36053
	91 09 31.32	37 36 18	217 35 57	Ease	917.2	2.96246
		41 38 14	221 37 57	Civil	697.8	2.84370
		351 51 14	171 51 16	Fail	476.2	2.67781
Ref. Mon. 907	48 08 23.09	68 39 31	248 39 01	Civil	897.6	2.95309
	91 09 13.30	117 36 31	297 36 18	Ref. Mon. 908	420.3	2.62356
Clerk	48 08 44.80	33 54 55	213 54 38	Ref. Mon. 907	808.1	2.90747
	91 08 51.50	38 35 25	218 34 57	Fail	1,211.9	3.08346
		52 13 48	232 13 01	Civil	1,628.1	3.21169
Daddy	48 08 33.49	60 43 56	240 43 35	Ref. Mon. 907	657.2	2.81768
	91 08 45.58	65 18 46	245 17 55	Civil	1,551.1	3.19065
		82 22 59	262 22 25	Ref. Mon. 908	954.1	2.97960
		160 41 43	340 41 39	Clerk	370.1	2.56837
Fair	48 08 29.89	74 41 14	254 40 03	Civil	2,030.8	3.30767
	91 08 19.01	124 27 08	304 26 44	Clerk	814.5	2.91087
Clayton	48 09 02.04	11 20 57	191 20 50	Daddy	899.4	2.95395
	91 08 37.01	29 20 37	209 20 26	Clerk	610.8	2.78593
		339 27 07	159 27 20	Fair	1,060.7	3.02558
Ref. Mon. 910	48 09 09.25	17 07 10	197 06 56	Fair	1,272.3	3.10459
	91 08 00.89	39 54 32	219 53 58	Daddy	1,439.9	3.15833
		46 24 01	226 23 06	Ref. Mon. 907	2,067.3	3.31541
		54 10 33	234 09 55	Clerk	1,290.2	3.11065
Duluth	48 09 10.30	21 01 51	201 01 34	Fair	1,337.2	3.12621
	91 07 55.79	42 09 25	222 08 48	Daddy	1,533.4	3.18565
		55 38 09	235 37 28	Clerk	1,394.9	3.14455
		73 20 32	253 20 02	Clayton	889.4	2.94908
Ref. Mon. 909	48 09 04.59	4 47 41	184 47 38	Fair	1,075.6	3.03166
	91 08 14.66	33 38 39	213 38 16	Daddy	1,153.7	3.06208
		51 15 14	231 14 47	Clerk	976.4	2.98962
Ref. Mon. 921	48 09 31.80	6 37 33	186 37 30	Duluth	668.5	2.82509
	91 07 52.06	16 14 29	196 14 09	Fair	1,991.6	3.29921
		45 19 02	225 18 29	Clayton	1,306.8	3.11622
Dagger	48 09 05.46	57 30 26	237 25 10	Paddy	10,387.5	4.01651
	91 07 26.26	146 45 13	326 44 54	Ref. Mon. 921	972.4	2.98786
		169 54 40	349 54 25	Dorothy	2,384.7	3.37743
Ref. Mon. 920	48 09 57.33	31 13 31	211 12 56	Dagger	1,873.1	3.27256
	91 06 39.28	53 35 01	233 29 10	Paddy	12,095.4	4.08262
		54 56 59	234 55 32	Clayton	2,972.5	3.47312
		62 20 12	242 19 18	Ref. Mon. 921	1,698.2	3.22998
		118 15 14	298 14 24	Dorothy	1,576.2	3.19760
Cinch	48 09 51.20	3 21 18	183 21 15	Dagger	1,415.1	3.15080
	91 07 22.25	25 02 16	205 01 34	Fair	2,772.0	3.44280
		28 44 58	208 44 33	Duluth	1,441.1	3.15870
		45 30 13	225 29 18	Clayton	2,166.3	3.33572
		45 46 38	225 46 16	Ref. Mon. 921	859.5	2.93424
		51 40 07	231 34 48	Paddy	11,274.8	4.05211
		257 58 20	77 58 52	Ref. Mon. 920	907.9	2.95804
Dopfer	48 09 28.48	97 20 53	277 20 25	Ref. Mon. 921	801.0	2.90362
	91 07 13.62	165 44 08	345 44 02	Cinch	724.2	2.85986
		218 31 51	38 32 17	Ref. Mon. 920	1,139.0	3.05654

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Claret	48 10 15.38	36 05 02	216 04 47	Ref. Mon. 920	690.0	2.83886
	91 06 19.61	60 01 24	240 00 37	Cinch	1,494.3	3.17444
Danny	48 10 14.72	62 54 30	242 53 52	Ref. Mon. 920	1,179.2	3.07159
	91 05 48.48	91 49 51	271 49 28	Claret	643.7	2.80868
Circus	48 10 18.46	48 54 45	228 54 18	Ref. Mon. 920	993.1	2.99700
	91 06 03.06	62 47 04	242 46 05	Cinch	1,840.3	3.26488
		74 28 05	254 27 53	Claret	355.1	2.55030
		290 59 36	110 59 47	Danny	322.7	2.50878
Ref. Mon. 929	48 10 20.84	52 38 32	232 37 58	Ref. Mon. 920	1,196.7	3.07800
	91 05 53.24	70 03 59	250 03 52	Circus	215.6	2.33370
		332 28 37	152 28 41	Danny	213.3	2.32892
Ref. Mon. 924	48 10 17.35	84 39 21	264 38 58	Claret	653.0	2.81491
	91 05 48.15	96 20 30	276 20 19	Circus	310.0	2.49131
		135 38 38	315 38 34	Ref. Mon. 929	150.7	2.17810
Drub	48 10 11.17	187 16 52	7 16 53	Circus	226.9	2.35577
	91 06 04.45	217 47 05	37 47 13	Ref. Mon. 929	377.8	2.57723
		240 28 02	60 28 15	Ref. Mon. 924	387.1	2.58784
Casket	48 10 13.91	257 07 33	77 07 51	Ref. Mon. 924	477.0	2.67851
	91 06 10.65	303 24 22	123 24 27	Drub	153.6	2.18628
Ref. Mon. 922	48 10 05.20	235 04 37	55 04 51	Casket	469.7	2.67183
	91 06 29.29	250 14 39	70 14 58	Drub	545.4	2.73673
Ref. Mon. 927	48 10 10.15	266 59 11	86 59 33	Drub	602.8	2.78015
	91 06 33.58	329 52 07	149 52 10	Ref. Mon. 922	176.5	2.24682
Ref. Mon. 925	48 10 00.31	20 41 06	200 40 52	Dopfer	1,050.9	3.02157
	91 06 55.65	236 19 29	56 19 45	Ref. Mon. 927	548.0	2.73878
		254 29 11	74 29 30	Ref. Mon. 922	565.3	2.75226
		285 14 25	105 14 37	Ref. Mon. 920	350.6	2.54487
Ducat	48 09 51.97	171 04 16	351 04 15	Ref. Mon. 925	260.7	2.41608
	91 06 53.70	216 30 49	36 31 04	Ref. Mon. 927	698.5	2.84414
Duet	48 09 35.92	202 13 23	22 13 34	Ref. Mon. 925	814.0	2.91060
	91 07 10.55	215 04 45	35 04 57	Ducat	606.1	2.78253
Ref. Mon. 918	48 09 35.87	253 40	73 40	Duet	5.10	0.70757
	91 07 10.79					
Ref. Mon. 923	48 09 41.65	228 53 28	48 53 41	Ducat	485.2	2.68593
	91 07 11.39	354 25 32	174 25 33	Duet	177.8	2.24996
Central	48 09 37.51	257 46 25	77 46 46	Ref. Mon. 923	603.5	2.78068
	91 07 39.93	274 37 46	94 38 08	Duet	609.1	2.78469
		297 09 12	117 09 32	Dopfer	611.1	2.78611
Drove	48 09 25.11	172 17 44	352 17 42	Central	386.5	2.58717
	91 07 37.42	226 29 03	46 29 22	Ref. Mon. 923	741.9	2.87034
		238 59 04	58 59 24	Duet	647.9	2.81153
Ref. Mon. 916	48 09 22.05	223 31 56	43 32 12	Central	658.6	2.81863
	91 08 01.88	259 24 55	79 25 13	Drove	514.2	2.71115
Cere	48 09 25.49	270 56 32	90 56 57	Drove	712.9	2.85305
	91 08 11.91	297 07 06	117 07 13	Ref. Mon. 916	233.0	2.36731
Ref. Mon. 919	48 09 25.41	240 24	60 24	Cere	4.80	0.68124
	91 08 12.11					
Chafe	48 09 22.16	240 23 29	60 23 36	Cere	208.1	2.31826
	91 08 20.67	270 29 53	90 30 07	Ref. Mon. 916	388.3	2.58917
Ref. Mon. 917	48 09 22.14	255 59	75 59	Chafe	2.74	0.43775
	91 08 20.80					
Ref. Mon. 914	48 09 20.00	149 24 12	329 24 10	Chafe	77.4	1.88855
	91 08 18.76	219 52 47	39 52 52	Cere	220.8	2.34391
Ref. Mon. 915	48 09 20.13	255 58 46	75 58 55	Chafe	259.4	2.41394
	91 08 32.84	270 44 19	90 44 30	Ref. Mon. 914	291.1	2.46398
Dub	48 09 15.69	154 12 11	334 12 09	Ref. Mon. 915	152.2	2.18238
	91 08 29.64	222 51 16	42 51 23	Chafe	272.6	2.43557
Ref. Mon. 913	48 09 14.64	181 29 42	1 29 42	Ref. Mon. 915	169.6	2.22954
	91 08 33.06	245 15 12	65 15 14	Dub	77.8	1.89099
Ref. Mon. 912	48 09 09.14	131 42 20	311 42 14	Ref. Mon. 913	255.0	2.40646
	91 08 23.85	149 22 37	329 22 33	Dub	235.0	2.37098
Ref. Mon. 911	48 09 04.83	163 55 59	343 55 56	Dub	349.0	2.54281
	91 08 24.96	189 50 24	9 50 25	Ref. Mon. 912	135.2	2.13084
Ref. Mon. 931	48 10 28.71	28 50 05	208 49 57	Danny	493.4	2.69321
	91 05 36.96	54 09 17	234 09 05	Ref. Mon. 929	415.1	2.61818
Ref. Mon. 926	48 10 22.24	65 16 47	245 16 29	Danny	556.0	2.74511
	91 05 24.03	73 07 31	253 07 13	Ref. Mon. 924	520.7	2.71659
		81 45 07	261 44 38	Circus	814.8	2.91104
		85 53 17	265 52 55	Ref. Mon. 929	605.2	2.78189
		126 46 53	306 46 43	Ref. Mon. 931	333.5	2.52310

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Dungeon	48 10 39.76	49 03 57	229 03 35	Ref. Mon. 926	825.7	2.91683
	91 04 53.84	58 20 03	238 19 23	Ref. Mon. 924	1,318.4	3.12004
		69 02 20	249 01 48	Ref. Mon. 931	954.0	2.97956
Doxey	48 10 30.85	86 03 16	266 02 42	Ref. Mon. 931	959.9	2.98222
	91 04 50.61	166 22 17	346 22 15	Dungeon	283.2	2.45210
Click	48 10 53.53	42 52 49	222 52 25	Doxey	955.9	2.98043
	91 04 19.12	59 26 02	239 19 36	Dungeon	833.8	2.92106
Ref. Mon. 934	48 11 00.35	58 18 28	238 17 34	Doxey	1,734.2	3.23910
	91 03 39.18	67 35 42	247 34 46	Dungeon	1,668.2	3.22225
		75 46 31	255 40 01	Click	851.5	2.93018
Ref. Mon. 935	48 11 03.63	43 24 01	223 23 26	Doxey	1,393.2	3.14400
	91 04 04.27	54 15 15	234 14 38	Dungeon	1,261.6	3.10091
		281 01 48	101 02 07	Ref. Mon. 934	528.0	2.72267
Ref. Mon. 932	48 10 50.42	99 59 17	279 58 57	Click	554.3	2.74377
	91 03 52.69	149 36 39	329 36 36	Ref. Mon. 935	472.9	2.67474
		222 17 06	42 17 16	Ref. Mon. 934	414.8	2.61781
Ref. Mon. 930	48 10 45.44	75 35 04	255 34 39	Dungeon	704.8	2.84805
	91 04 20.80	187 53 10	7 53 11	Click	252.2	2.40175
		211 17 13	31 17 25	Ref. Mon. 935	657.2	2.81768
		241 48 55	61 49 26	Ref. Mon. 934	975.2	2.98910
		255 10 07	75 10 28	Ref. Mon. 932	600.6	2.77855
Ref. Mon. 928	48 10 46.94	27 15 07	207 15 03	Dungeon	249.4	2.39686
	91 04 48.31	253 48 44	73 49 36	Ref. Mon. 934	1,486.9	3.17227
		264 38 57	84 39 39	Ref. Mon. 932	1,153.9	3.06218
		274 38 40	94 39 01	Ref. Mon. 930	576.3	2.75608
Crupper	48 10 54.90	19 39 23	199 39 19	Ref. Mon. 928	261.1	2.41684
	91 04 44.06	301 17 31	121 17 48	Ref. Mon. 930	562.4	2.75002
Din	48 10 43.11	213 01 41	33 01 50	Crupper	434.4	2.63786
	91 04 55.52	231 32 44	51 32 49	Ref. Mon. 928	190.2	2.27916
		264 15 35	84 16 01	Ref. Mon. 930	720.9	2.85790
Ref. Mon. 933	48 10 56.48	277 23 55	97 24 09	Crupper	379.6	2.57938
	91 05 02.28	315 36 08	135 36 18	Ref. Mon. 928	412.6	2.61552
		341 18 35	161 18 40	Din	436.1	2.63955
Cuddle	48 11 03.69	285 52 30	105 52 43	Ref. Mon. 934	376.8	2.57606
	91 03 56.73	348 30 35	168 30 38	Ref. Mon. 932	418.3	2.62148
Ref. Mon. 937	48 11 15.42	1 53 04	181 53 03	Ref. Mon. 932	772.5	2.88789
	91 03 51.46	16 42 36	196 42 32	Cuddle	378.1	2.57763
		331 23 52	151 24 01	Ref. Mon. 934	529.9	2.72418
Ref. Mon. 936	48 11 14.22	44 27 50	224 27 35	Ref. Mon. 934	600.2	2.77830
	91 03 18.83	70 46 49	250 46 15	Ref. Mon. 935	994.1	2.99743
Cephas	48 11 28.34	6 20 01	186 19 59	Ref. Mon. 936	438.7	2.64216
	91 03 16.48	28 28 28	208 28 11	Ref. Mon. 934	983.3	2.99270
		52 17 14	232 16 38	Ref. Mon. 935	1,247.8	3.09613
Ref. Mon. 939	48 11 18.55	31 56 18	211 56 05	Ref. Mon. 934	662.3	2.82103
	91 03 22.22	332 19 44	152 19 46	Ref. Mon. 936	150.9	2.17868
Ref. Mon. 938	48 11 17.40	68 15 24	248 15 15	Ref. Mon. 936	264.9	2.42309
	91 03 06.92	96 24 32	276 24 21	Ref. Mon. 939	318.1	2.50258
		149 40 24	329 40 17	Cephas	391.4	2.59266
Mon. 1	48 11 17.40	68 34 24	248 34 15	Ref. Mon. 936	268.3	2.42856
	91 03 06.74	92 09 25	272 09 25	Ref. Mon. 938	3.66	0.56349
		149 13 26	329 13 19	Cephas	393.4	2.59485
Dwarf	48 11 13.61	92 17 02	272 16 45	Ref. Mon. 936	474.3	2.67607
	91 02 55.88	136 54 47	316 54 32	Cephas	622.9	2.79442
Cairo	48 11 26.06	39 43 05	219 42 53	Dwarf	499.8	2.69883
	91 02 40.42	65 15 40	245 15 11	Ref. Mon. 936	873.5	2.94127
		95 24 14	275 23 47	Cephas	748.2	2.87402
Daft	48 11 12.98	91 27 13	271 26 45	Dwarf	772.3	2.88777
	91 02 18.50	131 45 24	311 45 08	Cairo	606.7	2.78298
Clash	48 11 33.75	27 47 46	207 47 33	Daft	725.4	2.86056
	91 02 02.13	60 44 25	240 43 44	Dwarf	1,272.7	3.10471
		73 16 38	253 16 09	Cairo	825.8	2.91685
Ref. Mon. 946	48 11 14.34	85 51 08	265 50 47	Daft	582.2	2.76508
	91 01 50.39	157 59 11	337 59 03	Clash	646.7	2.81070
Ref. Mon. 947	48 11 21.42	64 44 04	244 43 44	Daft	610.7	2.78585
	91 01 51.76	352 36 04	172 36 05	Ref. Mon. 946	220.4	2.34319
Cartoon	48 11 23.88	282 38 14	102 38 26	Ref. Mon. 947	346.8	2.54007
	91 02 08.15	308 45 14	128 45 27	Ref. Mon. 946	470.3	2.67241
Ref. Mon. 945	48 11 24.53	16 45	196 45	Cartoon	21.05	1.32325
	91 02 07.85					
Captor	48 11 32.94	266 47 14	86 47 31	Clash	447.9	2.65118
	91 02 23.78	309 47 28	129 47 53	Ref. Mon. 946	897.6	2.95306
		310 56 10	130 56 22	Cartoon	427.4	2.63086

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 944	48 11 21.77	138 52 42	318 52 31	Captor	458.1	2.66097
	91 02 09.19	201 30 48	21 30 54	Clash	397.9	2.59977
		271 43 13	91 43 26	Ref. Mon. 947	360.1	2.55645
		300 33 58	120 34 12	Ref. Mon. 946	451.0	2.65421
Ref. Mon. 943	48 11 24.45	220 55 17	40 55 25	Captor	347.3	2.54074
	91 02 34.80	246 54 57	66 55 22	Clash	733.4	2.86536
		271 49 53	91 50 13	Cartoon	550.7	2.74091
		278 52 50	98 53 09	Ref. Mon. 944	535.2	2.72855
Ref. Mon. 942	48 11 21.14	205 59 00	25 59 02	Ref. Mon. 943	113.4	2.05472
	91 02 37.20	217 15 35	37 15 45	Captor	457.9	2.66073
		241 43 53	61 44 20	Clash	822.5	2.91513
Ref. Mon. 940	48 11 19.78	245 31 39	65 31 50	Ref. Mon. 943	347.5	2.54100
	91 02 50.11	261 02 50	81 02 59	Ref. Mon. 942	269.9	2.43122
Ref. Mon. 941	48 11 22.88	40 39 28	220 39 26	Ref. Mon. 940	125.9	2.10005
	91 02 46.14	258 18 57	78 19 06	Ref. Mon. 943	239.2	2.37883
		286 10 03	106 10 10	Ref. Mon. 942	192.2	2.28373
Mon. 3	48 11 19.92	243 00 49	63 00 55	Ref. Mon. 941	201.4	2.30403
	91 02 54.83	272 25 47	92 25 51	Ref. Mon. 940	97.5	1.98906
Mon. 2	48 11 20.01	62 31 14	242 31 08	Mon. 1	174.7	2.24241
	91 02 59.23	271 43 36	91 43 39	Mon. 3	91.0	1.95896
Ref. Mon. 948	48 11 22.70	63 11 51	243 11 33	Ref. Mon. 946	572.1	2.75745
	91 01 25.67	85 49 09	265 48 50	Ref. Mon. 947	540.4	2.73273
Ref. Mon. 949	48 11 30.12	44 03 55	224 03 38	Ref. Mon. 946	678.3	2.83140
	91 01 27.55	61 44 25	241 44 07	Ref. Mon. 947	567.8	2.75416
		350 22 42	170 22 43	Ref. Mon. 948	232.7	2.36677
Ref. Mon. 950	48 11 32.02	26 41 49	206 41 43	Ref. Mon. 948	322.5	2.50859
	91 01 18.65	72 16 28	252 16 21	Ref. Mon. 949	193.0	2.28545
Ref. Mon. 951	48 11 33.72	6 53 03	186 53 01	Ref. Mon. 948	343.0	2.53526
	91 01 23.68	35 45 30	215 45 27	Ref. Mon. 949	136.9	2.13639
		296 45 38	116 45 42	Ref. Mon. 950	116.2	2.06537
Ref. Mon. 953	48 11 38.12	23 30 29	203 30 26	Ref. Mon. 950	205.4	2.31262
	91 01 14.69	53 46 56	233 46 49	Ref. Mon. 951	230.2	2.36212
Ref. Mon. 952	48 11 36.42	53 36 17	233 36 10	Ref. Mon. 950	228.6	2.35917
	91 01 09.74	73 51 20	253 51 09	Ref. Mon. 951	299.7	2.47662
		117 17 42	297 17 38	Ref. Mon. 953	114.9	2.06034
Ref. Mon. 955	48 11 48.70	32 53 59	212 53 50	Ref. Mon. 952	451.8	2.65493
	91 00 57.86	46 46 24	226 46 11	Ref. Mon. 953	476.9	2.67844
Ref. Mon. 954	48 11 44.62	57 07 27	237 07 13	Ref. Mon. 952	466.8	2.66917
	91 00 50.76	67 53 44	247 53 26	Ref. Mon. 953	533.4	2.72705
		130 38 39	310 38 34	Ref. Mon. 955	193.3	2.28624
Ref. Mon. 956	48 11 51.36	37 19 41	217 19 35	Ref. Mon. 954	261.8	2.41794
	91 00 43.07	74 55 40	254 55 29	Ref. Mon. 955	316.3	2.50009
Ref. Mon. 957	48 12 03.29	10 03 23	190 03 19	Ref. Mon. 954	585.6	2.76757
	91 00 45.81	28 54 53	208 54 44	Ref. Mon. 955	514.8	2.71166
		351 16 56	171 16 58	Ref. Mon. 956	372.7	2.57136
Ref. Mon. 958	48 11 51.51	89 27 19	269 27 01	Ref. Mon. 956	487.3	2.68777
	91 00 19.48	123 47 07	303 46 47	Ref. Mon. 957	654.2	2.81569
Ref. Mon. 959	48 12 07.33	42 47 29	222 47 12	Ref. Mon. 956	672.2	2.82748
	91 00 20.96	76 19 23	256 19 04	Ref. Mon. 957	528.1	2.72268
		356 24 53	176 24 54	Ref. Mon. 958	489.6	2.68983
Ref. Mon. 960	48 12 05.12	29 26 48	209 26 39	Ref. Mon. 958	482.4	2.68345
	91 00 07.99	59 36 59	239 36 32	Ref. Mon. 956	839.8	2.92415
		85 52 26	265 51 57	Ref. Mon. 957	782.9	2.89370
		104 21 00	284 20 50	Ref. Mon. 959	276.4	2.44153
Depot	48 12 22.20	60 10 53	240 10 20	Ref. Mon. 960	1,061.2	3.02579
	90 59 23.40	68 52 37	248 51 54	Ref. Mon. 959	1,274.1	3.10519
		200 37 55	20 38 28	Ref. Mon. 961	2,644.2	3.42229
Cringe	48 12 48.96	25 56 46	205 56 23	Ref. Mon. 960	1,506.1	3.17785
	90 59 36.08	35 46 57	215 46 24	Ref. Mon. 959	1,584.9	3.20000
		215 54 23	35 55 06	Ref. Mon. 961	2,034.7	3.30851
		342 25 52	162 26 02	Depot	867.0	2.93802
Crusoe	48 13 25.19	45 01 36	225 00 26	Depot	2,752.1	3.43967
	90 57 49.11	63 08 18	243 06 58	Cringe	2,475.5	3.39366
		117 32 47	297 32 10	Ref. Mon. 961	1,144.1	3.05847
		284 04 06	104 05 59	Driggs	3,237.7	3.51024
		349 39 01	169 39 04	Dicker	547.5	2.73839
Ref. Mon. 962	48 12 46.38	52 55 46	232 55 11	Depot	1,238.4	3.09286
	90 58 35.55	93 40 03	273 39 18	Cringe	1,252.2	3.09768
		178 08 40	358 08 38	Ref. Mon. 961	1,728.8	3.23775
		218 38 25	38 39 00	Crusoe	1,535.0	3.18612
Cuyo	48 13 32.27	51 41 51	231 41 16	Dicker	1,221.7	3.08698
	90 56 57.90	54 53 30	234 52 17	Ref. Mon. 962	2,464.3	3.39169
		78 18 50	258 18 12	Crusoe	1,079.4	3.03318
		295 46 44	115 47 59	Driggs	2,313.7	3.36430

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Depend	48 13 57.29	60 27 05	240 25 28	Dicker	3,101.3	3.49154
	90 55 33.64	66 02 53	246 01 51	Cuyo	1,902.8	3.27940
		83 05 54	263 03 37	Ref. Mon. 961	3,838.0	3.58411
		96 46 10	276 44 26	Vera	2,904.6	3.46309
Ref. Mon. 969	48 15 06.13	23 24 56	203 24 23	Depend	2,317.0	3.36492
	90 54 49.03	42 32 34	222 30 59	Cuyo	3,933.9	3.59482
		64 53 21	244 51 04	Vera	4,202.2	3.62348
Ref. Mon. 967	48 14 06.35	70 33 14	250 32 45	Depend	840.7	2.92466
	90 54 55.23	90 58 49	270 56 36	Vera	3,677.6	3.56557
		183 57 51	3 57 55	Ref. Mon. 969	1,850.7	3.26734
Ref. Mon. 970	48 14 37.11	66 38 06	246 36 47	Ref. Mon. 967	2,394.3	3.37917
	90 53 08.72	67 39 32	247 37 44	Depend	3,233.6	3.50968
		81 25 52	261 22 20	Vera	5,941.4	3.77389
		113 25 45	293 24 30	Ref. Mon. 969	2,255.2	3.35318
Clam	48 15 02.59	24 57 55	204 57 26	Ref. Mon. 967	1,915.9	3.28237
	90 54 16.04	38 27 12	218 26 14	Depend	2,575.2	3.41081
		99 07 54	279 07 29	Ref. Mon. 969	689.2	2.83833
		299 31 44	119 32 34	Ref. Mon. 970	1,596.4	3.20315
Cider	48 15 29.39	28 25 23	208 24 33	Ref. Mon. 967	2,916.0	3.46479
	90 53 47.97	34 58 49	214 58 28	Clam	1,010.2	3.00442
		333 21 53	153 22 22	Ref. Mon. 970	1,806.4	3.25681
Ref. Mon. 971	48 15 14.40	1 42 07	181 42 06	Ref. Mon. 970	1,152.3	3.06158
	90 53 07.06	46 43 45	226 42 25	Ref. Mon. 967	3,065.6	3.48652
		75 37 40	255 36 49	Clam	1,469.1	3.16704
		118 45 12	298 44 42	Cider	962.5	2.98339
Charles	48 15 53.44	18 30 48	198 30 30	Ref. Mon. 969	1,541.3	3.18788
	90 54 25.30	306 45 46	126 46 44	Ref. Mon. 971	2,014.7	3.30420
		326 10 12	146 11 09	Ref. Mon. 970	2,838.2	3.45304
Ref. Mon. 963	48 13 53.22	68 39 29	248 38 29	Cuyo	1,777.6	3.24984
	90 55 37.68	204 01 19	24 01 54	Ref. Mon. 969	2,465.4	3.39189
Ref. Mon. 964	48 13 44.07	78 17 29	258 16 26	Cuyo	1,794.8	3.25402
	90 55 32.75	160 12 20	340 12 17	Ref. Mon. 963	300.4	2.47775
		199 35 18	19 35 50	Ref. Mon. 969	2,690.2	3.42979
Coop	48 13 49.16	77 07 51	257 06 30	Cuyo	2,340.2	3.36926
	90 55 07.36	189 02 21	9 02 35	Ref. Mon. 969	2,407.2	3.38151
Ref. Mon. 965	48 13 53.60	43 40 01	223 39 56	Coop	189.7	2.27806
	90 55 01.01	74 44 05	254 42 39	Cuyo	2,500.7	3.39806
		186 17 57	6 18 06	Ref. Mon. 969	2,253.7	3.35290
Ref. Mon. 966	48 13 48.40	93 04 37	273 04 21	Coop	437.0	2.64049
	90 54 46.21	117 44 57	297 44 46	Ref. Mon. 965	345.1	2.53792
		178 36 58	358 36 56	Ref. Mon. 969	2,401.4	3.38047
Ref. Mon. 968	48 14 09.11	83 04 38	263 04 13	Ref. Mon. 967	706.7	2.84923
	90 54 21.23	161 57 57	341 57 36	Ref. Mon. 969	1,852.1	3.26766
		183 42 31	3 42 35	Clam	1,655.2	3.21885
Claw	48 14 41.12	51 49 51	231 49 45	Ref. Mon. 970	200.7	2.30255
	90 53 01.07	109 08 08	289 06 47	Ref. Mon. 969	2,357.3	3.37242
		173 08 46	353 08 41	Ref. Mon. 971	1,035.2	3.01502
Ref. Mon. 972	48 14 25.15	146 46 58	326 46 49	Ref. Mon. 970	441.4	2.64486
	90 52 57.00	170 20 01	350 19 58	Claw	500.4	2.69934
Ref. Mon. 973	48 14 28.16	67 05 53	247 05 45	Ref. Mon. 972	239.2	2.37870
	90 52 46.32	120 52 09	300 51 52	Ref. Mon. 970	538.4	2.73109
		142 45 13	322 45 02	Claw	502.8	2.70140
Ref. Mon. 974	48 14 12.89	138 03 06	318 02 54	Ref. Mon. 972	509.3	2.70698
	90 52 40.50	165 42 58	345 42 54	Ref. Mon. 973	486.9	2.68745
Dilke	48 14 05.61	109 23 20	289 22 57	Ref. Mon. 974	677.1	2.83066
	90 52 09.54	121 39 13	301 38 38	Ref. Mon. 972	1,150.2	3.06078
		132 33 20	312 32 53	Ref. Mon. 973	1,030.1	3.01288
Ref. Mon. 975	48 14 20.27	62 03 15	242 02 59	Ref. Mon. 974	486.7	2.68730
	90 52 19.66	101 04 09	281 03 41	Ref. Mon. 972	785.0	2.89487
		335 15 17	155 15 24	Dilke	498.7	2.69780
Ref. Mon. 976	48 14 12.95	89 52 21	269 51 51	Ref. Mon. 974	823.6	2.91569
	90 52 00.58	119 53 37	299 53 23	Ref. Mon. 975	453.9	2.65700
Ref. Mon. 977	48 14 21.72	71 39 53	251 39 23	Ref. Mon. 974	867.4	2.93823
	90 52 00.59	83 30 13	263 29 59	Ref. Mon. 975	395.9	2.59761
		359 57 53	179 57 53	Ref. Mon. 976	271.0	2.43303
Camp	48 14 19.35	67 35 26	247 35 09	Ref. Mon. 976	518.8	2.71496
	90 51 37.34	81 17 42	261 16 55	Ref. Mon. 974	1,318.3	3.12002
		98 41 06	278 40 49	Ref. Mon. 977	485.3	2.68600
Doily	48 14 01.90	117 12 03	297 11 39	Ref. Mon. 976	746.6	2.87306
	90 51 28.40	132 40 29	312 40 05	Ref. Mon. 977	903.3	2.95584
		161 06 45	341 06 38	Camp	569.7	2.75563
Calyx	48 14 13.14	23 17 24	203 17 19	Doily	377.8	2.57731
	90 51 21.16	89 35 35	269 35 06	Ref. Mon. 976	813.4	2.91031
		108 03 34	288 03 05	Ref. Mon. 977	855.7	2.93230

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Caboose	48 14 09.86	58 49 16	238 49 02	Doily	475.0	2.67665
	90 51 08.71	111 29 22	291 29 13	Calyx	276.1	2.44112
Doff	48 14 05.40	72 57 01	252 56 49	Doily	368.4	2.56629
	90 51 11.34	139 41 30	319 41 23	Calyx	313.5	2.49619
		201 26 40	21 26 42	Caboose	148.1	2.17067
Dodge	48 14 08.80	67 24 28	247 24 19	Doff	273.9	2.43753
	90 50 59.08	99 20 21	279 20 14	Caboose	201.3	2.30394
Dock	48 14 10.13	67 31 07	247 30 54	Doff	382.2	2.58234
	90 50 54.22	67 47 43	247 47 39	Dodge	108.4	2.03501
		88 24 46	268 24 35	Caboose	299.1	2.47588
Cafe	48 14 14.00	4 01 31	184 01 31	Dock	119.7	2.07819
	90 50 53.82	34 08 25	214 08 21	Dodge	193.8	2.28733
		53 42 10	233 41 57	Doff	448.7	2.65192
Dizzy	48 14 11.06	83 14 36	263 14 27	Dock	243.3	2.38617
	90 50 42.51	111 16 25	291 16 16	Cafe	250.3	2.39841
Ref. Mon. 980	48 14 22.15	34 16 08	214 16 00	Dizzy	414.4	2.61745
	90 50 31.20	51 59 59	231 59 42	Dock	602.8	2.78014
		61 39 27	241 39 10	Cafe	530.1	2.72437
Center	48 14 04.91	123 15 26	303 15 16	Dizzy	346.5	2.53965
	90 50 28.47	173 57 30	353 57 28	Ref. Mon. 980	535.5	2.72872
Divan	48 14 02.03	146 59 57	326 59 51	Dizzy	332.4	2.52161
	90 50 33.74	184 48 54	4 48 56	Ref. Mon. 980	623.4	2.79479
		230 46 11	50 46 15	Center	140.3	2.14714
Cable	48 14 13.76	34 55 13	214 55 11	Dizzy	101.9	2.00815
	90 50 39.69	319 46 15	139 46 23	Center	358.3	2.55422
		341 17 23	161 17 27	Divan	382.5	2.58263
Ref. Mon. 983	48 14 23.27	31 28 36	211 28 21	Divan	769.1	2.88597
	90 50 14.28	84 19 35	264 19 22	Ref. Mon. 980	350.9	2.54521
Ref. Mon. 981	48 14 38.57	315 30 31	135 30 48	Ref. Mon. 983	662.6	2.82126
	90 50 36.78	347 12 47	167 12 51	Ref. Mon. 980	520.3	2.71625
Ref. Mon. 978	48 14 33.91	206 29 25	26 29 28	Ref. Mon. 981	160.9	2.20659
	90 50 40.26	301 30 29	121 30 49	Ref. Mon. 983	628.9	2.79855
Ref. Mon. 979	48 14 45.04	294 17 19	114 17 35	Ref. Mon. 981	485.5	2.68618
	90 50 58.23	312 50 00	132 50 13	Ref. Mon. 978	505.6	2.70378
Candor	48 14 35.09	9 44 58	189 44 52	Doily	1,040.2	3.01710
	90 51 19.87	63 50 05	243 49 35	Ref. Mon. 977	936.2	2.97136
		235 27 18	55 27 34	Ref. Mon. 979	542.0	2.73397
		263 05 41	83 05 13	Ref. Mon. 981	895.4	2.95203
Canton	48 14 26.01	80 43 48	260 43 19	Ref. Mon. 977	822.6	2.91517
	90 51 21.25	185 47 26	5 47 27	Candor	281.8	2.44988
		218 56 20	38 56 37	Ref. Mon. 979	755.5	2.87824
Draft	48 14 05.77	225 55 17	45 55 33	Camp	603.2	2.78044
	90 51 53.34	253 28 08	73 28 36	Calyx	800.2	2.90320
		280 56 15	100 56 38	Doily	629.2	2.79880
Dowel	48 13 55.89	156 01 26	336 01 21	Draft	333.7	2.52336
	90 51 51.77	167 08 52	347 08 46	Ref. Mon. 977	818.3	2.91289
		202 20 23	22 20 34	Camp	783.3	2.89392
		229 51 31	49 51 54	Calyx	826.1	2.91704
Draggle	48 13 57.89	252 02 34	72 03 01	Draft	789.1	2.89715
	90 52 34.72	273 58 30	93 59 02	Dowel	888.5	2.94865
Detect	48 13 36.72	174 30 15	354 30 13	Draggle	656.9	2.81749
	90 52 31.67	217 28 28	37 28 53	Draft	1,130.4	3.05325
		234 16 24	54 16 54	Dowel	1,014.3	3.00617
Dunk	48 13 51.97	256 54 31	76 54 59	Draggle	807.3	2.90705
	90 53 12.83	299 00 35	119 01 05	Detect	971.2	2.98731
Dido	48 13 32.54	214 15 22	34 15 37	Dunk	726.0	2.86094
	90 53 32.63	236 45 59	56 46 42	Draggle	1,428.7	3.15493
		264 08 22	84 09 07	Detect	1,264.7	3.10198
Delve	48 13 57.17	284 47 24	104 47 46	Dunk	628.6	2.79836
	90 53 42.28	345 19 45	165 19 52	Dido	786.2	2.895.2
Dayton	48 13 35.75	217 37 06	37 37 25	Delve	855.0	2.92169
	90 54 06.98	245 51 05	65 51 46	Dunk	1,224.6	3.08800
		277 57 34	97 58 00	Dido	715.8	2.85477
		312 54 42	132 56 27	Dunlap	3,963.9	3.59812
		341 00 24	161 01 30	Mabel	5,639.1	3.75121
Duplex	48 12 46.35	154 53 31	334 53 05	Dayton	1,685.3	3.22667
	90 53 32.33	179 44 56	359 44 56	Dido	1,426.9	3.15438
		191 13 45	11 14 00	Dunk	2,066.5	3.31523
		298 12 14	118 13 33	Dunlap	2,482.5	3.39489
		343 36 37	163 37 17	Mabel	3,967.5	3.59852

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Dunder	48 12 38.29	195 21 09	15 21 26	Dayton	1,840.5	3.26494
	90 54 30.59	202 15 15	22 15 51	Delve	2,632.4	3.42035
		258 18 19	78 19 02	Duplex	1,228.2	3.08927
Dinny	48 13 00.61	230 35 07	50 35 50	Dido	1,553.6	3.19135
	90 54 30.79	290 02 49	110 03 32	Duplex	1,284.7	3.10880
		359 39 16	179 39 16	Dunder	689.4	2.83844
Diggs	48 12 57.78	43 47 49	223 47 28	Dunder	834.1	2.92120
	90 54 02.62	98 32 31	278 32 10	Dinny	587.9	2.76928
		299 27 08	119 27 30	Duplex	718.3	2.85631
Dutch	48 12 05.16	87 19 49	267 18 56	Domino	1,449.6	3.16126
	90 53 50.73	141 12 21	321 11 51	Dunder	1,313.2	3.11834
		196 37 43	16 37 56	Duplex	1,327.8	3.12314
		267 47 17	87 48 49	Dunlap	2,569.7	3.40989
		329 22 51	149 23 44	Mabel	2,944.4	3.46900
Dun	48 12 01.96	93 11 39	273 11 19	Domino	560.2	2.74834
	90 54 33.77	133 28 11	313 25 42	Vera	5,676.9	3.75411
		153 25 42	333 25 10	Driggs	1,993.7	3.29965
		183 21 17	3 21 20	Dunder	1,124.3	3.05088
		190 48 26	10 48 46	Dayton	2,949.5	3.46975
		222 46 09	42 46 55	Duplex	1,868.1	3.27139
		263 38 45	83 39 18	Dutch	894.2	2.95144
		266 42 44	86 44 49	Dunlap	3,462.2	3.53935
		315 32 42	135 34 08	Mabel	3,410.9	3.53287
Daily	48 12 32.97	10 49 53	190 49 47	Domino	943.5	2.97476
	90 54 52.27	148 17 06	328 16 48	Driggs	970.0	2.98675
		207 27 05	27 27 22	Dinny	962.1	2.98324
		249 49 53	69 50 10	Dunder	477.0	2.67852
Driver	48 12 16.04	234 15 26	54 15 52	Daily	895.5	2.95206
	90 55 27.48	306 17 41	126 18 01	Domino	681.9	2.83374
Duff	48 12 40.06	283 54 17	103 54 49	Daily	911.4	2.95972
	90 55 35.12	328 18 12	148 18 38	Domino	1,346.6	3.12925
		347 59 12	167 59 18	Driver	758.8	2.88010
Delhi	48 12 03.86	251 41 27	71 42 08	Driver	1,197.3	3.07819
	90 56 22.53	270 55 56	90 56 57	Domino	1,892.3	3.27700
Digit	48 11 40.97	187 28 10	7 28 13	Delhi	713.0	2.85310
	90 56 27.02	228 37 07	48 37 51	Driver	1,638.4	3.21442
Define	48 11 42.36	221 34 06	41 34 27	Delhi	887.8	2.94830
	90 56 51.05	238 54 49	58 55 51	Driver	2,015.0	3.30428
		274 55 27	94 55 45	Digit	498.3	2.69746
Cement	48 14 00.09	106 34 09	286 34 02	Divan	210.6	2.32352
	90 50 23.96	147 56 46	327 56 43	Center	175.6	2.24447
Ref. Mon. 982	48 13 57.20	134 09 10	314 09 04	Divan	214.1	2.33058
	90 50 26.30	169 18 40	349 18 38	Center	242.1	2.38394
		208 27 55	28 27 56	Cement	101.3	2.00563
Ref. Mon. 985	48 13 53.46	118 45 05	298 44 57	Ref. Mon. 982	240.6	2.38133
	90 50 16.07	141 32 26	321 32 19	Cement	261.5	2.41753
Dire	48 13 51.98	150 34 30	330 34 26	Ref. Mon. 982	185.3	2.26788
	90 50 21.88	170 18 50	350 18 47	Cement	254.1	2.40496
		249 09 18	69 09 22	Ref. Mon. 985	128.3	2.10829
Cede	48 13 54.21	24 57 08	204 57 07	Dire	75.9	1.88011
	90 50 20.33	284 44 37	104 44 40	Ref. Mon. 985	90.9	1.95858
Dispel	48 13 46.10	187 02 21	7 02 22	Dire	182.8	2.26203
	90 50 22.97	192 16 04	12 16 06	Cede	256.1	2.40839
		212 04 29	32 04 34	Ref. Mon. 985	268.0	2.42816
Catkin	48 13 45.82	96 47 38	276 47 35	Dispel	75.8	1.87980
	90 50 19.32	164 28 43	344 28 41	Dire	197.6	2.29583
		175 23 46	355 23 45	Cede	260.0	2.41505
Ref. Mon. 984	48 13 42.93	196 06 42	16 06 42	Dispel	102.1	2.00910
	90 50 24.34	229 17 57	49 18 01	Catkin	136.7	2.13574
Ref. Mon. 987	48 13 43.25	80 28 31	260 28 29	Ref. Mon. 984	60.7	1.78341
	90 50 21.44	160 17 10	340 17 09	Dispel	93.5	1.97100
		208 56 35	28 56 37	Catkin	90.4	1.95606
Castle	48 13 41.35	113 15 16	293 15 11	Ref. Mon. 984	123.8	2.09258
	90 50 18.83	137 35 24	317 35 21	Ref. Mon. 987	79.8	1.90194
Ding	48 13 37.92	164 40 33	344 40 31	Ref. Mon. 984	160.5	2.20561
	90 50 22.29	186 02 44	6 02 44	Ref. Mon. 987	165.8	2.21962
		213 55 19	33 55 22	Castle	127.7	2.10626
Ref. Mon. 986	48 13 37.45	186 03	6 03	Ding	14.40	1.15836
	90 50 22.36					
Dike	48 13 35.51	119 18 56	299 18 51	Ding	151.9	2.18157
	90 50 15.87	161 15 50	341 15 48	Castle	190.4	2.27977
Ref. Mon. 988	48 13 35.43	263 06	83 06	Dike	21.27	1.32777
	90 50 16.89					

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 989	48 13 39.68	62 27 57	242 27 53	Ding	117.9	2.07135
	90 50 17.22	147 10 00	327 09 59	Castle	61.3	1.78738
		347 45 52	167 45 53	Dike	131.9	2.12009
Cast	48 13 35.69	83 05 45	263 05 43	Dike	46.0	1.66255
	90 50 13.66	111 08 10	291 08 03	Ding	190.9	2.28090
		149 10 38	329 10 35	Ref. Mon. 989	143.6	2.15720
Ref. Mon. 991	48 13 36.32	10 46	190 46	Cast	19.92	1.29918
	90 50 13.48					
Ref. Mon. 993	48 13 30.87	154 45 37	334 45 34	Dike	158.4	2.19966
	90 50 12.60	171 37 56	351 37 55	Cast	150.4	2.17717
Ref. Mon. 990	48 13 30.16	181 35 12	1 35 12	Dike	165.4	2.21845
	90 50 16.09	196 22 59	16 23 01	Cast	178.1	2.25057
		252 59 24	72 59 27	Ref. Mon. 993	75.4	1.87742
Case	48 13 22.17	159 12 15	339 12 11	Ref. Mon. 990	263.9	2.42150
	90 50 11.55	175 24 22	355 24 21	Ref. Mon. 993	269.7	2.43082
Dice	48 13 21.71	196 36 00	16 36 02	Ref. Mon. 990	272.2	2.43495
	90 50 19.86	207 54 39	27 54 44	Ref. Mon. 993	320.2	2.50543
		265 16 50	85 16 56	Case	172.1	2.23572
Dense	48 13 17.09	147 09 20	327 09 17	Dice	169.9	2.23023
	90 50 15.40	206 49 16	26 49 19	Case	175.8	2.24509
Ref. Mon. 992	48 13 17.45	304 30	124 30	Dense	19.97	1.30038
	90 50 16.19					
Ref. Mon. 995	48 13 15.02	124 30 30	304 30 27	Dense	113.0	2.05319
	90 50 10.88	138 08 16	318 08 10	Dice	277.7	2.44351
		176 25 29	356 25 29	Case	221.4	2.34513
Ref. Mon 994	48 13 09.15	167 27 50	347 27 48	Dense	251.2	2.40005
	90 50 12.75	192 01 49	12 01 50	Ref Mon. 995	185.3	2.26779
Ref. Mon. 997	48 13 09.69	80 05 45	260 05 42	Ref. Mon. 994	97.0	1.98697
	90 50 08.12	146 41 58	326 41 53	Dense	277.9	2.44385
		160 53 39	340 53 37	Ref. Mon. 995	174.1	2.24078
Ref. Mon. 996	48 13 07.20	167 49 36	347 49 36	Ref. Mon. 994	61.7	1.79000
	90 50 12.12	227 01 15	47 01 18	Ref. Mon. 997	112.9	2.05269
Ref. Mon. 999	48 13 07.29	87 45 00	267 44 57	Ref. Mon. 996	74.2	1.87013
	90 50 08.53	123 22 07	303 22 04	Ref. Mon. 994	104.3	2.01824
		186 32 56	6 32 56	Ref. Mon. 997	74.5	1.87239
Ref. Mon. 998	48 13 03.42	181 20 02	1 20 02	Ref. Mon. 996	116.7	2.06722
	90 50 12.25	212 42 22	32 42 25	Ref. Mon. 999	142.2	2.15278
Ref. Mon. 1001	48 13 03.90	79 06 02	259 05 59	Ref. Mon. 998	77.9	1.89171
	90 50 08.55	144 06 15	324 06 12	Ref. Mon. 996	125.9	2.09996
		180 09 32	0 09 32	Ref. Mon. 999	104.9	2.02072
Decree	48 12 53.93	187 09 37	7 09 38	Ref. Mon. 998	295.4	2.47044
	90 50 14.04	200 12 47	20 12 51	Ref. Mon. 1001	328.1	2.51595
Cope	48 12 53.91	90 06 20	270 06 11	Decree	254.1	2.40496
	90 50 01.73	143 30 00	323 29 52	Ref. Mon. 998	365.2	2.56255
		155 28 06	335 28 01	Ref. Mon. 1001	338.9	2.53008
Decoy	48 12 46.29	167 07 55	347 07 53	Decree	242.1	2.38400
	90 50 11.43	220 21 15	40 21 22	Cope	309.1	2.49012
Cant	48 12 39.22	145 08 25	325 08 20	Decoy	265.9	2.42465
	90 50 04.07	155 36 58	335 36 51	Decree	498.7	2.69780
		186 03 53	6 03 55	Cope	456.3	2.65922
Decline	48 12 33.40	200 08 13	20 08 22	Cope	674.9	2.82927
	90 50 12.99	225 39 34	45 39 41	Cant	257.5	2.41080
Canter	48 12 32.41	100 58 07	280 58 01	Decline	160.1	2.20433
	90 50 05.37	163 44 56	343 44 52	Decoy	446.4	2.64975
		187 19 07	7 19 08	Cant	212.2	2.32667
Davis	48 12 16.25	203 37 05	23 37 13	Decline	577.9	2.76185
	90 50 24.20	217 54 45	37 54 59	Canter	632.6	2.80112
Ref. Mon. 1000	48 12 07.64	129 01 15	309 01 03	Davis	422.4	2.62576
	90 50 08.30	173 04 28	353 04 24	Decline	801.3	2.90381
		184 31 26	4 31 28	Canter	767.4	2.88503
Ref. Mon. 1003	48 12 05.88	109 05 34	289 05 28	Ref. Mon. 1000	167.0	2.22264
	90 50 00.66	123 24 45	303 24 27	Davis	582.2	2.76507
		163 20 26	343 20 16	Decline	887.3	2.94809
		173 14 04	353 14 00	Canter	825.4	2.91666
Deck	48 12 03.30	138 28 20	318 28 07	Davis	534.7	2.72810
	90 50 07.03	168 55 32	348 55 31	Ref. Mon. 1000	136.9	2.13628
		238 46 51	58 46 56	Ref. Mon. 1003	153.8	2.18686
Dean	48 11 45.07	180 56 49	0 56 49	Deck	563.1	2.75060
	90 50 07.48	192 21 24	12 21 29	Ref. Mon. 1003	658.0	2.81822

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Cancil	48 11 43.54	105 42 09	285 42 03	Dean	174.2	2.24109
	90 49 59.36	165 26 54	345 26 48	Deck	630.4	2.79963
		177 46 04	357 46 03	Ref. Mon. 1003	690.4	2.83911
Daze	48 11 37.74	178 55 12	358 55 12	Dean	226.4	2.35485
	90 50 07.28	222 22 07	42 22 13	Cancil	242.5	2.38479
Calm	48 11 35.04	117 54 33	297 54 27	Daze	178.2	2.25090
	90 49 59.65	152 25 48	332 25 42	Dean	349.4	2.54336
		181 18 22	1 18 22	Cancil	262.7	2.41941
Dawn	48 11 32.04	179 01 39	359 01 39	Daze	175.9	2.24534
	90 50 07.13	239 05 19	59 05 25	Calm	180.1	2.25542
Calf	48 11 28.16	113 07 06	293 06 55	Dawn	305.7	2.48531
	90 49 53.52	136 09 54	316 09 43	Daze	410.3	2.61306
Daub	48 11 25.90	178 34 28	358 34 27	Dawn	189.7	2.27811
	90 50 06.90	207 57 31	27 57 36	Calm	319.4	2.50440
		255 51 39	75 51 49	Calf	285.1	2.45497
Cake	48 11 19.08	140 49 05	320 48 59	Daub	271.9	2.43443
	90 49 58.58	156 12 45	336 12 38	Dawn	437.6	2.64108
		177 26 33	357 26 32	Calm	493.4	2.69321
		200 28 04	20 28 08	Calf	299.3	2.47610
Ref. Mon. 1002	48 11 12.72	182 06 53	2 06 54	Daub	407.5	2.61010
	90 50 07.63	223 33 56	43 34 03	Cake	271.1	2.43312
Ref. Mon. 1005	48 11 11.25	103 24 35	283 24 28	Ref. Mon. 1002	196.1	2.29241
	90 49 58.40	158 47 23	338 47 17	Daub	485.6	2.68625
		179 04 50	359 04 50	Cake	241.9	2.38369
Dart	48 11 05.61	187 17 22	7 17 23	Ref. Mon. 1002	221.5	2.34541
	90 50 08.99	231 28 05	51 28 13	Ref. Mon. 1005	279.7	2.44676
Cadet	48 11 05.00	96 04 56	276 04 50	Dart	176.6	2.24694
	90 50 00.49	148 15 50	328 15 45	Ref. Mon. 1002	280.4	2.44771
		192 38 01	12 38 03	Ref. Mon. 1005	197.8	2.29613
Droop	48 11 01.49	204 41 58	24 42 00	Dart	140.1	2.14635
	90 50 11.83	245 07 27	65 07 35	Cadet	258.1	2.41172
Canal	48 11 00.57	97 09 07	277 08 59	Droop	227.2	2.35650
	90 50 00.91	132 58 33	312 58 27	Dart	228.2	2.35827
		183 36 48	3 36 48	Cadet	137.1	2.13706
Ref. Mon. 1004	48 10 36.54	25 12 02	205 11 51	Dye	682.2	2.83392
	90 50 18.65	190 22 22	10 22 27	Droop	783.4	2.89397
		206 16 44	26 16 57	Canal	827.9	2.91796
Ref. Mon. 1007	48 10 38.93	42 21 08	222 20 45	Dye	935.0	2.97083
	90 50 02.22	77 44 28	257 44 16	Ref. Mon. 1004	347.3	2.54075
		164 06 48	344 06 41	Droop	724.5	2.86003
		169 28 17	349 28 01	Dubois	2,369.5	3.37466
		182 19 35	2 19 36	Canal	669.1	2.82548
Dale	48 10 42.14	12 16 14	192 16 13	Ref. Mon. 1004	176.9	2.24768
	90 50 16.84	210 00 44	30 00 56	Canal	657.6	2.81798
		288 10 21	108 10 32	Ref. Mon. 1007	317.7	2.50196
Ref. Mon. 1006	48 10 17.66	151 03 09	331 02 58	Ref. Mon. 1004	666.5	2.82377
	90 50 03.04	181 28 08	1 28 09	Ref. Mon. 1007	657.2	2.81767
Device	48 10 25.21	72 43 10	252 42 43	Ref. Mon. 1006	784.0	2.89431
	90 49 26.81	108 06 46	288 06 08	Ref. Mon. 1004	1,126.9	3.05190
		120 05 44	300 05 18	Ref. Mon. 1007	845.7	2.92720
Crisp	48 10 39.91	26 33 09	206 32 57	Ref. Mon. 1006	768.0	2.88535
	90 49 46.42	52 59 04	232 58 29	Dye	1,197.8	3.07839
		161 43 37	341 43 09	Dubois	2,421.6	3.38411
		229 32 30	49 33 10	Champ	1,460.3	3.16443
		318 14 55	138 15 10	Device	608.6	2.78434
		322 49 13	142 49 43	Droit	1,401.5	3.14658
Ref. Mon. 1008	48 10 38.72	16 29 19	196 29 15	Device	435.3	2.63875
	90 49 20.83	53 17 36	233 17 05	Ref. Mon. 1006	1,087.9	3.03657
		65 15 46	245 14 52	Dye	1,635.3	3.21360
		93 58 23	273 58 04	Crisp	530.0	2.72431
		343 35 23	163 35 34	Droit	1,125.8	3.05147
Ref. Mon. 1009	48 10 30.55	29 39 27	209 39 19	Ref. Mon. 1006	457.9	2.66074
	90 49 52.08	248 38 27	68 38 50	Ref. Mon. 1008	693.1	2.84080
		287 32 03	107 32 22	Device	547.5	2.73835
Cleaver	48 10 34.64	51 09 16	231 08 53	Ref. Mon. 1006	835.7	2.92203
	90 49 31.54	240 19 06	60 19 14	Ref. Mon. 1008	254.7	2.40602
		341 26 48	161 26 52	Device	307.2	2.48744
Darn	48 10 33.10	54 13 28	234 13 04	Ref. Mon. 1006	815.2	2.91129
	90 49 31.03	230 30 18	50 30 25	Ref. Mon. 1008	273.0	2.43623
		340 19 01	160 19 04	Device	258.8	2.41301
Dander	48 10 36.65	2 04 40	182 04 40	Device	353.8	2.54871
	90 49 26.19	103 31 25	283 31 10	Crisp	430.0	2.63346
		240 01 49	60 01 53	Ref. Mon. 1008	127.8	2.10649

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 1011	48 10 48.63	322 00 36	142 00 44	Ref. Mon. 1008	388.3	2.58922
	90 49 32.40	350 55 40	170 55 44	Device	732.6	2.86486
Ref. Mon. 1010	48 10 49.28	0 37 56	180 37 56	Device	743.6	2.87135
	90 49 26.41	80 45 11	260 45 07	Ref. Mon. 1011	125.3	2.09808
		340 31 49	160 31 53	Ref. Mon. 1008	346.0	2.53907
Chirp	48 10 57.55	321 04 37	141 04 44	Ref. Mon. 1010	328.4	2.51644
	90 49 36.40	343 18 46	163 18 49	Ref. Mon. 1011	287.8	2.45905
Ref. Mon. 1012	48 10 59.65	10 09 51	190 09 49	Ref. Mon. 1011	345.9	2.53901
	90 49 29.44	65 42 11	245 42 06	Chirp	157.6	2.19766
		348 56 01	168 56 03	Ref. Mon. 1010	326.4	2.51381
Ref. Mon. 1013	48 10 48.74	146 18 44	326 18 38	Chirp	327.2	2.51480
	90 49 27.61	236 03 23	56 03 24	Ref. Mon. 1010	30.0	1.47652
		335 37 56	155 38 01	Ref. Mon. 1008	339.8	2.53116
Cark	48 11 04.04	311 59 36	131 59 41	Ref. Mon. 1012	202.8	2.30714
	90 49 36.74	357 58 44	177 58 44	Chirp	200.7	2.30254
Ref. Mon. 1015	48 11 04.39	291 09	111 09	Cark	29.68	1.47246
	90 49 38.08					
Climb	48 11 02.50	37 21 16	217 21 12	Chirp	192.1	2.28364
	90 49 30.75	111 08 51	291 08 47	Cark	132.6	2.12250
		342 51 59	162 52 00	Ref. Mon. 1012	92.0	1.96358
Ref. Mon. 1017	48 11 03.18	40 46 08	220 46 05	Ref. Mon. 1012	143.7	2.15748
	90 49 24.90	80 09 58	260 09 54	Climb	122.7	2.08896
Desk	48 11 03.26	62 08 27	242 08 20	Ref. Mon. 1012	238.5	2.37756
	90 49 19.23	84 20 16	264 20 08	Climb	239.1	2.37867
		88 42 37	268 42 33	Ref. Mon. 1017	117.1	2.06848
Ref. Mon. 1019	48 11 06.41	13 17 16	193 17 15	Desk	100.1	2.00022
	90 49 18.12	48 14 18	228 14 10	Ref. Mon. 1012	313.6	2.49632
		54 28 10	234 28 05	Ref. Mon. 1017	172.1	2.23575
Ref. Mon. 1021	48 11 01.68	100 33 52	280 33 42	Desk	266.9	2.42642
	90 49 06.53	121 25 46	301 25 37	Ref. Mon. 1019	280.6	2.44807
Ref. Mon. 1014	48 10 54.22	159 21 01	339 20 56	Ref. Mon. 1019	402.3	2.60452
	90 49 11.25	202 58 33	22 58 37	Ref. Mon. 1021	249.9	2.39784
Ref. Mon. 1023	48 10 50.58	120 44 42	300 44 35	Ref. Mon. 1014	220.0	2.34235
	90 49 02.10	137 53 19	317 53 06	Desk	527.8	2.72243
		145 54 29	325 54 17	Ref. Mon. 1019	590.3	2.77110
		165 02 56	345 02 53	Ref. Mon. 1021	354.6	2.54970
Creek	48 10 49.78	124 56 01	304 55 54	Ref. Mon. 1014	239.7	2.37974
	90 49 01.74	163 12 23	343 12 23	Ref. Mon. 1023	25.9	1.41393
Ref. Mon. 1016	48 10 43.18	153 53 43	333 53 37	Ref. Mon. 1014	379.8	2.57960
	90 49 03.16	185 28 34	5 28 35	Ref. Mon. 1023	229.7	2.36114
		188 12 44	8 12 45	Creek	205.9	2.31370
Ref. Mon. 1018	48 10 45.51	78 58 04	258 57 51	Ref. Mon. 1016	376.4	2.57568
	90 48 45.28	111 10 55	291 10 43	Creek	364.7	2.56192
Carve	48 10 47.56	65 09 46	245 09 36	Ref. Mon. 1016	321.8	2.50765
	90 48 49.02	104 38 27	284 38 18	Creek	271.5	2.43372
		309 12 48	129 12 51	Ref. Mon. 1018	99.9	1.99952
Color	48 10 47.24	6 00 31	186 00 31	Ref. Mon. 1018	53.6	1.72888
	90 48 45.00	71 31 37	251 31 24	Ref. Mon. 1016	395.5	2.59710
		96 47 20	276 47 17	Carve	83.6	1.92213
Ref. Mon. 1025	48 10 47.30	318 29	138 29	Color	2.36	0.37236
	90 48 45.08					
Ref. Mon. 1027	48 10 47.58	62 46 21	242 46 17	Ref. Mon. 1018	139.3	2.14402
	90 48 39.28	84 56 23	264 56 19	Color	118.7	2.07460
Ref. Mon. 1020	48 10 46.65	75 10 38	255 10 34	Ref. Mon. 1018	137.2	2.13744
	90 48 38.85	98 08 09	278 08 05	Color	128.3	2.10838
		162 57 50	342 57 50	Ref. Mon. 1027	30.0	1.47641
Ref. Mon. 1022	48 10 46.49	97 11 00	277 10 58	Ref. Mon. 1020	40.6	1.60809
	90 48 36.91	124 31 00	304 30 58	Ref. Mon. 1027	59.5	1.77443
Ref. Mon. 1029	48 10 47.86	57 13 08	237 13 07	Ref. Mon. 1022	78.5	1.89509
	90 48 33.71	70 35 12	250 35 09	Ref. Mon. 1020	112.7	2.05186
Ref. Mon. 1024	48 10 29.90	138 02 34	318 02 18	Ref. Mon. 1020	695.9	2.84253
	90 48 16.33	139 02 35	319 02 19	Ref. Mon. 1027	723.2	2.85923
		140 19 38	320 19 24	Ref. Mon. 1022	665.7	2.82329
		147 06 08	327 05 55	Ref. Mon. 1029	660.9	2.82014
		149 10 40	329 10 12	Champ	1,463.3	3.16534
Ref. Mon. 1031	48 10 51.57	7 14 21	187 14 18	Ref. Mon. 1024	674.7	2.82908
	90 48 12.22	36 40 25	216 39 44	Droit	1,841.2	3.26509
		72 54 16	252 53 59	Ref. Mon. 1022	533.6	2.72720
		74 34 44	254 34 25	Ref. Mon. 1020	570.8	2.75649
		75 33 30	255 33 14	Ref. Mon. 1029	458.5	2.66130
		77 34 37	257 34 18	Ref. Mon. 1027	572.4	2.75772
		125 07 55	305 07 24	Champ	1,020.7	3.00890

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Cent	48 10 50.31	31 28 55	211 28 41	Ref. Mon. 1024	739.5	2.86892
	90 47 57.64	44 15 00	224 14 08	Droit	2,007.5	3.30266
		97 18 46	277 18 35	Ref. Mon. 1031	303.6	2.48229
		118 51 46	298 51 04	Champ	1,297.0	3.11293
Ref. Mon. 1033	48 10 28.06	108 49 20	288 49 14	Ref. Mon. 1024	175.9	2.24538
	90 48 08.27	139 20 08	319 19 49	Ref. Mon. 1029	806.4	2.90656
		173 35 38	353 35 35	Ref. Mon. 1031	730.6	2.86368
Dive	48 09 16.65	124 45 46	304 44 30	Droit	2,552.1	3.40690
	90 47 23.96	261 20 26	81 21 08	Ref. Mon. 1059	1,193.7	3.07691
		266 11 41	86 12 47	Carlos	1,848.0	3.26669
Ref. Mon. 1057	48 09 37.90	59 30 02	239 29 22	Dive	1,292.7	3.11150
	90 46 30.07	306 10 25	126 10 51	Carlos	904.4	2.95636
		352 04 41	172 04 43	Ref. Mon. 1059	481.2	2.68231
Clack	48 09 51.58	286 45 41	106 46 31	Ref. Mon. 1057	1,464.0	3.16554
	90 47 37.90	301 28 21	121 29 13	Ref. Mon. 1059	1,721.5	3.23590
		345 02 40	165 02 50	Dive	1,116.4	3.04781
Dilly	48 09 33.37	54 14 39	234 14 13	Dive	883.4	2.94615
	90 46 49.28	119 14 13	299 13 37	Clack	1,151.5	3.06126
		306 00 05	126 00 21	Ref. Mon. 1059	572.7	2.75789
Ditts	48 09 35.05	37 04 33	217 04 17	Dive	712.1	2.85254
	90 47 03.19	125 26 16	305 25 50	Clack	880.4	2.94466
		280 13 59	100 14 09	Dilly	292.2	2.46568
Ref. Mon. 1047	48 09 40.66	1 27 41	181 27 40	Dive	741.8	2.87027
	90 47 23.05	292 54 08	112 54 23	Ditts	445.5	2.64881
Ref. Mon. 1036	48 09 37.08	248 30 02	68 30 12	Ref. Mon. 1047	302.3	2.48042
	90 47 36.66	275 10 04	95 10 29	Ditts	694.4	2.84163
		337 24 50	157 24 59	Dive	683.1	2.83451
Ref. Mon. 1038	48 09 33.70	104 27 22	284 27 08	Ref. Mon. 1036	417.3	2.62048
	90 47 17.10	150 14 59	330 14 55	Ref. Mon. 1047	247.6	2.39372
		261 46 09	81 46 20	Ditts	290.5	2.46312
Ref. Mon. 1043	48 09 40.21	280 32 19	100 32 50	Ditts	870.7	2.93987
	90 47 44.62	300 28 04	120 28 10	Ref. Mon. 1036	190.7	2.28046
		329 35 59	149 36 14	Dive	843.4	2.92604
Chap	48 09 40.49	268 57 15	88 57 26	Ref. Mon. 1047	299.6	2.47654
	90 47 37.54	283 18 14	103 18 40	Ditts	729.5	2.86302
		296 22 34	116 22 49	Ref. Mon. 1038	471.5	2.67349
Ref. Mon. 1045	48 09 40.48	268 57	88 57	Chap	9.28	0.96755
	90 47 37.99					
Condor	48 09 43.06	5 47 07	185 47 06	Ref. Mon. 1038	290.3	2.46290
	90 47 15.69	298 43 45	118 44 05	Dilly	622.4	2.79407
		313 45 31	133 45 41	Ditts	357.5	2.55330
Ref. Mon. 1032	48 09 39.53	264 24 54	84 25 02	Ref. Mon. 1043	214.0	2.33049
	90 47 54.92	317 50 18	137 50 41	Dive	953.3	2.97921
Ref. Mon. 1034	48 09 32.53	143 12 51	323 12 45	Ref. Mon. 1032	270.2	2.43170
	90 47 47.09	192 10 56	12 10 58	Ref. Mon. 1043	242.7	2.38506
		236 54 34	56 54 42	Ref. Mon. 1036	257.4	2.41055
Ref. Mon. 1042	48 09 46.04	13 03 46	193 03 43	Ditts	348.6	2.54235
	90 46 59.38	43 51 36	223 51 22	Ref. Mon. 1038	528.6	2.72315
		71 13 57	251 13 39	Ref. Mon. 1047	516.6	2.71315
Ref. Mon. 1040	48 09 37.06	221 34 49	41 34 58	Ref. Mon. 1042	371.1	2.56953
	90 47 11.30	296 18 09	116 18 15	Ditts	178.6	2.25195
Ref. Mon. 1049	48 09 50.39	6 05 18	186 05 16	Ditts	476.4	2.67801
	90 47 00.75	27 54 16	207 54 08	Ref. Mon. 1040	466.0	2.66834
		348 06 19	168 06 20	Ref. Mon. 1042	137.1	2.13706
Damper	48 09 43.62	295 04 08	115 04 16	Ref. Mon. 1043	249.1	2.39630
	90 47 55.53	354 18 58	174 18 58	Ref. Mon. 1032	127.0	2.10375
Ref. Mon. 1041	48 09 43.17	55 46 45	235 46 39	Ref. Mon. 1032	199.7	2.30039
	90 47 46.93	94 31 11	274 31 05	Damper	178.3	2.25105
		332 22 11	152 22 13	Ref. Mon. 1043	103.3	2.01395
Ref. Mon. 1039	48 09 50.85	320 39 10	140 39 20	Ref. Mon. 1043	425.1	2.62847
	90 47 57.66	350 49 13	170 49 15	Ref. Mon. 1032	354.1	2.54911
Ref. Mon. 1030	48 09 51.15	273 22 42	93 22 48	Ref. Mon. 1039	156.4	2.19422
	90 48 05.21	329 20 50	149 20 58	Ref. Mon. 1032	417.0	2.62018
Ref. Mon. 1028	48 10 03.30	327 49 33	147 49 42	Ref. Mon. 1039	454.2	2.65725
	90 48 09.36	347 07 47	167 07 50	Ref. Mon. 1030	384.9	2.58536
Cotter	48 10 05.41	5 31 44	185 31 42	Ref. Mon. 1030	442.7	2.64607
	90 48 03.15	63 01 09	243 01 04	Ref. Mon. 1028	144.1	2.15853
Ref. Mon. 1037	48 10 05.19	142 00	322 00	Cotter	8.94	0.95134
	90 48 02.88					

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Dream	48 10 10.95	322 00 18	142 00 23	Cotter	216.9	2.33618
	90 48 09.61	358 45 28	178 45 28	Ref. Mon. 1028	236.3	2.37349
Ref. Mon. 1026	48 10 11.32	322 00	142 00	Dream	14.58	1.16376
	90 48 10.04					
Ref. Mon. 1035	48 10 13.53	16 18 07	196 18 04	Ref. Mon. 1028	329.3	2.51763
	90 48 04.89	50 42 33	230 42 30	Dream	126.1	2.10057
Diston	48 09 33.64	236 20 06	56 20 13	Ref. Mon. 1057	237.6	2.37581
	90 46 39.64	293 25 49	113 26 22	Carlos	1,011.2	3.06483
		322 33 36	142 33 45	Ref. Mon. 1059	434.4	2.63786
Ref. Mon. 1050	48 09 23.95	192 17 33	12 17 36	Diston	306.1	2.48591
	90 46 42.79	211 23 39	31 23 49	Ref. Mon. 1057	504.7	2.70304
		277 54 51	97 55 03	Ref. Mon. 1059	332.4	2.52168
Cuttle	48 09 31.23	32 57 53	212 57 47	Ref. Mon. 1050	268.6	2.42811
	90 46 35.74	132 38 55	312 38 52	Diston	109.6	2.03991
Ref. Mon. 1048	48 09 37.65	3 49 30	183 49 30	Cuttle	198.7	2.29823
	90 46 35.10	37 07 54	217 07 51	Diston	155.5	2.19183
		265 45 43	85 45 47	Ref. Mon. 1057	104.1	2.01759
Crumb	48 09 49.10	7 30 33	187 30 31	Ref. Mon. 1048	356.8	2.55243
	90 46 32.84	350 36 40	170 36 42	Ref. Mon. 1057	350.8	2.54500
Ref. Mon. 1055	48 09 49.31	355 30	175 30	Crumb	6.34	0.80209
	90 46 32.87					
Ref. Mon. 1046	48 09 50.68	281 59 22	101 59 30	Crumb	234.2	2.36962
	90 46 43.93	324 02 27	144 02 37	Ref. Mon. 1057	487.6	2.68809
Ref. Mon. 1044	48 09 47.82	241 19 21	61 19 27	Ref. Mon. 1046	184.3	2.26547
	90 46 51.75	304 21 22	124 21 38	Ref. Mon. 1057	542.7	2.73456
Cutty	48 09 54.39	16 59 51	196 59 49	Ref. Mon. 1044	212.4	2.32723
	90 46 48.75	319 02 44	139 02 48	Ref. Mon. 1046	151.9	2.18159
Ref. Mon. 1053	48 09 54.40	21 26 44	201 26 42	Ref. Mon. 1044	218.6	2.33970
	90 46 47.88	324 36 31	144 36 35	Ref. Mon. 1046	141.1	2.14964
Ref. Mon. 1051	48 09 54.55	272 26 53	92 26 56	Ref. Mon. 1053	101.9	2.00836
	90 46 52.81	303 02 28	123 02 35	Ref. Mon. 1046	219.0	2.34046
		353 58 47	173 58 48	Ref. Mon. 1044	209.0	2.32014
Ref. Mon. 1052	48 09 12.07	183 10 38	3 10 39	Ref. Mon. 1050	367.4	2.56517
	90 46 43.78	227 26 05	47 26 18	Ref. Mon. 1059	474.7	2.67641
Ref. Mon. 1061	48 09 07.82	123 36 01	303 35 54	Ref. Mon. 1052	237.2	2.37517
	90 46 34.22	160 25 00	340 24 54	Ref. Mon. 1050	528.7	2.72323
		198 34 35	18 34 41	Ref. Mon. 1059	477.2	2.67873
Ref. Mon. 1054	48 09 03.80	202 45 29	22 45 33	Ref. Mon. 1052	277.0	2.44252
	90 46 48.96	218 23 15	38 23 32	Ref. Mon. 1059	735.6	2.86662
		247 49 47	67 49 58	Ref. Mon. 1061	329.1	2.51732
Cabot	48 08 56.98	113 10 48	293 10 30	Ref. Mon. 1054	535.1	2.72841
	90 46 25.17	150 47 58	330 47 51	Ref. Mon. 1061	383.5	2.58378
Ref. Mon. 1063	48 08 51.23	149 48 47	329 48 39	Ref. Mon. 1054	449.3	2.65255
	90 46 38.04	169 32 59	349 32 55	Ref. Mon. 1052	654.7	2.81604
		188 44 44	8 44 47	Ref. Mon. 1061	518.6	2.71482
		236 14 20	56 14 30	Cabot	319.9	2.50504
Cop	48 08 52.79	87 06 25	267 05 51	Ref. Mon. 1063	951.5	2.97839
	90 45 52.06	100 44 06	280 43 42	Cabot	696.5	2.84289
		118 03 47	298 03 16	Ref. Mon. 1061	987.4	2.99450
Ref. Mon. 1056	48 08 55.28	230 11 08	50 11 25	Ref. Mon. 1061	605.3	2.78195
	90 46 56.71	265 22 13	85 22 37	Cabot	654.2	2.81571
		287 56 22	107 56 36	Ref. Mon. 1063	405.8	2.60835
Ref. Mon. 1067	48 08 45.75	194 17 36	14 17 39	Ref. Mon. 1056	303.8	2.48252
	90 47 00.34	249 49 57	69 50 14	Ref. Mon. 1063	491.2	2.69127
Disco	48 08 35.62	227 19 43	47 20 07	Ref. Mon. 1056	895.7	2.95216
	90 47 28.58	241 48 51	61 49 12	Ref. Mon. 1067	662.1	2.82093
Ref. Mon. 1060	48 08 42.59	42 27 51	222 27 44	Disco	291.6	2.46472
	90 47 19.05	255 49 55	75 50 09	Ref. Mon. 1067	398.9	2.60087
Ref. Mon. 1065	48 08 39.01	119 44 55	299 44 42	Ref. Mon. 1067	419.3	2.62252
	90 46 42.73	150 05 19	330 05 09	Ref. Mon. 1056	579.6	2.76313
Ref. Mon. 1058	48 08 48.57	217 47 35	37 47 41	Ref. Mon. 1056	262.1	2.41852
	90 47 04.48	303 17 07	123 17 23	Ref. Mon. 1065	538.0	2.73075
		315 31 02	135 31 05	Ref. Mon. 1067	122.2	2.08719
Ref. Mon. 1069	48 08 27.63	170 12 59	350 12 58	Disco	250.6	2.39900
	90 47 26.52	198 27 37	18 27 43	Ref. Mon. 1060	487.1	2.68763
Ref. Mon. 1071	48 08 25.36	203 32 40	23 32 45	Disco	345.7	2.53873
	90 47 35.26	212 11 29	32 11 41	Ref. Mon. 1060	628.7	2.79843
		248 49 48	68 49 54	Ref. Mon. 1069	193.8	2.28729

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Dragon	48 08 31.19	291 09 26	111 09 36	Ref. Mon. 1069	305.2	2.48452
	90 47 40.28	330 01 27	150 01 31	Ref. Mon. 1071	207.9	2.31793
Ref. Mon. 1062	48 08 14.04	217 39 42	37 39 57	Dragon	669.5	2.82572
	90 48 00.07	235 42 16	55 42 35	Ref. Mon. 1071	620.9	2.79301
City	48 08 12.76	97 17 13	277 17 02	Ref. Mon. 1062	311.5	2.49347
	90 47 45.12	189 58 01	9 58 05	Dragon	578.2	2.76206
Ref. Mon. 1073	48 08 12.19	164 21	344 21	City	18.28	1.26198
	90 47 44.88					
Dune	48 08 06.97	210 20 53	30 20 58	Ref. Mon. 1062	252.8	2.40278
	90 48 06.25	247 44 58	67 45 14	City	471.9	2.67381
		334 48 44	154 49 27	Dimple	2,815.9	3.44961
Ref. Mon. 1075	48 08 08.75	84 12 01	264 11 42	Dune	541.9	2.73394
	90 47 40.17	111 39 37	291 39 23	Ref. Mon. 1032	442.7	2.64607
Ref. Mon. 1064	48 08 06.63	91 17 30	271 17 13	Dune	471.9	2.67389
	90 47 43.43	123 37 16	303 37 04	Ref. Mon. 1062	413.2	2.61616
		225 49 40	45 49 42	Ref. Mon. 1075	93.9	1.97250
Dud	48 07 59.48	119 17 02	299 16 47	Dune	472.8	2.67466
	90 47 46.30	147 39 10	327 39 00	Ref. Mon. 1032	532.0	2.72588
		183 24 08	3 24 09	City	410.6	2.61344
Dago	48 07 54.67	199 21 56	19 22 01	Dune	402.7	2.60493
	90 48 12.70	254 46 00	74 46 20	Dud	565.8	2.75265
Do	48 07 49.16	137 49 44	317 49 38	Dago	229.7	2.36107
	90 48 05.25	177 51 01	357 51 00	Dune	550.5	2.74073
		187 56 06	7 56 10	Ref. Mon. 1062	775.7	2.88968
Dare	48 07 54.40	90 36 24	270 35 56	Dago	786.1	2.89550
	90 47 34.68	120 44 52	300 44 29	Dune	759.3	2.88039
		302 26 59	122 28 35	Chris	3,149.6	3.49826
		345 49 30	165 49 50	Dimple	2,227.9	3.34790
Ref. Mon. 1097	48 07 36.28	17 49 52	197 49 33	Dimple	1,681.0	3.22556
	90 46 43.43	117 50 51	297 50 12	Dare	1,198.7	3.07872
		305 17 02	125 17 59	Chris	1,957.2	3.29164
Ref. Mon. 1095	48 07 42.42	3 18 19	183 18 15	Dimple	1,792.9	3.25356
	90 47 03.31	294 45 38	114 45 53	Ref. Mon. 1097	452.9	2.65599
		303 18 31	123 19 43	Chris	2,403.9	3.38091
Ref. Mon. 1082	48 07 40.27	255 23 10	75 23 19	Ref. Mon. 1095	263.7	2.42105
	90 47 15.65	298 58 10	118 59 31	Chris	2,588.0	3.41296
Ref. Mon. 1092	48 07 35.98	118 16 07	298 15 58	Ref. Mon. 1082	279.8	2.44690
	90 47 03.73	182 29 48	2 29 48	Ref. Mon. 1095	199.2	2.29936
		268 43 23	88 43 38	Ref. Mon. 1097	420.0	2.62328
Ref. Mon. 1076	48 07 59.37	66 04 04	246 03 51	Dare	378.1	2.57762
	90 47 17.97	355 03 47	175 03 54	Dimple	2,322.1	3.36588
Ref. Mon. 1078	48 07 52.34	104 31 35	284 31 25	Dare	254.7	2.40597
	90 47 22.76	204 30 51	24 30 54	Ref. Mon. 1076	238.8	2.37802
		338 28 16	158 28 21	Ref. Mon. 1082	400.8	2.60292
Ref. Mon. 1091	48 07 44.03	43 26 22	223 26 18	Ref. Mon. 1082	160.0	2.20405
	90 47 10.33	122 28 47	302 28 27	Dare	597.0	2.77594
		134 57 27	314 57 18	Ref. Mon. 1078	363.3	2.56022
		288 52 53	108 52 58	Ref. Mon. 1095	153.4	2.18580
		293 16 23	113 16 43	Ref. Mon. 1097	605.7	2.78223
		331 14 40	151 14 45	Ref. Mon. 1092	283.7	2.45280
		358 41 54	178 41 55	Dimple	1,840.1	3.26483
Ref. Mon. 1080	48 07 44.24	140 34 07	320 33 57	Dare	406.7	2.60924
	90 47 22.19	177 18 23	357 18 23	Ref. Mon. 1078	250.5	2.39882
		190 34 42	10 34 45	Ref. Mon. 1076	475.6	2.67722
Ref. Mon. 1089	48 07 55.18	67 46 33	247 46 26	Ref. Mon. 1078	232.0	2.36553
	90 47 12.38	87 02 16	267 01 58	Dare	461.9	2.66457
		138 13 23	318 13 18	Ref. Mon. 1076	173.7	2.23970
Ref. Mon. 1087	48 07 57.41	66 48 00	246 47 54	Ref. Mon. 1089	175.0	2.24292
	90 47 04.60	102 21 36	282 21 26	Ref. Mon. 1076	283.1	2.45188
Ref. Mon. 1074	48 08 02.93	29 12 45	209 12 40	Ref. Mon. 1089	274.2	2.43813
	90 47 05.90	66 14 23	246 14 14	Ref. Mon. 1076	272.6	2.43560
		351 00 41	171 00 42	Ref. Mon. 1087	172.6	2.23694
Ref. Mon. 1072	48 08 01.50	37 13 35	217 13 32	Ref. Mon. 1087	158.5	2.19992
	90 46 59.96	109 49 12	289 49 08	Ref. Mon. 1074	130.6	2.11579
Ref. Mon. 1085	48 07 55.32	125 17 29	305 17 26	Ref. Mon. 1087	111.5	2.04740
	90 47 00.20	153 19 38	333 19 34	Ref. Mon. 1074	262.9	2.41971
		181 27 04	1 27 04	Ref. Mon. 1072	190.7	2.28029
Ref. Mon. 1083	48 08 03.26	46 33 32	226 33 23	Ref. Mon. 1085	356.5	2.55205
	90 46 47.68	77 53 11	257 53 02	Ref. Mon. 1072	259.8	2.41462
Ref. Mon. 1081	48 08 11.90	13 26 25	193 26 21	Ref. Mon. 1085	526.4	2.72131
	90 46 54.28	20 05 12	200 05 08	Ref. Mon. 1072	342.2	2.53425
		332 54 39	152 54 44	Ref. Mon. 1083	299.7	2.47672

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 1070	48 08 05.36	227 45 22	47 45 30	Ref. Mon. 1081	300.5	2.47789
	90 47 05.04	280 13 53	100 14 06	Ref. Mon. 1083	364.8	2.56203
		318 39 41	138 39 45	Ref. Mon. 1072	158.9	2.20120
Ref. Mon. 1079	48 08 10.38	259 59 31	79 59 41	Ref. Mon. 1081	270.8	2.43263
	90 47 07.18	344 05 08	164 05 10	Ref. Mon. 1070	161.2	2.20727
Ref. Mon. 1068	48 08 06.48	209 24 01	29 24 03	Ref. Mon. 1079	138.1	2.14007
	90 47 10.46	243 25 07	63 25 19	Ref. Mon. 1081	374.0	2.57284
		287 13 19	107 13 23	Ref. Mon. 1070	117.2	2.06901
Ref. Mon. 1077	48 08 11.99	282 17 59	102 18 07	Ref. Mon. 1079	234.0	2.36927
	90 47 18.24	316 36 02	136 36 08	Ref. Mon. 1068	234.2	2.36951
Ref. Mon. 1066 ecc	48 08 10.51	205 49 37	25 49 38	Ref. Mon. 1077	50.9	1.70666
	90 47 19.31	270 55 24	90 55 33	Ref. Mon. 1079	250.9	2.39944
		304 10 57	124 11 04	Ref. Mon. 1068	221.3	2.34495
Ref. Mon. 1066	48 08 10.51	328 51	148 51	Ref. Mon. 1066 ecc	0.06	8.76343–10
	90 47 19.31					
Pine River T. S. 2	48 08 09.81	250 49 22	70 49 29	Ref. Mon. 1077	205.5	2.31274
	90 47 27.62	262 48 38	82 48 44	Ref. Mon. 1066 ecc	173.3	2.23868
Pine River T. S. 1	48 08 09.17	82 17	262 17	Ref. Mon. 1075	98.5	1.99335
	90 47 35.45	263 07	83 07	Pine River T. S. 2	163.0	2.21221
Ref. Mon. 1084	48 07 39.84	94 34 07	274 34 01	Ref. Mon. 1082	166.8	2.22217
	90 47 07.61	156 30 27	336 30 25	Ref. Mon. 1091	141.1	2.14965
		228 04 45	48 04 48	Ref. Mon. 1095	119.4	2.07716
Ref. Mon. 1088	48 07 39.48	94 57 25	274 57 20	Ref. Mon. 1084	129.3	2.11150
	90 47 01.38	156 18 40	336 18 39	Ref. Mon. 1095	99.3	1.99711
		284 53 14	104 53 28	Ref. Mon. 1097	384.2	2.58460
Ref. Mon. 1093	48 07 40.25	78 29 05	258 29 03	Ref. Mon. 1084	64.3	1.80824
	90 47 04.56	201 07 11	21 07 12	Ref. Mon. 1095	71.8	1.85603
		290 02 57	110 02 59	Ref. Mon. 1088	70.0	1.84522
Ref. Mon. 1086	48 07 38.77	130 20 43	310 20 42	Ref. Mon. 1084	51.0	1.70770
	90 47 05.73	207 44 52	27 44 53	Ref. Mon. 1093	51.8	1.71452
		256 20 03	76 20 07	Ref. Mon. 1088	92.5	1.96625
Ref. Mon. 1090	48 07 39.84	71 53 37	251 53 36	Ref. Mon. 1088	35.8	1.55419
	90 46 59.74	90 00 46	270 00 41	Ref. Mon. 1084	162.8	2.21175
		137 11 12	317 11 10	Ref. Mon. 1095	108.8	2.03675
		288 02 24	108 02 37	Ref. Mon. 1097	354.7	2.54989
Ref. Mon. 1094	48 07 30.40	120 03 22	300 03 11	Ref. Mon. 1092	343.9	2.53648
	90 46 49.34	213 56 45	33 56 49	Ref. Mon. 1097	218.9	2.34026
Ref. Mon. 1099	48 07 22.53	122 17 52	302 17 38	Ref. Mon. 1094	455.2	2.65820
	90 46 30.73	148 17 07	328 16 57	Ref. Mon. 1097	499.4	2.69843
Ref. Mon. 1096	48 07 19.25	163 18 53	343 18 47	Ref. Mon. 1097	549.1	2.73969
	90 46 35.80	226 00 39	46 00 43	Ref. Mon. 1099	145.7	2.16359
Ref. Mon. 1101	48 07 08.39	145 25 35	325 25 27	Ref. Mon. 1096	407.5	2.61013
	90 46 24.62	163 51 42	343 51 38	Ref. Mon. 1099	454.7	2.65770
Ref. Mon. 1098	48 07 06.98	155 39 47	335 39 41	Ref. Mon. 1096	415.9	2.61896
	90 46 27.51	172 06 43	352 06 41	Ref. Mon. 1099	484.7	2.68550
		234 03 47	54 03 49	Ref. Mon. 1101	73.9	1.86883
Ref. Mon. 1100	48 07 02.99	134 24 03	314 23 59	Ref. Mon. 1098	176.3	2.24637
	90 46 21.42	158 22 12	338 22 10	Ref. Mon. 1101	179.4	2.25384
Ref. Mon. 1103	48 07 04.79	15 49 29	195 49 28	Ref. Mon. 1100	58.0	1.76306
	90 46 20.66	115 29 57	295 29 52	Ref. Mon. 1098	157.1	2.19617
Ref. Mon. 1102	48 06 59.15	120 13 29	300 13 22	Ref. Mon. 1100	235.2	2.37142
	90 46 11.60	132 53 56	312 53 50	Ref. Mon. 1103	255.8	2.40796
Ref. Mon. 1105	48 07 01.07	6 33 09	186 33 09	Ref. Mon. 1102	59.6	1.77556
	90 46 11.27	105 43 34	285 43 27	Ref. Mon. 1100	218.2	2.33883
Ref. Mon. 1107	48 07 01.40	72 22 35	252 22 27	Ref. Mon. 1102	229.7	2.36117
	90 46 01.01	87 13 20	267 13 12	Ref. Mon. 1105	212.4	2.32708
Ref. Mon. 1109	48 06 52.78	133 14 31	313 14 21	Ref. Mon. 1105	373.9	2.57271
	90 45 58.10	167 15 38	347 15 36	Ref. Mon. 1107	273.1	2.43638
Dead	48 06 51.35	189 32 26	9 32 28	Ref. Mon. 1107	315.0	2.49837
	90 46 03.54	248 30 42	68 30 46	Ref. Mon. 1109	120.9	2.08226
Ref. Mon. 1104	48 06 51.32	248 31	68 31	Dead	2.68	0.42813
	90 46 03.66					
Candy	48 06 38.45	159 52 50	339 52 45	Dead	424.3	2.62770
	90 45 56.48	175 40 19	355 40 18	Ref. Mon. 1109	444.0	2.64735
Ref. Mon. 1111	48 06 38.45	91 17	271 17	Candy	3.81	0.58093
	90 45 56.30					
Ref. Mon. 1106	48 06 38.59	201 01 53	21 01 59	Ref. Mon. 1109	469.4	2.67158
	90 46 06.24	231 50 45	51 51 15	Chris	1,053.8	3.02274
		271 17 13	91 17 20	Candy	202.0	2.30544

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Cave	48 06 27.58	108 24 23	288 23 27	Dimple	1,652.5	3.21813
	90 45 52.51	140 07 38	320 07 28	Ref. Mon. 1106	443.2	2.64656
		166 15 00	346 14 57	Candy	345.5	2.53840
		208 47 14	28 47 34	Chris	1,130.8	3.05339
Ref. Mon. 1113	48 05 58.22	18 02 09	198 01 44	Dotty	2,250.7	3.35232
	90 45 35.86	23 42 51	203 42 46	Dam	423.8	2.62715
		126 45 38	306 44 30	Dimple	2,387.2	3.37788
		153 14 41	333 14 19	Ref. Mon. 1106	1,396.4	3.14502
		159 11 40	339 11 28	Cave	970.0	2.98678
		186 01 04	6 01 12	Chris	1,908.3	3.28065
		294 12 36	114 13 48	Dulce	2,180.2	3.33849
Deal	48 06 05.38	162 52 20	342 52 09	Ref. Mon. 1106	1,073.5	3.03080
	90 45 50.96	177 19 29	357 19 28	Cave	686.5	2.83664
		305 15 45	125 15 56	Ref. Mon. 1113	382.8	2.58296
Ref. Mon. 1108	48 06 05.47	305 16	125 16	Deal	4.88	0.68842
	90 45 51.15					
Damp	48 06 31.16	280 31 12	100 31 33	Cave	605.3	2.78200
	90 46 21.28	321 46 11	141 46 33	Deal	1,013.7	3.00590
Coon	48 06 20.03	59 25 25	239 24 57	Deal	889.4	2.94911
	90 45 13.95	103 52 20	283 51 30	Damp	1,434.7	3.15676
		106 18 11	286 17 42	Cave	831.1	2.91967
Cog	48 06 28.84	38 58 11	218 57 50	Deal	931.8	2.96934
	90 45 22.64	326 33 04	146 33 11	Coon	326.0	2.51324
Corn	48 06 32.83	56 42 36	236 42 15	Coon	720.2	2.85744
	90 44 44.85	81 02 24	261 01 56	Cog	791.3	2.89835
Ref. Mon. 1110	48 05 54.27	9 12 57	189 12 55	Dam	269.4	2.43035
	90 45 42.01	15 45 36	195 45 15	Dotty	2,096.9	3.32157
		290 02 38	110 03 54	Dulce	2,252.2	3.35260
Ref. Mon. 1115	48 05 54.72	16 39 42	196 39 39	Dam	291.9	2.46519
	90 45 40.05	16 42 48	196 42 26	Dotty	2,121.4	3.32662
		290 44 09	110 45 24	Dulce	2,218.9	3.34614
Ref. Mon. 1112	48 05 04.35	152 19 20	332 18 56	Dam	1,440.8	3.15861
	90 45 11.75	163 18 48	343 18 29	Ref. Mon. 1113	1,737.1	3.23983
Ref. Mon. 1114	48 05 29.18	120 23	300 23	Dulce	5.49	0.73957
	90 43 59.54					
Ref. Mon. 1117	48 05 52.62	330 14	150 14	Caddie	14.16	1.15091
	90 44 58.54					
Ref. Mon. 1118	48 05 35.22	193 46	13 46	Dough	4.94	0.69373
	90 41 16.04					
Ref. Mon. 1119	48 06 01.04	76 46 29	256 46 14	Clamp	422.6	2.62594
	90 42 14.70	303 07 11	123 07 54	Dough	1,450.7	3.16159
		348 22 07	168 22 14	Ref. Mon. 1116	954.0	2.97956
Droop	48 06 03.64	79 42 13	259 41 07	Drone	1,882.8	3.27480
	90 37 48.17	109 47 58	289 46 47	Cult	2,099.7	3.32216
		137 57 18	317 56 47	Crump	1,275.9	3.10582
Date	48 06 33.59	60 25 14	240 23 54	Drone	2,554.9	3.40738
	90 37 30.31	84 48 00	264 46 35	Cult	2,354.7	3.37194
		91 04 00	271 03 15	Crump	1,224.1	3.08782
Dill	48 05 50.39	92 39 39	272 38 51	Ref. Mon. 1120	1,330.8	3.12410
	90 37 24.89	114 31 14	294 29 45	Cult	2,700.7	3.43148
		166 27 29	346 27 11	Cutts	2,093.6	3.32089
Ref. Mon. 1124	48 06 41.65	81 51 20	261 50 23	Crump	1,596.1	3.20306
	90 37 13.10	121 37 42	301 37 15	Cutts	862.3	2.93566
Chat	48 06 45.31	40 21 14	220 21 11	Ref. Mon. 1124	148.4	2.17129
	90 37 08.45	78 33 39	258 32 39	Crump	1,710.1	3.23301
		112 13 10	292 12 40	Cutts	896.9	2.95273
Ref. Mon. 1127	48 06 44.98	150 43	330 43	Chat	11.54	1.06221
	90 37 08.18					
Ref. Mon. 1122	48 06 34.95	150 10 15	330 10 01	Cutts	759.8	2.88068
	90 37 30.32	239 50 52	59 51 05	Ref. Mon. 1124	412.1	2.61496
Ref. Mon. 1123	48 06 34.80	231 27 51	51 28 21	Cutts	1,065.3	3.02749
	90 38 28.88	262 18 31	82 19 28	Ref. Mon. 1124	1,581.9	3.19918
		269 46 44	89 47 28	Ref. Mon. 1122	1,211.4	3.08329
Ref. Mon. 1125	48 06 56.31	301 37	121 37	Cutts	1.66	0.22011
	90 37 48.66					
Ref. Mon. 1126	48 06 43.92	72 57 34	252 57 26	Ref. Mon. 1124	239.1	2.37855
	90 37 02.04	107 58 14	287 58 09	Chat	139.3	2.14402
Cate	48 06 45.69	3 46 43	183 46 43	Ref. Mon. 1126	54.9	1.73958
	90 37 01.87	61 44 08	241 44 00	Ref. Mon. 1124	263.6	2.42100
		85 02 53	265 02 48	Chat	136.7	2.13562

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 1129	48 06 47.25	39 11 55	219 11 53	Chat	77.5	1.88932
	90 37 06.08	39 57 28	219 57 23	Ref. Mon. 1124	225.8	2.35380
		320 57 58	140 58 01	Ref. Mon. 1126	132.7	2.12273
Delta	48 06 44.89	81 22 09	261 22 02	Ref. Mon. 1126	201.1	2.30342
	90 36 52.43	97 11 00	277 10 53	Cate	196.7	2.29391
Ref. Mon. 1128	48 06 44.15	142 03	322 03	Delta	29.18	1.46509
	90 36 51.57					
Car	48 06 46.76	59 50 57	239 50 52	Ref. Mon. 1126	174.6	2.24198
	90 36 54.75	320 13 25	140 13 27	Delta	74.8	1.87402
Ref. Mon. 1131	48 06 47.77	322 32	142 32	Car	39.43	1.59583
	90 36 55.91					
Ref. Mon. 1133	48 06 48.92	44 46 52	224 46 48	Delta	175.2	2.24358
	90 36 46.47	68 40 34	248 40 28	Car	183.9	2.26454
Dixon	48 06 47.47	83 31 49	263 31 42	Car	195.5	2.29106
	90 36 45.36	152 55 28	332 55 27	Ref. Mon. 1133	50.4	1.70209
Ref. Mon. 1130	48 06 47.63	73 48	253 48	Dixon	17.34	1.23905
	90 36 44.55					
Ref. Mon. 1135	48 06 59.34	53 46 27	233 46 09	Dixon	620.6	2.79282
	90 36 21.15	58 24 51	238 24 32	Ref. Mon. 1133	614.6	2.78861
Ref. Mon. 1132	48 06 54.86	69 46 49	249 46 31	Ref. Mon. 1133	530.5	2.72469
	90 36 22.40	190 31 39	10 31 40	Ref. Mon. 1135	140.9	2.14904
Come	48 07 03.86	68 12 57	248 12 32	Ref. Mon. 1132	749.2	2.87457
	90 35 48.77	78 14 26	258 14 02	Ref. Mon. 1135	684.2	2.83521
Demon	48 06 57.71	81 09 08	261 08 48	Ref. Mon. 1132	571.9	2.75729
	90 35 55.08	95 21 40	275 21 21	Ref. Mon. 1135	541.7	2.73373
		214 29 26	34 29 31	Come	230.6	2.36289
Dooley	48 06 58.38	87 42 22	267 42 03	Demon	519.4	2.71554
	90 35 29.99	113 32 52	293 32 38	Come	423.7	2.62706
Ref. Mon. 1134	48 06 58.36	193 54	13 54	Dooley	0.54	9.73239–10
	90 35 29.99					
Canute	48 07 09.22	13 54 00	193 53 57	Dooley	344.8	2.53754
	90 35 25.98	59 25 59	239 25 37	Demon	699.0	2.84447
Ref. Mon. 1137	48 07 09.19	253 40	73 40	Canute	3.26	0.51340
	90 35 26.13					
Cod	48 07 03.11	52 47 36	232 47 24	Ref. Mon. 1132	421.5	2.62475
	90 36 06.17	69 26 01	249 25 50	Ref. Mon. 1135	331.0	2.51984
		266 18 36	86 18 49	Come	360.7	2.55717
		306 02 02	126 02 10	Demon	283.7	2.45280
Doll	48 06 39.05	29 20 09	209 19 42	Divide	1,522.8	3.18264
	90 34 13.18	336 42 21	156 42 35	Card	986.5	2.99409
Dole	48 06 28.21	14 31 53	194 31 44	Divide	1,025.7	3.01100
	90 34 36.80	235 35 03	55 35 21	Doll	592.3	2.77253
		303 01 36	123 02 08	Card	1,048.1	3.02042
Crust	48 06 18.57	58 30 56	238 30 15	Divide	1,330.4	3.12398
	90 33 54.41	108 45 53	288 45 21	Dole	926.3	2.96674
		148 27 14	328 27 00	Doll	742.4	2.87061
Door	48 06 04.33	195 25 35	15 25 42	Dole	765.2	2.88378
	90 34 46.64	212 50 19	32 50 44	Doll	1,276.4	3.10598
		247 51 12	67 51 51	Crust	1,166.7	3.06697
Dow	48 03 23.61	41 36 16	221 35 57	Door	796.5	2.90117
	90 34 21.08	198 55 02	18 55 08	Doll	504.0	2.70244
		285 46 04	105 46 24	Crust	573.4	2.75848
Ref. Mon. 1156	48 03 23.76	321 15	141 15	Dow	5.82	0.76492
	90 34 21.26					
Dolo	48 06 08.92	257 38 08	77 38 57	Crust	1,392.0	3.14363
	90 35 00.13	296 56 30	116 56 40	Door	313.0	2.49557
		330 25 34	150 25 42	Divide	456.5	2.65944
Dort	48 06 02.76	237 30 32	57 30 43	Dolo	354.5	2.54962
	90 35 14.58	265 11 32	85 11 53	Door	580.1	2.76351
Due	48 06 54.14	30 59 07	210 58 28	Divide	2,091.9	3.32055
	90 33 57.19	35 22 32	215 22 20	Doll	571.5	2.75699
		357 00 04	177 00 06	Crust	1,100.1	3.04144
Ref. Mon. 1159	48 05 29.55	108 50 00	288 49 29	Doll	909.3	2.95871
	90 33 31.58	145 03 14	325 05 55	Due	926.0	2.96659
Ref. Mon. 1157	48 07 24.60	14 18 41	194 18 25	Ref. Mon. 1159	1,754.8	3.24424
	90 33 10.61	23 57 15	203 56 42	Crust	2,231.7	3.34864
		45 40 45	225 40 10	Due	1,346.7	3.12926
Ref. Mon. 1154	48 07 13.86	14 08 02	194 07 56	Due	628.1	2.79800
	90 33 49.78	247 42 46	67 43 15	Ref. Mon. 1157	875.4	2.94219
		344 37 13	164 37 26	Ref. Mon. 1159	1,419.3	3.15207

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Crab	48 03 52.02	92 08 24	272 07 20	Due	1,755.4	3.24437
	90 32 32.38	112 51 07	292 50 09	Ref. Mon. 1154	1,737.0	3.23979
		141 50 46	321 50 17	Ref. Mon. 1157	1,279.7	3.10711
Cruz	48 03 59.65	70 47 58	250 47 34	Crab	716.4	2.85513
	90 31 59.68	117 43 09	297 42 16	Ref. Mon. 1157	1,657.1	3.21936
Crit	48 07 36.94	2 21 24	182 21 22	Crab	1,388.5	3.14256
	90 32 29.62	65 47 36	245 47 05	Ref. Mon. 1157	929.4	2.96819
		331 43 44	151 44 06	Cruz	1,307.7	3.11651
Craw	48 07 14.83	69 04 06	249 03 22	Cruz	1,311.8	3.11787
	90 31 00.44	110 19 43	290 18 37	Crit	1,966.8	3.29375
Crime	48 07 39.71	32 29 22	212 28 54	Cruz	1,466.8	3.16637
	90 31 21.58	86 31 40	266 30 50	Crit	1,409.6	3.14909
		330 21 26	150 21 42	Craw	884.2	2.94656
Cramp	48 07 20.85	78 05 52	258 05 20	Craw	901.0	2.95472
	90 30 17.81	113 50 28	293 49 40	Crime	1,441.8	3.15890
Crill	48 07 47.11	27 52 11	207 51 52	Craw	1,127.7	3.05221
	90 30 34.95	76 40 39	256 40 04	Crime	991.0	2.99609
		336 23 41	156 23 54	Cramp	885.1	2.94700
Canoe	48 07 50.94	3 59 01	183 58 59	Cramp	931.8	2.96932
	90 30 14.68	40 18 50	220 18 16	Craw	1,462.7	3.16516
		74 13 05	254 12 50	Crill	435.5	2.63901
Croak	48 07 58.53	37 43 03	217 42 31	Cramp	1,471.2	3.16768
	90 29 34.29	52 51 33	232 50 29	Craw	2,235.1	3.34930
		74 19 48	254 19 18	Canoe	867.5	2.93825
Cream	48 07 17.27	131 18 58	311 18 15	Canoe	1,575.5	3.19743
	90 29 17.45	164 43 20	344 43 07	Croak	1,321.1	3.12094
Cred	48 07 19.85	83 42 56	263 42 30	Cream	726.7	2.86136
	90 28 42.52	116 45 27	296 44 18	Canoe	2,134.1	3.32921
		138 08 58	318 08 19	Croak	1,604.2	3.20525
Carp	48 08 03.46	15 24 23	195 24 09	Cream	1,479.7	3.17017
	90 28 58.44	78 24 19	258 23 52	Croak	756.6	2.87885
		346 15 53	166 16 05	Cred	1,386.6	3.14194
Bishop's sawmill stack	48 07 56.01	9 14 49	189 14 42	Cream	1,212.2	3.08358
	90 29 08.03	220 45 11	40 45 18	Carp	303.7	2.48246
		334 43 00	154 43 19	Cred	1,235.2	3.09173
Can	48 08 07.84	9 28 26	189 28 17	Cred	1,502.9	3.17694
	90 28 30.56	31 50 00	211 49 25	Cream	1,838.5	3.26446
North Lake longitude station	48 08 14.19	21 00 52	201 00 29	Cred	1,798.0	3.25478
	90 28 11.34	37 52 22	217 51 33	Cream	2,226.9	3.34770
		63 44 50	243 44 36	Can	443.0	2.64637
Ref. Mon. 1155	48 07 23.62	268 07 28	88 08 01	Ref. Mon. 1157	933.4	2.97009
	90 33 55.72	299 30 20	119 31 22	Crab	1,980.7	3.29682
Ref. Mon. 1152	48 07 17.37	170 58 10	350 58 09	Ref. Mon. 1155	195.3	2.29068
	90 33 54.24	256 05 37	76 06 09	Ref. Mon. 1157	929.5	2.96827
		294 48 31	114 49 32	Crab	1,865.3	3.27075
Curve	48 07 36.02	13 06 31	193 06 25	Ref. Mon. 1154	703.0	2.84696
	90 33 42.07	23 36 25	203 36 16	Ref. Mon. 1152	628.7	2.79845
		36 23 15	216 23 05	Ref. Mon. 1155	476.1	2.67766
Ref. Mon. 1153	48 07 19.90	249 01 15	69 01 26	Ref. Mon. 1155	320.4	2.50575
	90 34 10.19	283 19 31	103 19 43	Ref. Mon. 1152	339.0	2.53018
Dog	48 07 16.93	170 13 57	350 13 56	Ref. Mon. 1153	93.1	1.96880
	90 34 09.43	233 55 45	53 55 55	Ref. Mon. 1155	350.6	2.54485
Ref. Mon. 1150	48 07 16.84	170 14	350 14	Dog	2.82	0.45025
	90 34 09.40					
Cusk	48 07 18.09	248 34 30	68 34 35	Ref. Mon. 1153	152.9	2.18431
	90 34 17.07	282 47 12	102 47 18	Dog	162.1	2.20982
Ref. Mon. 1151	48 07 18.10	272 42	92 42	Cusk	3.32	0.52114
	90 34 17.23					
Ref. Mon. 1148	48 07 14.72	172 02 06	352 02 06	Cusk	105.2	2.02202
	90 34 16.37	218 35 43	38 35 48	Ref. Mon. 1153	204.7	2.31122
Dux	48 07 14.17	224 46 41	44 46 46	Cusk	170.7	2.23217
	90 34 22.88	262 49 36	82 49 41	Ref. Mon. 1148	135.9	2.13309
Cute	48 07 17.47	298 39 47	118 39 53	Ref. Mon. 1148	177.0	2.24808
	90 34 23.88	348 35 45	168 35 46	Dux	103.9	2.01678
Doc	48 07 14.04	211 04 59	31 05 01	Cute	123.8	2.09271
	90 34 26.97	267 11 48	87 11 51	Dux	84.6	1.92720
Ref. Mon. 1146	48 07 14.00	211 05	31 05	Doc	1.27	0.10380
	90 34 27.00					

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Chif	48 07 16.52	250 51 06	70 51 09	Cute	89.2	1.95044
	90 34 27.95	304 42 44	124 42 48	Dux	127.5	2.10561
		345 08 26	165 08 27	Doc	79.4	1.89990
Ref. Mon. 1149	48 07 16.54	58 09	238 09	Chif	1.40	0.14613
	90 34 27.90					
Dod	48 07 13.97	238 09 13	58 09 17	Chif	149.0	2.17322
	90 34 34.07	269 16 20	89 16 25	Doc	147.0	2.16720
Ref. Mon. 1144	48 07 13.96	117 39	297 39	Dod	1.19	0.07555
	90 34 34.02					
Cita	48 07 17.54	301 31 28	121 31 34	Doc	207.0	2.31600
	90 34 35.50	344 59 37	164 59 38	Dod	114.0	2.05689
Ref. Mon. 1147	48 07 17.55	69 41	249 41	Cita	0.75	9.87506–10
	90 34 35.47					
Ref. Mon. 1142	48 07 15.39	219 06 59	39 07 01	Cita	85.5	1.93220
	90 34 38.11	297 38 50	117 38 53	Dod	94.2	1.97428
Doke	48 07 23.07	293 53 28	113 53 42	Cita	421.6	2.62489
	90 34 54.14	305 34 34	125 34 46	Ref. Mon. 1142	407.6	2.61020
Ref. Mon. 1140	48 07 23.05	219 47	39 47	Doke	0.61	9.78533–10
	90 34 54.16					
Ref. Mon. 1145	48 07 30.17	12 37 43	192 37 41	Doke	224.7	2.35162
	90 34 51.76	319 13 37	139 13 49	Cita	515.0	2.71181
		328 15 19	148 15 29	Ref. Mon. 1142	536.7	2.72971
Ref. Mon. 1143	48 07 27.39	223 42 56	43 42 59	Ref. Mon. 1145	118.7	2.07448
	90 34 55.73	306 01 18	126 01 33	Cita	517.3	2.71373
		315 28 53	135 29 06	Ref. Mon. 1142	519.7	2.71579
		346 08 53	166 08 54	Doke	137.5	2.13821
Clem	48 07 34.81	39 46 47	219 46 36	Doke	471.9	2.67381
	90 34 39.54	60 26 28	240 26 19	Ref. Mon. 1145	290.6	2.46328
		357 10 39	177 10 40	Ref. Mon. 1142	600.5	2.77851
Ref. Mon. 1141	48 07 21.95	240 37 51	60 38 02	Ref. Mon. 1143	342.5	2.53470
	90 35 10.16	264 03 15	84 03 27	Doke	333.2	2.52273
Ref. Mon. 1138	48 07 16.90	158 51 32	338 51 30	Ref. Mon. 1141	167.1	2.22291
	90 35 07.25	216 20 38	36 20 47	Ref. Mon. 1143	402.0	2.60424
Ref. Mon. 1136	48 07 12.46	190 52 46	10 52 48	Ref. Mon. 1141	298.6	2.47510
	90 35 12.89	217 34 27	37 34 40	Ref. Mon. 1143	581.9	2.76488
		220 19 18	40 19 22	Ref. Mon. 1138	180.2	2.25582
Cover	48 07 10.47	16 08 15	196 08 15	Canute	40.20	1.60419
	90 35 25.44	221 42 27	41 42 38	Ref. Mon. 1141	475.0	2.67667
		242 09 19	62 09 32	Ref. Mon. 1138	425.6	2.62896
		256 42 23	76 42 32	Ref. Mon. 1136	266.8	2.42622
Ref. Mon. 1139	48 07 10.66	341 43	161 43	Cover	6.10	0.78533
	90 35 25.54					
Dram	48 06 06.31	144 03 44	324 03 30	Dow	660.1	2.81959
	90 34 02.36	167 30 42	347 30 34	Doll	1,035.7	3.01524
		237 40 20	57 40 26	Card	196.6	2.29353
Dick	48 05 34.32	222 35 05	42 35 33	Crane	1,147.5	3.05974
	90 33 18.09	272 55 03	92 55 36	Dade	918.4	2.96304
Ref. Mon. 1158	48 05 34.27	197 52	17 52	Dick	1.43	0.15534
	90 33 18.12					
Crow	48 05 57.39	262 32 12	82 32 48	Crane	1,018.1	3.00778
	90 33 29.36	303 25 54	123 26 35	Dade	1,378.3	3.13934
		341 53 36	161 53 44	Dick	749.8	2.87493
Ref. Mon. 1161	48 05 57.73	329 56	149 56	Crow	11.97	1.07809
	90 33 29.64					
Dope	48 05 47.37	254 29 22	74 30 19	Crane	1,652.5	3.21815
	90 33 57.53	284 32 39	104 33 41	Dade	1,790.6	3.25300
		296 17 12	116 17 41	Dick	910.1	2.95910
Drill	48 05 34.08	125 59 00	305 58 40	Dope	698.9	2.84439
	90 33 30.20	181 23 11	1 23 12	Crow	720.3	2.85754
		268 17 21	88 17 30	Dick	250.6	2.39892
Crown	48 05 55.81	294 46 14	114 47 09	Dade	1,695.5	3.22930
	90 33 48.17	316 50 50	136 51 12	Dick	909.8	2.95895
		331 01 02	151 01 15	Drill	767.3	2.88498
Mon. 6	48 05 56.13	277 39 15	97 39 18	Crown	73.6	1.86700
	90 33 51.69					
Mon. 5	48 05 59.58	324 22 57	144 23 00	Mon. 6	131.27	2.11817
	90 33 55.39					

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Mon. 4	48 06 06.14	167 37 33	347 37 25	Doll	1,040.7	3.01732
	90 34 02.40	190 07 05	10 07 05	Dram	5.39	0.73159
		324 22 52	144 22 57	Mon. 5	249.18	2.39651
Drip	48 05 41.63	243 31 45	63 31 58	Dope	397.9	2.59978
	90 34 14.74	280 53 44	100 54 26	Dick	1,193.7	3.07691
Duff	48 05 28.02	162 22 44	342 22 39	Drip	440.8	2.64426
	90 34 08.29	200 26 46	20 26 54	Dope	637.6	2.80458
		240 12 05	60 13 10	Crane	2,091.7	3.32049
Dont	48 05 31.33	247 40 39	67 41 07	Drip	837.1	2.92280
	90 34 52.17	276 25 09	96 25 42	Duff	913.7	2.96078
Ref. Mon. 1164	48 05 50.99	73 10 58	253 10 39	Ref. Mon. 1162	528.9	2.72341
	90 30 33.56	133 31 20	313 30 58	Ref. Mon. 1165	844.7	2.92671
Chit	48 06 06.02	36 31 26	216 31 09	Ref. Mon. 1162	768.5	2.88562
	90 30 35.93	101 44 55	281 44 35	Ref. Mon. 1165	575.6	2.76012
		353 58 52	173 58 54	Ref. Mon. 1164	467.1	2.66938
Ref. Mon. 1166	48 05 55.70	46 52 01	226 51 55	Ref. Mon. 1164	213.2	2.32872
	90 30 26.05	119 34 51	299 34 23	Ref. Mon. 1165	883.2	2.94604
Dall	48 05 53.06	134 22 25	314 22 06	Ref. Mon. 1165	740.0	2.86926
	90 30 37.60	184 55 58	4 55 59	Chit	401.8	2.60405
		251 09 18	71 09 27	Ref. Mon. 1166	252.6	2.40248
		307 31 24	127 31 27	Ref. Mon. 1164	105.3	2.02251
Ref. Mon. 1167	48 05 52.58	242 00 57	62 01 04	Ref. Mon. 1166	205.5	2.31283
	90 30 34.82	332 16 31	152 16 32	Ref. Mon. 1164	55.7	1.74595
Ref. Mon. 1169	48 05 57.54	28 38 40	208 38 36	Ref. Mon. 1164	230.5	2.36268
	90 30 28.23	41 43 29	221 43 24	Ref. Mon. 1167	205.0	2.31168
		321 26 54	141 26 56	Ref. Mon. 1166	72.3	1.85920
Carl	48 05 57.84	258 24 55	78 25 37	Blatz	1,185.5	3.07390
	90 29 20.46	330 04 40	150 04 51	Back	589.4	2.77038
Ref. Mon. 1181	48 05 59.06	30 14	210 14	Carl	43.58	1.63929
	90 29 19.39					
Ref. Mon. 1168	48 05 57.70	263 39 00	83 40 18	Blatz	2,195.8	3.34159
	90 30 09.80	291 03 03	111 03 50	Back	1,409.2	3.14896
Dot	48 05 52.13	110 20 25	290 20 09	Ref. Mon. 1168	494.3	2.69400
	90 29 47.40	252 26 56	72 27 16	Carl	584.8	2.76698
		256 26 30	76 27 32	Blatz	1,768.1	3.24751
Ref. Mon. 1170	48 05 51.67	213 19	33 19	Dot	17.22	1.23616
	90 29 47.86					
Duke	48 05 58.96	21 08 53	201 08 50	Dot	226.1	2.35432
	90 29 43.46	274 09 05	94 09 22	Carl	477.2	2.67872
Ref. Mon. 1172	48 05 58.80	194 27	14 27	Duke	5.21	0.71659
	90 29 43.52					
Ref. Mon. 1173	48 05 59.11	286 33	106 33	Duke	16.52	1.21801
	90 29 44.22					
Colt	48 06 02.55	72 35 40	252 35 27	Duke	370.2	2.56844
	90 29 26.39	319 49 12	139 49 16	Carl	190.2	2.27921
Ref. Mon. 1179	48 06 02.59	67 06	247 06	Colt	3.42	0.53403
	90 29 26.23					
Drop	48 05 55.02	179 04 33	359 04 33	Colt	232.3	2.36610
	90 29 26.20	233 49 48	53 49 52	Carl	147.4	2.16842
Ref. Mon. 1176	48 05 54.73	205 35	25 35	Drop	10.18	1.00775
	90 29 26.42					
Dan	48 05 55.34	88 43 52	268 43 36	Drop	438.7	2.64217
	90 29 05.01	103 35 17	283 35 05	Carl	328.8	2.51696
Ref. Mon. 1178	48 05 55.15	166 04	346 04	Dan	6.06	0.78247
	90 29 04.94					
Clip	48 06 03.17	59 29 35	239 29 20	Drop	495.3	2.69488
	90 29 05.58	61 52 46	241 52 35	Carl	349.0	2.54279
		233 37 20	53 37 29	Cap	311.9	2.49405
		357 11 45	177 11 46	Dan	242.0	2.38385
Dump	48 06 06.32	51 41 27	231 41 12	Dan	547.1	2.73805
	90 28 44.26	77 32 51	257 32 35	Clip	451.7	2.65488
		114 45 09	294 45 02	Cap	209.2	2.32049
Ref. Mon. 1180	48 06 06.18	120 00	300 00	Dump	8.41	0.92480
	90 28 43.91					
Dark	48 05 57.42	231 30 50	51 30 57	Colt	254.3	2.40543
	90 29 36.01	267 41 26	87 41 38	Carl	322.1	2.50796
		290 02 35	110 02 43	Drop	215.9	2.33432
Ref. Mon. 1174	48 05 57.00	213 18	33 18	Dark	15.49	1.19005
	90 29 36.42					

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 1175	48 06 03.44	273 49 00	93 49 15	Colt	415.2	2.61827
	90 29 46.41	287 51 04	107 51 23	Carl	564.2	2.75142
		336 11 54	156 11 56	Duke	151.3	2.17975
Cane	48 06 10.95	21 00 34	201 00 29	Duke	396.6	2.59835
	90 29 36.59	41 14 23	221 14 16	Ref. Mon. 1175	308.3	2.48897
		320 52 29	140 52 37	Colt	334.5	2.52437
Ref. Mon. 1171	48 05 58.97	39 51 01	219 51 00	Ref. Mon. 1168	51.3	1.71049
	90 30 08.21	296 07 39	116 07 54	Dot	479.6	2.68088
Crupper	48 05 58.54	86 18 56	266 18 41	Ref. Mon. 1168	408.1	2.61073
	90 29 50.12	92 01 07	272 00 53	Ref. Mon. 1171	374.6	2.57351
		344 08 18	164 08 19	Dot	205.9	2.31361
Ref. Mon. 1177	48 06 11.38	321 52 47	141 52 55	Colt	346.7	2.53999
	90 29 36.73	336 40 25	156 40 34	Drop	550.0	2.74039
		358 00 53	178 00 54	Dark	431.3	2.63481
Ref. Mon. 1183	48 06 09.26	291 26	111 26	Cap	8.83	0.94596
	90 28 53.84					
Crib	48 06 22.04	5 22 04	185 22 03	Dump	487.5	2.68796
	90 28 42.06	30 38 00	210 37 52	Cap	462.3	2.66491
Ref. Mon. 1185	48 06 22.38	339 35	159 35	Crib	11.37	1.05576
	90 28 42.25					
Duck	48 06 15.75	32 11 42	212 11 36	Dump	343.9	2.53645
	90 28 35.40	61 24 06	241 23 53	Cap	425.0	2.62843
		144 41 29	324 41 24	Crib	238.1	2.37678
Ref. Mon. 1182	48 06 15.05	144 11	324 11	Duck	26.65	1.42570
	90 28 34.65					
Club	48 06 23.23	43 35 58	223 35 50	Duck	319.3	2.50416
	90 28 24.76	84 06 45	264 06 32	Crib	359.7	2.55593
Drake	48 06 16.49	80 16 31	260 16 26	Duck	136.1	2.13392
	90 28 28.92	122 13 34	302 13 24	Crib	321.3	2.50688
		202 26 37	22 26 40	Club	225.3	2.35274
Deer	48 06 17.69	82 29 23	262 29 13	Drake	282.4	2.45092
	90 28 15.38	131 26 44	311 26 37	Club	258.8	2.41297
Ref. Mon. 1184	48 06 17.44	147 31	327 31	Deer	9.10	0.95890
	90 28 15.14					
Cat	48 06 26.25	39 16 17	219 16 08	Drake	389.1	2.59009
	90 28 17.01	59 52 22	239 52 16	Club	185.3	2.26795
		352 44 04	172 44 05	Deer	266.5	2.42564
Ref. Mon. 1187	48 06 26.52	336 54	156 54	Cat	9.06	0.95689
	90 28 17.18					
Ref. Mon. 1186	48 06 27.63	40 01 21	220 01 12	Deer	400.9	2.60299
	90 28 02.92	81 40 30	261 40 20	Cat	294.6	2.46920
Close	48 06 35.13	10 44 31	190 44 29	Ref. Mon. 1186	235.8	2.37261
	90 28 00.80	29 15 22	209 15 11	Deer	617.4	2.79059
		50 43 12	230 43 00	Cat	433.3	2.63683
Ref. Mon. 1189	48 06 35.34	289 26	109 26	Close	19.89	1.29872
	90 28 01.70					
Ref. Mon. 1191	48 06 33.32	56 32 30	236 32 20	Ref. Mon. 1186	318.7	2.50345
	90 27 50.07	68 36 23	248 36 03	Cat	598.7	2.77718
		104 09 04	284 08 56	Close	228.9	2.35967
Dad	48 06 27.04	137 33 05	317 32 57	Close	338.5	2.52953
	90 27 49.76	178 05 01	358 05 01	Ref. Mon. 1191	193.9	2.28758
		278 06 47	98 06 54	Ref. Mon. 1193	197.4	2.29536
		287 30 55	107 31 49	Arthur	1,528.5	3.18426
		308 54 26	128 54 54	Bold	961.3	2.98287
Cabin	48 06 30.29	30 53 56	210 53 54	Dad	116.9	2.06790
	90 27 46.85	144 33 31	324 33 29	Ref. Mon. 1191	114.7	2.05965
		315 39 44	135 40 09	Bold	984.4	2.99319
Dent	48 06 21.46	146 04 39	326 04 35	Dad	207.8	2.31770
	90 27 44.15	168 24 40	348 24 38	Cabin	278.5	2.44476
		208 47 12	28 47 15	Ref. Mon. 1193	165.0	2.21743
		282 05 56	102 06 45	Arthur	1,372.1	3.13739
April	48 06 23.57	82 28 56	262 28 38	Dent	498.0	2.69725
	90 27 20.28	100 51 10	280 50 55	Ref. Mon. 1193	421.8	2.62514
		292 35 47	112 36 18	Arthur	918.4	2.96301
		344 26 14	164 26 20	Bold	515.4	2.71218
Brand	48 06 14.04	119 24 29	299 24 05	Ref. Mon. 1193	761.2	2.88149
	90 27 08.25	139 47 18	319 47 09	April	385.4	2.58592
		275 35 09	95 35 31	Arthur	601.9	2.77951
Mon. 1190	48 06 13.92	259 51	79 51	Brand	20.72	1.31639
	90 27 09.24					

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Alger	48 06 22.66	7 30 12	187 30 11	Brand	268.5	2.42898
	90 27 06.56	95 39 08	275 38 58	April	285.3	2.45525
		299 56 23	119 56 44	Arthur	650.8	2.81345
Ref. Mon. 1195	48 06 23.00	3 34	183 34	Alger	10.37	1.01561
	90 27 06.53					
Ref. Mon. 1188	48 06 21.68	215 55 28	35 55 31	Ref. Mon. 1193	170.0	2.23045
	90 27 45.13	263 31 55	83 32 13	April	517.3	2.71376
		267 49 52	87 50 20	Alger	798.5	2.90227
Altoona	48 06 09.51	86 05 54	266 05 21	Bold	915.1	2.96146
	90 26 29.47	111 47 16	291 47 09	Arthur	219.0	2.34046
		253 41 44	75 42 15	Antrim	877.0	2.94300
		303 14 53	123 15 53	Balsam	2,001.1	3.30127
Ref. Mon. 1199	48 06 09.63	30 56	210 56	Altoona	4.35	0.63809
	90 26 29.36					
Bird	48 05 55.58	148 54 03	328 53 44	Alger	976.8	2.98980
	90 26 42.17	186 37 22	6 37 24	Arthur	515.0	2.71179
		211 24 45	31 24 54	Altoona	504.2	2.70256
		239 49 15	59 49 55	Antrim	1,287.0	3.10958
Ref. Mon. 1192	48 06 55.45	211 18	31 18	Bird	4.76	0.67715
	90 26 42.29					
Ref. Mon. 1197	48 06 12.20	350 48	170 48	Arthur	1.64	0.21484
	90 26 39.31					
Bump	48 05 31.05	136 47 36	316 46 58	Bold	1,544.3	3.18874
	90 26 22.49	150 14 09	330 13 36	Alger	1,836.4	3.26396
		151 44 52	331 44 38	Bird	860.1	2.93456
		164 40 44	344 40 32	Arthur	1,316.0	3.11924
		173 04 17	353 04 12	Altoona	1,196.6	3.07796
		206 40 07	26 40 33	Antrim	1,571.8	3.19639
Book	48 05 41.23	120 58 50	300 58 24	Bird	861.5	2.93526
	90 26 06.47	151 25 42	331 25 25	Altoona	994.8	2.99775
		198 56 05	18 56 19	Antrim	1,152.7	3.06171
Ref. Mon. 1194	48 05 40.96	147 24	327 24	Book	9.89	0.99520
	90 26 06.22					
Ref. Mon. 1196	48 06 04.05	197 28	17 28	Belt	7.54	0.87714
	90 24 46.14					
Ref. Mon. 1201	48 06 17.61	315 39	135 39	Antrim	3.49	0.54283
	90 25 48.51					
Ref. Mon. 1203	48 06 26.27	20 29 41	200 29 32	Belt	725.0	2.86034
	90 24 33.76	78 58 40	258 57 44	Antrim	1,573.0	3.19674
		269 49 16	89 50 06	Argot	1,379.4	3.13970
Block	48 05 40.46	160 51 27	340 51 13	Antrim	1,179.2	3.07157
	90 25 29.70	213 03 39	33 04 21	Atom	2,086.0	3.31931
		219 16 43	39 17 25	Ref. Mon. 1203	1,828.0	3.26198
Bag	48 06 08.02	98 37 02	278 35 59	Antrim	1,754.6	3.24419
	90 24 24.54	161 17 50	341 17 43	Ref. Mon. 1203	595.0	2.77453
		244 27 51	64 28 34	Argot	1,317.3	3.11969
Ref. Mon. 1198	48 06 07.91	188 30	8 30	Bag	3.45	0.53782
	90 24 24.56					
Bowie	48 06 07.58	91 16 36	271 16 14	Bag	616.2	2.78972
	90 23 54.76	125 35 18	305 34 49	Ref. Mon. 1203	992.1	2.99655
Ref. Mon. 1200	48 06 07.59	322 51	142 51	Bowie	0.50	9.69897–10
	90 23 54.77					
Ref. Mon. 1205	48 06 29.51	40 04 01	220 03 41	Bag	867.2	2.93812
	90 23 57.56	82 23 28	262 23 01	Ref. Mon. 1203	755.6	2.87829
		355 07 10	175 07 12	Bowie	679.8	2.83241
Blot	48 06 08.68	49 57 29	229 57 27	Bowie	53.0	1.72388
	90 23 52.80	88 13 35	268 13 11	Bag	656.9	2.81749
		122 40 04	302 39 33	Ref. Mon. 1203	1,006.5	3.00283
Ref. Mon. 1207	48 06 09.28	37 50 34	217 50 33	Blot	23.5	1.37192
	90 23 52.10	46 36 38	226 36 36	Ref. Mon. 1200	76.08	1.88127
Bone	48 05 49.29	133 27 02	313 26 06	Atom	2,145.6	3.33154
	90 23 19.39	172 06 10	352 06 04	Argot	1,157.3	3.06344
		267 29 05	87 31 36	Best	4,207.8	3.62406
		288 52 03	108 53 13	Bay	2,052.2	3.31222
Ref. Mon. 1206	48 05 29.67	107 02 06	287 00 55	Bone	2,070.0	3.31597
	90 21 43.74	225 24 54	45 26 04	Angus	2,705.8	3.43230
		250 27 28	70 28 48	Best	2,360.6	3.37303
Aloe	48 05 43.27	261 25 41	81 27 09	Best	2,479.1	3.39430
	90 21 54.70	331 38 44	151 38 52	Ref. Mon. 1206	477.5	2.67898
Ref. Mon. 1213	48 05 43.32	317 50	137 50	Aloe	1.77	0.24797
	90 21 54.76					

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 1217	48 05 45.08	33 49 41	213 49 29	Ref. Mon. 1206	573.1	2.75826
	90 21 28.32	84 09 17	264 08 57	Aloe	548.7	2.73930
Ref. Mon. 1215	48 05 42.46	47 39 08	227 38 52	Ref. Mon. 1206	586.3	2.76812
	90 21 22.80	92 11 42	272 11 18	Aloe	660.5	2.81989
Ref. Mon. 1211	48 05 40.18	251 33 09	71 33 19	Aloe	302.4	2.48053
	90 22 08.56	259 40 43	79 41 13	Ref. Mon. 1217	846.3	2.92753
		302 17 12	122 17 30	Ref. Mon. 1206	607.6	2.78359
Ref. Mon. 1204	48 05 37.63	188 27	8 27	Ref. Mon. 1211	79.43	1.90015
	90 22 09.12					
Ref. Mon. 1202	48 05 34.29					
	90 22 54.34					
Ref. Mon. 1209	48 05 35.28	18 03	198 03	Ref. Mon. 1202	32.07	1.50611
	90 22 53.86					
Ref. Mon. 1220	48 05 58.72	149 28 01	329 27 40	Angus	1,162.9	3.06553
	90 19 42.02	242 30 01	62 31 33	Aborn	2,877.3	3.45898
		264 45 54	84 46 48	Blow	1,520.6	3.18201
Ref. Mon. 1235	48 06 22.07	54 21 32	234 20 56	Ref. Mon. 1220	1,237.2	3.09244
	90 18 53.43	281 58 22	102 00 33	Bronx	3,714.4	3.56989
		318 51 36	138 51 54	Blow	773.4	2.88840
Ref. Mon. 1233	48 06 15.41	57 38 58	237 38 29	Ref. Mon. 1220	963.2	2.98372
	90 19 02.69	223 00 08	43 00 15	Ref. Mon. 1235	281.1	2.44880
		298 16 49	118 17 14	Blow	795.5	2.90063
Arch	48 06 24.39	25 21 44	205 21 33	Blow	723.9	2.85966
	90 18 13.85	74 39 56	254 39 20	Ref. Mon. 1233	1,047.8	3.02029
		85 00 12	264 59 43	Ref. Mon. 1235	821.9	2.91483
Ref. Mon. 1231	48 06 13.38	49 43 28	229 43 09	Ref. Mon. 1220	699.9	2.84505
	90 19 16.21	257 18 35	77 18 45	Ref. Mon. 1233	286.7	2.45742
		287 45 18	107 45 53	Blow	1,029.3	3.01253
Ref. Mon. 1222	48 06 12.38	63 07 50	243 07 20	Ref. Mon. 1220	933.1	2.96991
	90 19 01.79	95 52 58	275 52 47	Ref. Mon. 1231	299.9	2.47696
		168 45 52	348 45 51	Ref. Mon. 1233	95.5	1.98016
		210 02 38	30 02 44	Ref. Mon. 1235	345.7	2.53869
Ref. Mon. 1229	48 06 10.82	233 23 23	83 23 50	Ref. Mon. 1231	686.6	2.83672
	90 19 49.18	278 02 14	98 03 13	Blow	1,678.8	3.22501
		338 22 09	158 22 14	Ref. Mon. 1220	401.8	2.60401
Anvil	48 06 05.22	238 52 04	58 52 15	Ref. Mon. 1229	334.4	2.52431
	90 20 03.02	255 24 51	75 25 26	Ref. Mon. 1231	1,000.6	3.00025
		294 47 10	114 47 25	Ref. Mon. 1220	478.5	2.67986
Ref. Mon. 1218	48 05 56.96	203 24 51	26 24 56	Anvil	284.8	2.45461
	90 20 09.14	223 58 31	43 58 47	Ref. Mon. 1229	594.8	2.77435
Alton	48 06 00.73	242 56 36	62 56 46	Anvil	305.2	2.48459
	90 20 16.16	274 59 48	95 00 14	Ref. Mon. 1220	708.9	2.85059
		308 42 34	128 42 39	Ref. Mon. 1218	185.9	2.26937
Ref. Mon. 1227	48 06 00.79	352 43	172 43	Alton	1.90	0.27875
	90 20 16.17					
Betwixt	48 05 51.62	173 54 45	353 54 45	Alton	282.8	2.45152
	90 20 14.71	209 55 38	29 55 47	Anvil	484.7	2.68546
		214 54 24	34 54 28	Ref. Mon. 1218	201.1	2.30350
Ref. Mon. 1213	48 05 51.56	116 48	296 48	Betwixt	4.03	0.60530
	90 20 14.53					
Ref. Mon. 1225	48 05 52.25	304 35	124 35	Betwixt	35.11	1.54543
	90 20 16.10					
Bandy	48 05 45.27	173 38 24	353 38 23	Betwixt	197.2	2.29496
	90 20 13.65	173 48 03	353 48 01	Alton	480.1	2.68129
		194 29 08	14 29 11	Ref. Mon. 1218	372.8	2.57149
Ref. Mon. 1214	48 05 45.72	49 13	229 13	Bandy	20.95	1.32118
	90 20 12.88					
Atlee	48 05 42.44	237 50 44	57 51 00	Betwixt	533.1	2.72679
	90 20 36.52	259 30 01	79 30 18	Bandy	481.2	2.68235
Ref. Mon. 1221	48 05 43.05	333 04	153 04	Atlee	21.23	1.32695
	90 20 36.98					
Ref. Mon. 1212	48 05 42.24	98 23 56	278 23 55	Atlee	42.0	1.62372
	90 20 34.51	234 43 25	54 43 40	Betwixt	501.9	2.70060
		257 44 01	77 44 17	Bandy	441.7	2.64509
Ref. Mon. 1223	48 05 48.52	42 54 09	222 54 02	Ref. Mon. 1212	264.9	2.42310
	90 20 25.79	247 20 15	67 20 23	Betwixt	248.6	2.39547
		291 44 55	111 45 04	Bandy	270.5	2.43217
Brake	48 05 41.46	236 40 03	56 40 05	Atlee	54.9	1.73989
	90 20 38.74	254 37 54	74 37 57	Ref. Mon. 1212	90.7	1.95781

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 1210	48 05 36.81	235 16 23	55 16 31	Brake	252.1	2.40157
	90 20 48.75	240 21 44	60 21 55	Ref. Mon. 1212	339.0	2.53026
Ref. Mon. 1208	48 05 41.15	269 03 49	89 04 10	Brake	584.3	2.76666
	90 21 06.97	289 34 27	109 34 40	Ref. Mon. 1210	400.2	2.60227
Ref. Mon. 1219	48 05 42.13	23 42 32	203 42 32	Ref. Mon. 1208	33.0	1.51914
	90 21 05.33	294 18 39	114 18 52	Ref. Mon. 1210	399.2	2.60117
Ref. Mon. 1237	48 06 18.49	98 05 42	278 06 14	Ref. Mon. 1235	784.4	2.89453
	90 18 15.89	193 02 58	13 02 59	Arch	187.1	2.27208
Mon. 7	48 06 14.60	157 29 45	337 29 43	Ref. Mon. 1237	129.9	2.11361
	90 18 13.49					
Mon. 8	48 06 10.96	112 04 25	292 04 15	Mon. 7	299.6	2.47659
	90 18 00.06					
Mon. 9	48 06 09.54	106 26 07	286 26 02	Mon. 8	154.5	2.18879
	90 17 52.90					
Ref. Mon. 1239	48 06 09.43	107 35 18	287 35 18	Mon. 9	11.8	1.07078
	90 17 52.36					
Alva	48 06 01.57	121 45 46	301 45 32	Ref. Mon. 1239	461.1	2.66375
	90 17 33.41					
Ref. Mon. 1224	48 05 51.08	135 36 57	315 36 37	Ref. Mon. 1239	792.8	2.89918
	90 17 25.56	153 20 53	333 20 47	Alva	362.4	2.55919
Ref. Mon. 1241	48 06 02.35	27 27 42	207 27 35	Ref. Mon. 1224	392.2	2.59354
	90 17 16.81	85 58 49	265 58 36	Alva	344.3	2.53691
Bloom	48 05 58.76	66 22 26	246 22 06	Ref. Mon. 1224	591.6	2.77202
	90 16 59.36	97 01 30	277 01 04	Alva	709.9	2.85118
		107 04 37	287 04 24	Ref. Mon. 1241	377.8	2.57722
Apple	48 06 08.03	43 06 01	223 05 43	Ref. Mon. 1224	716.7	2.85532
	90 17 01.89	60 25 19	240 25 08	Ref. Mon. 1241	355.1	2.55029
		349 38 16	169 38 18	Bloom	290.9	2.46379
Ref. Mon. 1243	48 06 17.99	43 42 59	223 42 39	Bloom	821.8	2.91476
	90 16 31.91	62 31 49	242 31 16	Ref. Mon. 1241	1,047.1	3.01998
		63 36 29	243 36 07	Apple	692.4	2.84036
Ref. Mon. 1226	48 06 04.40	97 57 56	277 57 27	Apple	807.7	2.90727
	90 16 23.22	156 49 17	336 49 10	Ref. Mon. 1243	456.5	2.65948
Aggie	48 06 22.74	53 09 51	233 09 24	Ref. Mon. 1226	944.8	2.97532
	90 15 46.68	63 46 53	243 45 59	Bloom	1,676.3	3.22434
		81 05 27	261 04 53	Ref. Mon. 1243	947.2	2.97644
Ref. Mon. 1245	48 06 22.83	289 51	109 51	Aggie	7.96	0.90091
	90 15 47.04					
Ref. Mon. 1228	48 06 02.85	94 53 53	274 53 33	Ref. Mon. 1226	562.4	2.75001
	90 15 56.14	122 17 50	302 17 23	Ref. Mon. 1243	875.4	2.94220
		197 40 37	17 40 44	Aggie	644.9	2.80949
Ref. Mon. 1230	48 06 01.13	96 06 48	276 06 30	Ref. Mon. 1228	500.3	2.69919
	90 15 32.10	112 50 13	292 49 28	Ref. Mon. 1243	1,342.6	3.12794
		155 41 46	335 41 35	Aggie	732.6	2.86489
Andrew	48 06 18.98	49 34 15	229 33 51	Ref. Mon. 1230	850.0	2.92944
	90 15 00.83	60 09 58	240 09 16	Bronx	1,358.9	3.13320
		66 29 14	246 28 32	Ref. Mon. 1228	1,248.1	3.09625
		270 17 18	90 19 50	Burke	4,214.0	3.62469
Ref. Mon. 1232	48 06 07.04	82 37 26	262 36 35	Ref. Mon. 1230	1,420.1	3.15232
	90 14 24.03	86 07 48	266 06 39	Ref. Mon. 1228	1,910.1	3.28106
		115 51 11	295 50 44	Andrew	845.9	2.92731
Ref. Mon. 1234	48 06 16.25	77 53 24	257 52 36	Ref. Mon. 1232	1,355.3	3.13204
	90 13 19.98	92 19 30	272 18 15	Andrew	2,088.0	3.31973
Ref. Mon. 1247	48 06 44.48	37 25 32	217 25 00	Ref. Mon. 1232	1,456.2	3.16323
	90 13 41.25	64 26 07	244 25 08	Andrew	1,824.8	3.26122
		333 13 07	153 13 23	Ref. Mon. 1234	976.8	2.98981
Ref. Mon. 1249	48 06 30.52	61 55 15	241 54 45	Ref. Mon. 1234	936.5	2.97149
	90 12 40.04	71 22 44	251 21 26	Ref. Mon. 1232	2,270.3	3.35608
		83 02 08	263 00 23	Andrew	2,934.1	3.46748
		286 14 33	106 15 20	Burke	1,355.5	3.13209
Ref. Mon. 1238	48 06 25.47	82 18 43	262 17 27	Ref. Mon. 1234	2,127.5	3.32786
	90 11 38.07	96 56 15	276 55 29	Ref. Mon. 1249	1,291.5	3.11108
Ref. Mon. 1251	48 06 35.64	72 53 32	252 52 22	Ref. Mon. 1234	2,035.4	3.30865
	90 11 45.95	81 57 25	261 56 45	Ref. Mon. 1249	1,130.1	3.05312
		332 34 05	152 34 11	Ref. Mon. 1238	353.9	2.54883
Ref. Mon. 1253	48 06 31.35	59 41 38	239 41 27	Ref. Mon. 1238	359.5	2.55570
	90 11 23.07	79 05 48	259 04 21	Ref. Mon. 1234	2,463.2	3.39150
		89 05 16	269 04 19	Ref. Mon. 1249	1,592.6	3.20210
		105 39 25	285 39 08	Ref. Mon. 1251	491.6	2.69162

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 1236	48 06 15.52	170 05 19	350 05 16	Ref. Mon. 1249	470.2	2.67226
	90 12 36.13	252 04 28	72 05 22	Ref. Mon. 1253	1,588.5	3.20099
		255 38 35	75 39 18	Ref. Mon. 1238	1,239.8	3.09336
Ref. Mon. 1240	48 06 27.72	81 24 32	261 24 16	Ref. Mon. 1238	463.5	2.66601
	90 11 15.92	111 30 41	291 30 19	Ref. Mon. 1251	667.8	2.82462
		127 10 53	307 10 48	Ref. Mon. 1253	185.6	2.26860
Astrid	48 06 32.27	62 52 41	242 52 27	Ref. Mon. 1238	460.8	2.66352
	90 11 18.25	73 57 58	253 57 55	Ref. Mon. 1253	103.8	2.01621
		281 06 40	101 07 22	Bluffer	1,205.1	3.08103
		341 08 16	161 08 17	Ref. Mon. 1240	148.8	2.17270
Ref. Mon. 1255	48 06 45.66	34 23 38	214 23 24	Ref. Mon. 1240	671.8	2.82724
	90 10 57.58	45 57 34	225 57 19	Astrid	594.8	2.77439
		310 32 46	130 33 13	Bluffer	993.5	2.99716
Ref. Mon. 1257	48 06 43.25	45 58 15	225 57 54	Bluffer	822.0	2.91485
	90 09 52.52	74 28 03	254 27 01	Ref. Mon. 1240	1,790.8	3.25305
		78 54 20	258 53 14	Ref. Mon. 1253	1,909.0	3.28080
		79 11 17	259 10 14	Astrid	1,805.5	3.25660
		93 10 40	273 09 52	Ref. Mon. 1255	1,347.8	3.12964
Bard	48 06 31.95	82 12 27	262 11 52	Ref. Mon. 1240	964.2	2.98417
	90 10 29.75	89 02 15	269 01 36	Ref. Mon. 1253	1,103.3	3.04270
		90 34 40	270 34 04	Astrid	1,003.4	3.00149
		126 20 29	306 20 08	Ref. Mon. 1255	714.8	2.85418
		245 37 00	65 37 27	Ref. Mon. 1257	845.5	2.92710
Ref. Mon. 1244	48 06 30.36	83 05 43	263 04 52	Bluffer	1,439.6	3.15823
	90 09 12.01	102 13 20	282 12 02	Ref. Mon. 1255	2,234.4	3.34917
		115 24 40	295 24 10	Ref. Mon. 1257	927.8	2.96746
		133 24 33	313 23 32	Amber	2,331.8	3.36770
Banker	48 06 35.45	80 55 39	260 54 25	Bluffer	2,094.0	3.32098
	90 08 41.14	99 15 59	279 15 06	Ref. Mon. 1257	1,496.2	3.17500
		121 47 05	301 45 41	Amber	2,744.0	3.43838
Alert	48 07 04.44	4 48 10	184 48 06	Ref. Mon. 1244	1,056.5	3.02385
	90 09 07.73	51 04 18	231 03 23	Bluffer	1,950.8	3.29021
		65 13 46	245 11 54	Burke	3,404.1	3.53200
		328 25 49	148 26 08	Banker	1,050.9	3.02157
Ref. Mon. 1259	48 06 40.82	40 37 55	220 37 45	Ref. Mon. 1244	425.8	2.62919
	90 08 58.61	73 47 19	253 46 18	Bluffer	1,777.1	3.24970
		294 38 33	114 38 47	Banker	397.6	2.59946
Martin	48 06 40.38	45 00 48	225 00 37	Ref. Mon. 1244	438.0	2.64143
	90 08 57.04	112 36 16	292 36 15	Ref. Mon. 1259	35.2	1.54633
Ref. Mon. 1246	48 06 40.00	58 26 07	238 25 50	Ref. Mon. 1244	568.6	2.75478
	90 08 48.59	93 55 23	273 55 17	Martin	175.1	2.24327
Ashton	48 06 40.38	45 00 40	225 00 29	Ref. Mon. 1244	438.0	2.64146
	90 08 57.03	112 32 41	292 32 40	Ref. Mon. 1259	35.2	1.54629
		273 55 55	93 56 01	Ref. Mon. 1246	175.1	2.24325
Ref. Mon. 1242	48 06 26.93	247 50 03	67 50 41	Ref. Mon. 1259	1,137.6	3.05600
	90 09 49.54	249 03 13	69 03 52	Ashton	1,162.9	3.06555
		262 13 22	82 13 50	Ref. Mon. 1244	783.6	2.89407
Ref. Mon. 1261	48 06 40.52	56 41 56	236 41 39	Ref. Mon. 1244	571.5	2.75700
	90 08 48.92	71 29 54	251 29 09	Ref. Mon. 1242	1,322.4	3.12135
		88 34 44	268 34 38	Martin	167.9	2.22513
		88 35 24	268 35 18	Ashton	167.9	2.22510
		337 08 45	157 08 45	Ref. Mon. 1246	17.5	1.24351
Bum	48 06 36.26	86 37 16	266 37 00	Banker	422.5	2.62581
	90 08 20.75	131 51 20	311 50 45	Alert	1,304.7	3.11551
Adde	48 06 46.72	23 14 40	203 14 34	Banker	378.9	2.57854
	90 08 33.91	319 53 51	139 54 01	Bum	422.6	2.62591
Blin	48 06 33.66	103 16 35	283 16 23	Bum	349.2	2.54303
	90 08 04.32	123 23 37	303 23 15	Adde	733.0	2.86512
		125 56 24	305 55 37	Alert	1,619.9	3.20950
Alpen	48 06 44.71	8 41 08	188 41 07	Bum	264.2	2.42189
	90 08 18.82	101 15 16	281 15 05	Adde	318.2	2.50271
		318 41 29	138 41 40	Blin	454.4	2.65742
Ref. Mon. 1267	48 06 44.71	90 01 40	270 01 32	Alpen	223.2	2.34879
	90 08 08.02	347 20 06	167 20 09	Blin	349.7	2.54372
Ref. Mon. 1250	48 06 43.39	212 51	32 51	Alpen	48.54	1.68612
	90 08 20.09					
Ref. Mon. 1265	48 06 45.52	17 35	197 35	Alpen	26.08	1.41627
	90 08 18.44					
Ref. Mon. 1248	48 06 45.23	268 34 04	88 34 17	Ref. Mon. 1265	362.3	2.55909
	90 08 35.95	272 33 13	92 33 26	Alpen	354.7	2.54984
		311 22 17	131 22 29	Bum	419.0	2.62224
Ref. Mon. 1263	48 06 45.54	351 25	171 25	Ref. Mon. 1248	9.84	0.99300
	90 08 36.02					

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 1271	48 06 39.24	58 13 59	238 13 49	Plin	327.5	2.51516
	90 07 50.86	81 31 05	261 30 43	Bum	625.1	2.79593
		115 25 45	295 25 32	Ref. Mon. 1267	393.2	2.59456
Ref. Mon. 1252	48 06 43.47	183 29 32	3 29 32	Ref. Mon. 1267	38.4	1.58444
	90 08 08.14	345 22 41	165 22 44	Blin	313.0	2.49555
Ref. Mon. 1254	48 06 37.48	64 51 26	244 51 17	Blin	277.5	2.44328
	90 07 52.17	206 30 58	26 30 59	Ref. Mon. 1271	60.9	1.78459
Ref. Mon. 1269	48 06 44.99	74 53 21	254 53 15	Ref. Mon. 1252	180.2	2.25576
	90 07 59.73	314 02 54	134 03 01	Ref. Mon. 1271	255.2	2.40689
		326 01 58	146 02 04	Ref. Mon. 1254	279.6	2.44661
Andy	48 06 44.11	5 43 45	185 43 44	Blin	324.2	2.51083
	90 08 02.75	56 55 26	236 55 13	Bum	444.2	2.64756
		301 24 03	121 24 12	Ref. Mon. 1271	288.2	2.45976
Pine	48 05 55.97	104 33 32	284 31 27	Nell	3,594.1	3.55559
	90 05 58.46	224 41 49	44 43 03	Arrow	2,933.8	3.46743
		256 49 21	76 51 40	Alfred	3,968.0	3.59857
Billie	48 05 33.28	104 32 55	284 31 18	Pine	2,792.7	3.44603
	90 03 47.81	167 05 14	347 04 51	Arrow	2,858.3	3.45611
		215 53 09	35 53 51	Alfred	1,980.2	3.29670
Acme	48 06 30.55	25 11 51	205 11 21	Billie	1,955.0	3.29114
	90 03 07.59	73 12 21	253 10 14	Pine	3,692.9	3.56737
		124 40 10	304 39 17	Arrow	1,788.1	3.25240
Ref. Mon. 1277	48 06 23.08	265 05 52	85 07 29	Acme	2,707.6	3.43258
	90 05 18.00	309 29 34	129 30 41	Billie	2,418.2	3.38350
Aunt	48 06 02.21	109 47 54	289 46 49	Ref. Mon. 1277	1,904.6	3.27980
	90 03 51.37	355 16 59	175 17 01	Billie	896.5	2.95255
Ref. Mon. 1279	48 06 02.21	87 38	267 38	Aunt	4.36	0.63949
	90 03 51.16					
Black	48 05 46.88	126 51 24	306 50 30	Ref. Mon. 1277	1,864.8	3.27064
	90 04 05.87	212 20 55	32 21 06	Aunt	560.5	2.74860
		221 47 00	41 47 43	Acme	1,809.4	3.25754
Ref. Mon. 1262	48 05 46.98	282 42	102 42	Black	14.05	1.14768
	90 04 06.53					
Bear	48 06 09.89	230 41 03	50 41 21	Ref. Mon. 1277	643.1	2.80830
	90 05 42.05	258 41 21	78 43 16	Acme	3,258.5	3.51302
		275 54 24	95 55 47	Aunt	2,302.1	3.36212
		289 38 56	109 40 08	Black	2,113.1	3.32493
Ref. Mon. 1260	48 06 09.55	215 49	35 49	Bear	13.19	1.12024
	90 05 42.42					
Box	48 06 04.60	233 43 43	53 44 11	Ref. Mon. 1277	965.0	2.98451
	90 05 55.60	256 59 48	77 01 53	Acme	3,567.1	3.55231
Ref. Mon. 1275	48 06 20.29	267 03 40	87 04 41	Ref. Mon. 1277	1,686.6	3.22700
	90 06 39.42	285 08 23	105 09 06	Bear	1,229.5	3.08974
		298 07 35	118 08 08	Box	1,027.8	3.01192
Blue	48 06 10.98	158 53 11	338 53 07	Ref. Mon. 1275	308.2	2.48879
	90 06 34.05	256 37 52	76 38 49	Ref. Mon. 1277	1,617.1	3.20875
		271 47 32	91 48 11	Bear	1,076.4	3.03196
Bill	48 06 10.54	246 53 35	66 54 00	Ref. Mon. 1275	768.1	2.88539
	90 07 13.56	269 01 19	89 01 48	Blue	817.6	2.91254
Ref. Mon. 1258	48 06 10.27	236 44	56 44	Bill	15.15	1.18041
	90 07 14.18					
Ate	48 06 25.73	283 16 20	103 17 35	Bear	2,129.7	3.32832
	90 07 22.24	294 33 09	114 33 45	Blue	1,996.1	3.03985
		339 04 23	159 04 30	Bill	502.6	2.70122
Ref. Mon. 1256	48 06 25.43	257 40	77 40	Ate	44.16	1.64503
	90 07 24.32					
Ref. Mon. 1273	48 06 25.53	255 04	75 01	Ate	24.27	1.38507
	90 07 23.37					
Big	48 05 31.97	109 05 01	289 04 13	Black	1,408.8	3.14885
	90 03 01.52	132 10 01	312 09 24	Aunt	1,391.5	3.14347
Ref. Mon. 1264	48 05 31.66	194 46	14 46	Big	9.86	0.99388
	90 03 01.64					
Ref. Mon. 1281	48 05 37.16	24 30 05	204 30 02	Big	176.1	2.24584
	90 02 57.99	102 04 18	282 03 27	Black	1,436.2	3.15721
		125 01 07	305 00 27	Aunt	1,348.5	3.12985
Birch	48 05 16.25	112 30 41	292 29 55	Billie	1,374.5	3.13814
	90 02 46.45	169 12 43	349 12 27	Acme	2,336.4	3.36855
Atlas	48 05 41.57	43 48 15	223 47 48	Birch	1,983.7	3.03492
	90 02 10.20	82 47 03	262 45 50	Billie	2,036.0	3.30877

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ascot	48 05 39.10	66 47 28	246 46 29	Birch	1,790.1	3.25288
	90 01 26.95	86 29 19	266 27 34	Billie	2,920.4	3.46544
		94 53 18	274 52 46	Atlas	898.3	2.95341
Bail	48 04 55.76	175 41 06	355 41 02	Atlas	1,419.0	3.15197
	90 02 05.04	210 29 40	30 30 08	Ascot	1,553.4	3.19127
Adam	48 04 50.21	93 55 28	273 53 58	Bail	2,512.8	3.40016
	90 00 03.92	121 16 17	301 14 43	Atlas	3,057.2	3.48532
		131 18 51	311 17 49	Ascot	2,287.4	3.35934
Bab	48 04 31.93	139 45 11	319 44 49	Bail	964.5	2.98431
	90 01 34.93	161 15 38	341 15 12	Atlas	2,271.5	3.35632
		184 33 14	4 33 20	Ascot	2,081.1	3.31830
		253 18 14	73 19 22	Adam	1,966.7	3.29374
Ref Mon 1272	48 04 31.91	231 13	51 13	Bab	0.84	9.92686–10
	90 01 34.96					
Ref. Mon. 1299	48 03 50.51	124 57 32	304 56 26	Bab	2,233.2	3.34892
	90 00 06.51	181 40 13	1 40 15	Adam	1,844.8	3.26594
Bad	48 03 33.06	146 28 44	326 28 00	Bab	2,180.9	3.33864
	90 00 36.75	195 55 00	15 55 24	Adam	2,477.8	3.39407
		229 16 37	49 16 59	Ref. Mon. 1299	825.9	2.91694
Ball	48 03 06.63	158 52 12	338 52 01	Bad	875.4	2.94219
	90 00 21.51	192 54 01	12 54 12	Ref. Mon. 1299	1,390.4	3.14314
Ref. Mon 1280	48 03 06.62	246 18	66 18	Ball	0.27	9.43136–10
	90 00 21.52					
Abel	48 02 37.79	133 33 42	313 33 08	Ball	1,292.3	3.11137
	89 59 36.29	164 25 45	344 25 22	Ref. Mon. 1299	2,331.4	3.36762
		329 16 19	149 16 25	Alta	315.1	2.49844
Ref. Mon. 1305	48 02 37.80	284 15	104 15	Abel	1.30	0.11394
	89 59 36.35					
Ajax	48 03 49.78	9 18 58	189 18 45	Abel	2,253.0	3.35277
	89 59 18.68	44 18 48	224 18 01	Ball	1,862.5	3.27010
		72 17 35	252 16 37	Bad	1,696.9	3.22965
		91 18 21	271 17 45	Ref. Mon. 1299	990.6	2.99592
P. R. T. 280	48 02 28.93	152 13 27	332 13 05	Ball	1,315.9	3.11923
	89 59 51.89	195 23 53	15 24 18	Ajax	2,590.1	3.41332
		229 44 28	49 44 40	Abel	423.6	2.62698
		269 39 19	89 39 37	Alta	484.3	2.68512
Ref. Mon 1282	48 02 28.87	234 02	54 02	P. R. T. 280	3.15	0.49859
	89 59 52.02					
P. R. T. 276½	48 02 22.51	170 16 54	350 16 52	P. R. T. 280	201.3	2.30374
	89 59 50.25	211 29 57	31 30 07	Abel	553.7	2.74328
		245 55 03	65 55 19	Alta	493.3	2.69307
		313 23 07	133 25 58	Spike	6,553.9	3.81650
Ref. Mon. 1286	48 01 50.91	170 05 58	350 05 52	P. R. T. 276½	990.7	2.99596
	89 59 42.03	193 22 40	13 22 50	Alta	1,210.1	3.08281
		307 30 58	127 33 43	Spike	5,790.2	3.76269
Ref. Mon. 1291	48 04 49.68	97 09 34	277 08 40	Bail	1,507.9	3.17838
	90 00 52.75	155 07 39	335 07 13	Ascot	1,682.3	3.22590
		269 04 14	89 04 50	Adam	1,010.9	3.00471
Ref. Mon. 1266	48 05 20.10	211 40 21	31 40 36	Atlas	779.1	2.89159
	90 02 29.97	245 46 36	65 47 23	Ascot	1,430.0	3.15533
		286 58 12	107 00 01	Adam	2,516.6	3.40082
Bull	48 05 06.64	120 24 56	300 24 30	Ref. Mon. 1266	821.7	2.91471
	90 01 55.73	164 29 19	344 29 08	Atlas	1,119.8	3.04914
		210 42 42	30 43 03	Ascot	1,166.1	3.06674
		291 52 58	111 53 45	Ref. Mon. 1291	1,404.7	3.14758
Ref. Mon. 1270	48 05 06.56	141 04	321 04	Bull	3.03	0.48101
	90 01 55.64					
Ref. Mon. 1283	48 05 26.40	307 51 01	127 51 30	Bull	994.6	2.99766
	90 02 33.68	338 28 12	158 28 15	Ref. Mon. 1266	209.0	2.32011
Ref. Mon. 1285	48 05 33.55	28 29 52	208 29 44	Ref. Mon. 1266	472.5	2.67437
	90 02 19.08	53 50 11	233 50 00	Ref. Mon. 1283	374.2	2.57311
		329 49 35	149 49 53	Bull	961.4	2.98292
Ref. Mon. 1287	48 05 25.16	38 44 17	218 44 00	Bull	733.5	2.86541
	90 01 33.55	82 23 08	262 22 25	Ref. Mon. 1266	1,178.0	3.07114
		322 22 56	142 23 26	Ref. Mon. 1291	1,383.4	3.14095
Ref. Mon. 1289	48 05 01.67	71 44 45	251 44 04	Ref. Mon. 1291	1,182.0	3.07263
	89 59 58.52	93 37 43	273 36 15	Bull	2,430.6	3.38572
		110 15 30	290 14 19	Ref. Mon. 1287	2,096.2	3.32144
Ref. Mon. 1268	48 05 13.34	171 30 18	351 30 14	Ref. Mon. 1285	631.0	2.80005
	90 02 14.57	246 43 32	66 44 03	Ref. Mon. 1287	924.1	2.96573
		297 57 55	117 58 09	Bull	441.6	2.64500

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Alder	48 02 45.73	70 32 26	250 31 33	P. R. T. 280	1,557.4	3.19239
	89 58 41.00	77 54 59	257 54 18	Abel	1,171.0	3.06855
		107 14 03	287 12 48	Ball	2,179.2	3.33829
		138 29 48	318 28 44	Ref. Mon. 1299	2,671.7	3.42678
		158 28 48	338 28 20	Ajax	2,126.4	3.32764
Ref. Mon. 1303	48 02 46.12	69 23	249 23	Alder	33.58	1.52608
	89 58 39.49					
Nail	48 03 53.18	281 17 57	101 18 12	Ref. Mon. 1299	421.0	2.62426
	90 00 26.45	313 38 22	133 39 41	Alder	3,017.8	3.47969
		355 55 31	175 55 35	Ball	1,441.5	3.15880
Ref. Mon. 1297	48 04 04.03	13 59 27	193 59 24	Nail	345.4	2.53827
	90 00 22.42	321 44 27	141 44 39	Ref. Mon 1299	531.8	2.72577
Ref. Mon. 1278	48 03 55.29	132 04 33	312 03 48	Bab	1,689.0	3.22762
	90 00 34.37	222 29 40	42 29 49	Ref. Mon. 1297	366.2	2.56369
		284 21 19	104 21 40	Ref. Mon. 1299	595.3	2.77473
		291 40 18	111 40 24	Nail	176.3	2.24636
Ref. Mon. 1276	48 03 57.45	146 20 15	326 19 50	Bab	1,279.3	3.10697
	90 01 00.67	255 36 52	75 37 21	Ref. Mon. 1297	817.6	2.91255
		277 00 07	97 00 27	Ref. Mon. 1278	548.7	2.73936
Ref. Mon. 1293	48 04 18.92	15 38 13	195 38 06	Ref. Mon. 1276	688.4	2.83786
	90 00 51.71	114 11 17	294 10 45	Bab	980.7	2.99155
		333 48 14	153 48 27	Ref. Mon. 1278	813.4	2.91032
Ref. Mon. 1274	48 04 19.38	271 15 28	91 15 51	Ref. Mon. 1293	649.1	2.81228
	90 01 23.06	306 25 56	126 26 32	Ref. Mon. 1278	1,252.9	3.09793
		325 37 01	145 37 17	Ref. Mon. 1276	820.6	2.91413
Ref. Mon. 1295	48 04 16.01	10 38 25	190 38 21	Ref. Mon. 1278	651.4	2.81384
	90 00 28.56	49 14 05	229 13 41	Ref. Mon. 1276	877.9	2.94344
		356 27 44	176 27 46	Nail	706.7	2.84921
Ref. Mon. 1301	48 03 51.50	6 49 29	186 49 20	Abel	2,292.8	3.36037
	89 59 23.13	41 05 46	221 05 03	Ball	1,839.1	3.26460
		88 02 31	268 01 59	Ref. Mon. 1299	898.7	2.95362
		336 45 14	156 45 46	Alder	2,210.8	3.34454
P. R. T. 315	48 02 23.32	141 32 37	321 32 32	P. R. T. 280	221.1	2.34458
	89 59 45.26	150 41 40	330 41 13	Ball	1,533.7	3.18575
		202 34 26	22 34 33	Abel	484.0	2.68482
P. R. T. 278	48 02 28.87	227 27 21	47 27 32	Abel	407.8	2.61041
	89 59 50.79	250 10 24	70 11 16	Alder	1,536.5	3.18652
		326 11 17	146 11 21	P. R. T. 315	206.0	2.31392
Ref. Mon. 1284	48 02 22.87	84 56 03	264 55 59	P. R. T. 276½	127.0	2.10393
	89 59 44.14	139 22 53	319 22 47	P. R. T. 280	246.6	2.39191
		199 27 06	19 27 12	Abel	488.8	2.68913
Ref. Mon. 1284–A	48 02 21.67	104 45 06	284 45 03	P. R. T. 276½	102.0	2.00842
	89 59 45.49	216 56 10	36 56 11	Ref. Mon. 1284	46.5	1.66757
Ref. Mon. 1282–A	48 02 21.70	243 52 40	63 52 43	Ref. Mon. 1284	82.2	1.91497
	89 59 47.71	271 13 16	91 13 18	Ref. Mon. 1284–A	45.9	1.66164

GEOGRAPHIC POSITIONS OF TRIANGULATION AND TRAVERSE STATIONS, PIGEON RIVER, MINOR SCHEMES

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
P. R. T. 276	48 02 18.98 89 59 48.07	203 29 43	23 29 45	P. R. T. 315	146.3	2.16518
P. R. T. 313	48 02 22.28 89 59 46.46	18 10 26	198 10 25	P. R. T. 276	107.2	2.03017
P. R. T. 311	48 02 16.82 89 59 47.15	164 01 51	344 01 50	P. R. T. 276	69.4	1.84136
P. R. T. 274	48 02 19.51 89 59 47.32	357 35 42	177 35 42	P. R. T. 311	83.1	1.91957
P. R. T. 272	48 02 12.88 89 59 48.90	196 37 21	16 37 22	P. R. T. 311	126.9	2.10358
P. R. T. 309	48 02 05.74 89 59 47.81	174 08 00	354 07 59	P. R. T. 272	221.7	2.34582
P. R. T. 270	48 02 02.02 89 59 47.70	175 45 37 178 54 07	355 45 36 358 54 07	P. R. T. 272 P. R. T. 309	336.3 114.9	2.52676 2.06017
P. R. T. 307	48 01 58.35 89 59 44.10	146 36 18	326 36 15	P. R. T. 270	135.7	2.13264
P. R. T. 268	48 01 51.55 89 59 40.57	160 50 52	340 50 49	P. R. T. 307	222.6	2.34758
P. R. T. 266	48 01 44.92 89 59 42.38	190 22 27	10 22 28	P. R. T. 268	208.1	2.31833
P. R. T. 1286-A	48 01 57.57 89 59 43.55	148 00 21 351 16 43	328 00 18 171 16 44	P. R. T. 270 Ref. Mon. 1286	162.2 208.1	2.21009 2.31831
P. R. T. 305-A	48 01 45.17 89 59 40.41	169 18 11	349 18 10	Ref. Mon. 1286	180.6	2.25661
P. R. T. 305	48 01 44.03 89 59 38.93	110 58 36 138 44 27	290 58 33 318 44 26	P. R. T. 266 P. R. T. 305-A	76.6 46.7	1.88429 1.66899
Ref. Mon. 1288	48 01 44.03 89 59 38.93	275 33	95 36	P. R. T. 305	0.07	8.86423-10
P. R. T. 264	48 01 40.42 89 59 36.43	155 04 12	335 04 10	P. R. T. 305	122.8	2.08916
P. R. T. 303	48 01 42.52 89 59 33.65	41 37 26 113 05 27	221 37 24 293 05 23	P. R. T. 264 P. R. T. 305	86.6 118.8	1.93762 2.07486
P. R. T. 262	48 01 42.07 89 59 33.53	170 02 22	350 02 22	P. R. T. 303	14.1	1.14828
P. R. T. 301	48 01 43.23 89 59 26.92	75 18 25	255 18 20	P. R. T. 262	141.6	2.15104
P. R. T. 260	48 01 40.84 89 59 25.24	154 47 42	334 47 41	P. R. T. 301	81.7	1.91235
P. R. T. 299	48 01 40.51 89 59 20.31	95 42 07	275 42 03	P. R. T. 260	102.7	2.01148
P. R. T. 258	48 01 38.01 89 59 24.31	227 00 59	47 01 02	P. R. T. 299	113.3	2.05405
P. R. T. 256	48 01 35.32 89 59 23.85	173 25 48	353 25 48	P. R. T. 258	83.7	1.92282
P. R. T. 297	48 01 34.95 89 59 19.17	96 39 54	276 39 51	P. R. T. 256	97.7	1.98984
P. R. T. 254	48 01 32.71 89 59 21.24	211 46 52	31 46 54	P. R. T. 297	81.5	1.91128
P. R. T. 252	48 01 31.02 89 59 13.49	107 57 48	287 57 42	P. R. T. 254	168.7	2.22721
P. R. T. 295	48 01 35.36 89 59 07.45	43 02 48	223 02 44	P. R. T. 252	183.3	2.26317
P. R. T. 250	48 01 30.95 89 59 01.39	137 21 01	317 20 57	P. R. T. 295	185.3	2.26787
P. R. T. 293	48 01 29.39 89 58 54.73	109 08 46	289 08 41	P. R. T. 250	146.2	2.16490
P. R. T. 248	48 01 24.93 89 58 41.62	116 53 28	296 53 18	P. R. T. 293	304.6	2.48379

PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
P. R. T. 291	48 01 24.83 89 58 34.26	91 15 25	271 15 20	P. R. T. 248	152.5	2.18340
P. R. T. 289	48 01 24.37 89 58 31.26	94 36 35 102 39 42	274 36 27 282 39 40	P. R. T. 248 P. R. T. 291	215.3 63.7	2.33311 1.80398
Ref. Mon. 1290	48 01 23.27 89 58 34.34	241 56 35	61 56 37	P. R. T. 289	72.3	1.85913
Ref. Mon. 1292	48 01 26.25 89 58 34.23	1 24 22 313 14 24	181 24 22 133 14 26	Ref. Mon. 1290 P. R. T. 289	91.9 84.5	1.96337 1.92678
P. R. T. 287	48 01 20.06 89 58 25.15	136 29 00	316 28 56	P. R. T. 289	183.9	2.26459
P. R. T. 246	48 01 13.08 89 58 25.82	183 41 25	3 41 25	P. R. T. 287	216.0	2.33452
P. R. T. 285	48 01 11.19 89 58 17.86	109 25 18	289 25 12	P. R. T. 246	174.9	2.24284
P. R. T. 244	48 01 05.20 89 58 19.28	189 04 33	9 04 34	P. R. T. 285	187.3	2.27253
P. R. T. 283	48 00 59.70 89 58 09.48	129 56 46	309 56 39	P. R. T. 244	264.9	2.42313
P. R. T. 242	48 00 52.32 89 58 06.60	165 19 44	345 19 42	P. R. T. 283	235.4	2.37179
P. R. T. 281	48 00 55.06 89 57 52.94	73 22 49	253 22 39	P. R. T. 242	295.6	2.47065
Ref. Mon. 1294	48 00 51.77 89 58 03.86	245 48 59	65 49 07	P. R. T. 281	248.2	2.39482
P. R. T. 1294–A	48 00 52.30 89 58 04.01	249 37 04 349 58 04	69 37 12 169 58 04	P. R. T. 281 Ref. Mon. 1294	244.7 16.7	2.38856 1.22343
Ref. Mon. 1296	48 00 52.05 89 57 44.62	118 19 50	298 19 44	P. R. T. 281	195.9	2.29208
P. R. T. 240	48 00 50.52 89 57 43.73	126 18 51 158 46 51	306 18 44 338 46 50	P. R. T. 281 Ref. Mon. 1296	236.8 50.7	2.37436 1.70491
P. R. T. 238	48 00 48.58 89 57 34.54	107 31 28	287 31 21	P. R. T. 240	199.7	2.30031
P. R. T. 277	48 00 45.20 89 57 21.55	111 11 06	291 10 56	P. R. T. 238	288.9	2.46071
P. R. T. 236	48 00 39.81 89 57 13.23	133 57 58	313 57 52	P. R. T. 277	239.4	2.37909
P. R. T. 234	48 00 38.73 89 57 05.81	102 18 48	282 18 42	P. R. T. 236	157.4	2.19689
P. R. T. 232	48 00 48.61 89 56 58.64	25 57 04	205 56 59	P. R. T. 234	339.6	2.53092
P. R. T. 275	48 00 56.13 89 57 04.41	332 47 37	152 47 41	P. R. T. 232	261.1	2.41687
Ref. Mon. 1298	48 00 48.96 89 56 58.15	43 35 26 149 40 14	223 35 26 329 40 09	P. R. T. 232 P. R. T. 275	14.8 256.6	1.17065 2.40933
Ref. Mon. 1300	48 00 56.37 89 57 04.75	315 06 29 329 07 18 332 08 34	135 06 29 149 07 23 152 08 39	P. R. T. 275 Ref. Mon. 1298 P. R. T. 232	10.1 266.5 270.8	1.00515 2.42562 2.43264
P. R. T. 273	48 00 59.12 89 57 00.96	37 42 46	217 42 44	P. R. T. 275	116.6	2.06688
P. R. T. 271	48 00 57.08 89 56 51.37	107 34 59	287 34 52	P. R. T. 273	208.5	2.31921
P. R. T. 230	48 00 52.47 89 56 40.81	123 04 06	303 03 58	P. R. T. 271	261.1	2.41687
P. R. T. 228	48 00 52.34 89 56 26.97	90 47 01	270 46 51	P. R. T. 230	286.9	2.45770
P. R. T. 269	48 00 56.83 89 56 25.92	8 51 26	188 51 25	P. R. T. 228	140.4	2.14736
P. R. T. 226	48 00 56.50 89 56 22.74	98 42 25	278 42 23	P. R. T. 269	66.8	1.82449
P. R. T. 224	48 00 56.57 89 56 14.34	89 18 56	269 18 49	P. R. T. 226	174.1	2.24086
P. R. T. 224–A	48 00 56.17 89 56 22.21	265 35 53	85 35 59	P. R. T. 224	163.6	2.21365
Ref. Mon. 1304	48 00 55.95 89 56 22.53	225 19 17	45 19 17	P. R. T. 224–A	9.4	0.97158

PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 1302	48 00 56.95 89 56 27.79	285 46 41	105 46 45	Ref. Mon. 1304	113.3	2.05421
P. R. T. 1302–A	48 00 52.43 89 56 26.44	90 14 52 168 41 22	270 14 41 348 41 21	P. R. T. 230 Ref. Mon. 1302	297.8 142.5	2.47386 2.15374
P. R. T. 267	48 00 57.37 89 56 03.63	83 37 42	263 37 34	P. R. T. 224	223.2	2.34873
P. R. T. 222	48 00 50.26 89 56 02.66	174 45 52	354 45 51	P. R. T. 267	220.7	2.34385
Ref. Mon. 1306	48 00 47.41 89 56 00.32	151 03 41 167 24 24	331 03 39 347 24 22	P. R. T. 222 P. R. T. 267	100.4 315.3	2.00192 2.49871
P. R. T. 265	48 00 46.61 89 55 57.29	135 18 25	315 18 21	P. R. T. 222	158.5	2.19991
P. R. T. 220	48 00 38.64 89 55 58.37	185 13 47	5 13 48	P. R. T. 265	247.2	2.39299
P. R. T. 263	48 00 35.41 89 55 54.77	143 15 07	323 15 04	P. R. T. 220	124.6	2.09562
P. R. T. 218	48 00 27.23 89 55 48.64	153 16 54	333 16 50	P. R. T. 263	282.9	2.45161
Ref. Mon. 1307	48 00 25.43 89 55 40.11	107 24 05	287 23 59	P. R. T. 218	185.3	2.26787
P. R. T. 261	48 00 26.89 89 55 37.47	50 33 08	230 33 06	Ref. Mon. 1307	70.8	1.85032
Ref. Mon. 1308	48 00 26.90 89 55 37.49	306 06	126 06	P. R. T. 261	0.51	9.70673–10
P. R. T. 259	48 00 23.81 89 55 32.76	134 16 36	314 16 32	P. R. T. 261	136.4	2.13483
P. R. T. 216–A	48 00 22.62 89 55 33.38	147 16 39	327 16 35	P. R. T. 261	156.8	2.19534
P. R. T. 216	48 00 20.22 89 55 32.66	168 37 22 178 57 22	348 37 21 358 57 22	P. R. T. 216–A P. R. T. 259	75.6 110.9	1.87875 2.04478
P. R. T. 257	48 00 13.38 89 55 32.39	178 31 02	358 31 02	P. R. T. 216	211.2	2.32478
P. R. T. 257–A	48 00 09.99 89 55 38.55	230 34 50	50 34 55	P. R. T. 257	165.1	2.21786
P R. T. B	48 00 10.39 89 55 37.64	48 12 16 56 16 24 229 40 34	228 11 59 236 16 23 49 40 38	Spike P. R. T. 257–A P. R. T. 257	635.3 22.7 142.6	2.80298 1.35604 2.15405
P. R. T. A	48 00 07.38 89 55 34.08	58 53 47 141 39 46	238 53 27 321 39 43	Spike P. R. T. B	639.2 118.80	2.80566 2.07482
P. R. T. C	48 00 14.44 89 55 42.42	34 20 08 321 32 52 321 35 36	214 19 55 141 32 56 141 35 43	Spike P. R. T B P. R. T. A	663.9 159.41 278.2	2.82213 2.20251 2.44437
P. R. T. 214	48 00 07.99 89 55 41.87	229 42 16	49 42 23	P. R. T. 257	257.6	2.41099
P. R. T. 255	48 00 07.75 89 55 37.35	94 27 29	274 27 26	P. R. T. 214	94.2	1.97393
P. R. T. 253	48 00 05.74 89 55 30.95	115 05 26	295 05 21	P. R. T. 255	146.5	2.16572
P. R. T. 251	48 00 01.12 89 55 18.36	118 40 16	298 40 07	P. R. T. 253	296.4	2.47337
P. R. T. 249	47 59 57.97 89 55 17.35	167 55 25	347 55 24	P. R. T. 251	99.5	1.99770
P. R. T. 212	47 59 57.36 89 55 21.75	258 22 22	78 22 25	P. R. T. 249	93.1	1.96883
P. R. T. 210	47 59 52.81 89 55 21.70	179 34 37	359 34 37	P. R. T. 212	140.7	2.14817
P. R. T. 208	47 59 49.03 89 55 17.36	142 21 51	322 21 48	P. R. T. 210	147.3	2.16808
P. R. T. 247	47 59 50.38 89 55 14.19	57 46 27	237 46 25	P. R. T. 208	77.7	1.89030
P. R. T. 245	47 59 50.33 89 55 05.74	90 29 02	270 28 56	P. R. T. 247	175.3	2.24366
P. R. T. 243	47 59 49.45 89 54 58.93	100 49 30	280 49 25	P. R. T. 245	143.8	2.15764

PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
P. R. T. 1309–A	48 00 05.38 89 55 32.38	150 14 19	330 14 18	P. R. T. A	71.2	1.85218
P. R. T. 257–B	48 00 08.76 89 55 40.60	228 23 39 230 38 35	48 23 41 50 38 37	P. R. T. 257–A P. R. T. B	56.9 79.5	1.75537 1.90030
Ref. Mon. 1309	48 00 06.68 89 55 39.86	166 35 50 259 49 21	346 35 49 79 49 25	P. R. T. 257–B P. R. T. A	66.1 121.7	1.82013 2.08545
P. R. T. 1309–B	48 00 03.75 89 55 24.41	106 53 15	286 53 09	P. R. T. 1309–A	172.7	2.23717
P. R. T. 1309–C	47 59 59.18 89 55 16.71	131 31 38	311 31 32	P. R. T. 1309–B	213.1	2.32856
P. R. T. 1309–D	47 59 55.92 89 55 21.16	222 27 56	42 27 59	P. R. T. 1309–C	136.6	2.13542
P. R. T. 1309–E	47 59 52.82 89 55 21.69	186 30 35	6 30 35	P. R. T. 1309–D	96.3	1.98365
Ref. Mon. 1310	47 59 48.68 89 55 16.69	140 58 07	320 58 03	P. R. T. 1309–E	164.6	2.21643
Ref. Mon. 1311	47 59 50.22 89 55 17.98	330 34 54	150 34 55	Ref. Mon. 1310	54.5	1.73642
P. R. T. 1311–A	47 59 49.34 89 55 14.81	112 30 54	292 30 52	Ref. Mon. 1311	71.2	1.85218
P. R. T. 1311–B	47 59 50.78 89 55 12.13	51 10 49 278 31 42	231 10 47 98 31 52	P. R. T. 1311–A P. R. T. 243	71.3 276.7	1.85311 2.44202
P. R. T. 206	47 59 39.56 89 54 53.03	158 11 21	338 11 17	P. R. T. 243	329.2	2.51747
P. R. T. 241	47 59 36.92 89 54 40.25	107 04 02	287 03 52	P. R. T. 206	277.2	2.44283
P. R. T. 204	47 59 32.92 89 54 24.91	111 16	291 15 49	P. R. T. 241	341.2	2.53302
P. R. T. 239	47 59 32.19 89 54 13.68	95 30 59	275 30 51	P. R. T. 204	233.8	2.36891
Ref. Mon. 1312	47 59 32.37 89 54 13.64	9 08	189 08	P. R. T. 239	5.63	0.75072
P. R. T. 202	47 59 26.26 89 54 08.52	149 41 41	329 41 37	P. R. T. 239	212.0	2.32642
P. R. T. 200	47 59 17.80 89 53 58.56	141 41 46	321 41 39	P. R. T. 202	333.2	2.52272
Ref. Mon. 1313	47 59 17.73 89 53 58.72	237 34	57 34	P. R. T. 200	3.80	0.58023
P. R. T. 198	47 59 14.01 89 53 43.51	110 31 31	290 31 20	P. R. T. 200	333.2	2.52272
P. R. T. 237	47 59 17.93 89 53 28.95	68 11 07	248 10 56	P. R. T. 198	325.2	2.51216
P. R. T. 196	47 59 11.93 89 53 15.02	122 39 48	302 39 38	P. R. T. 237	343.2	2.53555
P. R. T. 194	47 59 10.52 89 53 04.13	100 53 51	280 53 43	P. R. T. 196	229.8	2.36142
Ref. Mon. 1314	47 59 10.34 89 53 04.14	182 24	2 24	P. R. T. 194	5.61	0.74883
P. R. T. 235	47 59 12.46 89 52 53.53	74 47 48	254 47 40	P. R. T. 194	227.8	2.35762
Ref. Mon. 1315	47 59 13.39 89 52 53.27	10 21	190 21	P. R. T. 235	29.44	1.46829
P. R. T. 233	47 59 12.19 89 52 37.43	91 23 57	271 23 45	P. R. T. 235	333.9	2.52363
P. R. T. 192	47 59 08.63 89 52 28.47	120 39 22	300 39 14	P. R. T. 233	216.0	2.33454
P. R. T. 190	47 59 07.85 89 52 16.96	95 44 50	275 44 41	P. R. T. 192	239.8	2.37991
P. R. T. 231	47 59 15.09 89 52 12.54	22 17 23	202 17 20	P. R. T. 190	241.8	2.38352
P. R. T. 229	47 59 25.44 89 52 06.26	22 09 21	202 09 16	P. R. T. 231	345.2	2.53808
P. R. T. 188	47 59 23.93 89 51 57.26	104 03 13	284 03 06	P. R. T. 229	192.2	2.28386

PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
P. R. T. 1316–A	47 59 15.13 89 52 12.63	21 47 25	201 47 22	P. R. T. 190	242.1	2.38402
Ref. Mon. 1316	47 59 15.40 89 52 13.77	289 12 03	109 12 04	P. R. T. 1316–A	25.1	1.39942
P. R. T. 188½	47 59 24.39 89 52 04.61	34 21 33	214 21 26	Ref. Mon. 1316	336.4	2.52686
Ref. Mon. 1317	47 59 24.39 89 52 04.61	34 20 55 282 27	214 20 48 102 27	Ref. Mon. 1316 P. R. T. 188½	336.4 0.07	2.52683 8.82477–10
P. R. T. 188–A	47 59 25.23 89 51 59.49	76 13 49 310 55 21	256 13 45 130 55 23	P. R. T. 188½ P. R. T. 188	109.4 61.1	2.03884 1.78600
P. R. T. 227	47 59 25.58 89 51 53.24	58 34 35	238 34 32	P. R. T. 188	97.7	1.98978
P. R. T. 186	47 59 25.82 89 51 42.68	88 03 03	268 02 55	P. R. T. 227	219.1	2.34066
P. R. T. 225	47 59 28.91 89 51 28.00	72 37 05 50 12 14	252 36 54 230 12 00	P. R. T. 186 Partridge	318.9 519.9	2.50364 2.71593
P. R. T. 225–A	47 59 27.67 89 51 37.21	35 18 00 63 17 24 79 00 48 258 41 14	215 17 53 243 17 20 259 00 36 78 41 21	Partridge P. R. T. 186 P. R. T. 227 P. R. T. 225	361.0 127.0 338.7 194.64	2.55748 2.10388 2.52976 2.28923
P. R. T. 225–B	47 59 27.26 89 51 44.64	10 55 41 73 47 53 265 16 24 317 27 37	190 55 39 253 47 46 85 16 30 137 27 38	Partridge P. R. T. 227 P. R. T. 225–A P. R. T. 186	287.1 185.7 154.69 60.2	2.45799 2.26872 2.18946 1.77954
P. R. T. 184	47 59 28.88 89 51 14.92	90 09 17	270 09 07	P. R. T. 225	271.1	2.43320
P. R. T. 223	47 59 33.43 89 51 03.01	60 23 23	240 23 14	P. R. T. 184	284.1	2.45351
P. R. T. 182	47 59 32.22 89 50 53.10	100 18 39	280 18 32	P. R. T. 223	208.8	2.31979
P. R. T. 180	47 59 35.68 89 50 44.59	58 47 52	238 47 46	P. R. T. 182	206.2	2.31435
P. R. T. 221	47 59 40.96 89 50 46.36	347 19 11	167 19 12	P. R. T. 180	167.1	2.22293
P. R. T. 178	47 59 46.01 89 50 38.36	46 44 41	226 44 35	P. R. T. 221	227.9	2.35775
P. R. T. 178–A	47 59 40.97 89 50 46.43	227 04 38 346 52 49	47 04 44 166 52 50	P. R. T. 178 P. R. T. 180	228.6 167.9	2.35909 2.22497
Ref. Mon. 1318	47 59 41.06 89 50 46.60	306 34 345 54 27	126 34 165 54 28	P. R. T. 178–A P. R. T. 180	4.39 171.2	0.64226 2.23359
Ref. Mon. 1319	47 59 40.61 89 50 44.32	104 27 19 106 22 29	284 27 17 286 22 27	P. R. T. 178–A Ref Mon. 1318	45.2 49.3	1.65537 1.69299
P. R. T. 219	47 59 51.42 89 50 38.38	359 47 27	179 47 27	P. R. T. 178	166.9	2.22241
P. R. T. 217	47 59 55.89 89 50 33.86	34 11 03	214 11 00	P. R. T. 219	166.9	2.22241
P. R. T. 217–A	47 59 50.49 89 50 37.24	9 32 01	189 32 00	P. R T. 178	140.1	2.14643
Ref. Mon. 1318–A	47 59 51.79 89 50 35.07	48 14 55 191 09 48	228 14 53 11 09 49	P. R. T. 217–A P. R. T. 217	60.3 129.1	1.78010 2.11086
P. R. T. 176	48 00 06.04 89 50 30.60	12 10 52	192 10 50	P. R. T. 217	320.9	2.50634
P. R. T. 215	48 00 06.65 89 50 36.40	278 53 53	98 53 57	P. R. T. 176	121.7	2.08544
P. R. T. 213	48 00 12.47 89 50 40.85	332 48 57	152 49 00	P. R. T. 215	201.8	2.30500
Ref. Mon. 1320	48 00 13.73 89 50 40.47	11 13 29	191 13 29	P. R. T. 213	39.7	1.59896
Ref. Mon. 1321	48 00 11.17 89 50 38.64	131 10 05 154 17 33	311 10 03 334 17 32	P. R. T. 213 Ref. Mon. 1320	60.8 87.6	1.78365 1.94265
P. R. T. 211	48 00 12.14 89 50 31.71	93 01 33	273 01 26	P. R. T. 213	189.7	2.27796
P. R. T. 209	48 00 08.42 89 50 17.04	110 42 18	290 42 07	P. R. T. 211	325.1	2.51198
P. R. T. 174	47 59 58.80 89 50 05.24	140 32 06	320 31 57	P. R. T. 209	384.8	2.58523

PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
P. R. T. 172	47 59 58.63 89 49 51.20	91 00 37	271 00 27	P. R. T. 174	291.1	2.46407
P. R. T. 207½	48 00 06.50 89 49 47.16	19 01 08	199 01 05	P. R. T. 172	257.0	2.40997
P. R. T. 170	48 00 13.73 89 49 42.10	22 02 10 25 10 41	202 02 03 205 10 37	P. R. T. 172 P. R. T. 207½	503.0 246.7	2.70159 2.39222
P. R. T. 170-A	48 00 11.07 89 49 45.10	217 09 56	37 09 58	P. R. T. 170	103.1	2.01324
P. R. T. 170-B	48 00 05.56 89 49 45.39	182 01 26	2 01 26	P. R. T. 170-A	170.2	2.23094
P. R. T. 170-C	48 00 02.20 89 49 50.15	223 34 14	43 34 18	P. R. T. 170-B	143.3	2.15618
P. R. T. 170-D	47 59 58.44 89 49 51.38	192 19 05	12 19 06	P. R. T. 170-C	118.9	2.07530
Ref. Mon. 1322	48 00 00.21 89 49 56.10	299 09 53	119 09 57	P. R. T. 170-D	112.2	2.05007
Ref. Mon. 1322-A	47 59 57.11 89 49 57.57	197 35 59 252 13 54	17 36 00 72 13 59	Ref. Mon. 1322 P. R. T. 170-D	100.5 134.8	2.00231 2.12973
P. R. T. 170-E	48 00 00.98 89 50 05.10	307 25 15	127 25 21	Ref. Mon. 1322-A	196.6	2.29368
P. R. T. 170-F	48 00 05.90 89 50 15.31	305 41 13	125 41 21	P. R. T. 170-E	260.4	2.41561
P. R. T. 170-G	48 00 09.07 89 50 18.44	326 29 02	146 29 04	P. R. T. 170-F	117.6	2.07026
P. R. T. 170-H	48 00 10.16 89 50 28.93	136 39 35 278 50 15	316 39 33 98 50 23	P. R. T. 211 P. R. T. 170-G	83.9 220.1	1.92395 2.34257
P. R. T. 207	48 00 19.70 89 49 44.26	346 18 04	166 18 06	P. R. T. 170	189.7	2.27796
P. R. T. 168	48 00 19.64 89 49 40.17	91 09 11	271 09 08	P. R. T. 207	84.8	1.92834
P. R. T. 205	48 00 25.16 89 49 32.90	41 28 52	221 28 47	P. R. T. 168	227.6	2.35718
P. R. T. 203	48 00 31.78 89 49 25.92	35 17 04	215 16 59	P. R. T. 205	250.4	2.39859
P. R. T. 201½	48 01 37.02 89 48 55.98	39 37 49 124 28 22 254 40 16	219 35 42 304 27 38 74 42 59	Partridge Pete Butte	5,568.1 1,501.1 4,706.2	3.74571 3.17641 3.67267
Cascade	48 00 44.83 89 48 58.08	52 39 20 181 32 42 238 03 59	232 37 14 1 32 43 58 06 43	Partridge P. R. T. 201½ Butte	4,412.6 1,612.4 5,399.3	3.64469 3.20746 3.73234
P. R. T. 201	48 00 36.63 89 49 30.16	200 47 20 239 20 35 249 07 45	20 47 46 59 23 43 69 08 09	P. R. T. 201½ Butte Cascade	1,995.2 6,099.2 711.5	3.29998 3.78527 2.85220
Ref. Mon. 1325	48 01 02.68 89 48 21.67	53 51 45 146 10 05 238 57 14	233 51 18 326 09 40 58 59 31	Cascade P. R. T. 201½ Butte	934.4 1,276.9 4,468.0	2.97053 3.10617 3.65011
Ref. Mon. 1327	48 01 03.80 89 47 38.19	70 31 11 122 28 47 232 13 16	250 30 12 302 27 49 52 15 00	Cascade P. R. T. 201½ Butte	1,756.3 1,910.7 3,703.6	3.24460 3.28119 3.56862
P. R. T. 132½	48 01 09.35 89 46 40.29	75 09 40 106 55 05 219 29 16	255 07 57 286 53 24 39 30 17	Cascade P. R. T. 201½ Butte	2,954.3 3,938.6 2,717.2	3.47045 3.46814 3.43412
P. R. T. 164	48 00 36.08 89 49 17.73	51 57 57 93 44 16 193 27 50	231 57 51 273 44 07 13 28 06	P. R. T. 203 P. R. T. 201 P. R. T. 201½	215.6 258.2 1,935.3	2.33369 2.41193 3.28674
P. R. T. 166	48 00 35.27 89 48 59.28	78 56 55 93 44 30 93 44 30 182 03 22	258 56 35 273 44 07 273 44 16 2 03 24	P. R. T. 203 P. R. T. 201 P. R. T. 164 P. R. T. 201½	562.5 641.3 383.1 1,908.3	2.75014 2.80703 2.58329 3.28064
P. R. T. 199	48 00 39.66 89 49 24.52	51 19 41 284 30 40 308 06 58	231 19 37 104 30 59 128 07 03	P. R. T. 201 P. R. T. 166 P. R. T. 164	149.8 540.2 178.9	2.17537 2.73256 2.25250
Ref. Mon. 1324	48 00 39.68 89 49 24.54	328 16	148 16	P. R. T. 199	0.97	9.98556-10
Ref. Mon. 1323	48 00 41.57 89 49 21.14	50 28 42	230 28 39	Ref. Mon. 1324	91.5	1.96123
P. R. T. 197	48 00 41.17 89 49 26.06	325 42 20	145 42 21	P. R. T. 199	56.6	1.75313

PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
P. R. T. 162	48 00 43.12 89 49 20.23	63 33 34	243 33 30	P. R. T. 197	134.8	2.12963
P. R. T. 195	48 00 45.67 89 49 16.86	40 31 17	220 31 11	P. R. T. 199	244.2	2.38782
		41 33 47	221 33 45	P. R. T. 162	105.4	2.02280
		44 37 33	224 37 23	P. R. T. 201	392.3	2.59367
		53 55 27	233 55 20	P. R. T. 197	235.8	2.37259
P. R. T. 160	48 00 47.39 89 49 13.56	46 19 20	226 19 15	P. R. T. 162	191.3	2.28163
		52 06 40	232 06 38	P. R. T. 195	86.7	1.93791
P. R. T. 193	48 00 50.95 89 49 16.42	331 38 23	151 38 25	P. R. T. 160	124.9	2.09661
P. R. T. 158	48 00 53.00 89 49 14.06	37 38 10	217 38 08	P. R. T. 193	80.0	1.90318
P. R. T. 191	48 00 56.24 89 49 11.65	26 35 56	206 35 54	P. R. T. 158	111.8	2.04861
P. R. T. 156	48 00 55.40 89 49 06.88	104 48 50	284 48 46	P. R. T. 191	102.2	2.00931
P. R. T. 189	48 00 58.09 89 48 57.25	67 23 19	247 23 12	P. R. T. 156	216.3	2.33507
P. R. T. 154	48 00 58.21 89 48 50.23	88 28 46	268 28 41	P. R. T. 189	145.5	2.16277
P. R. T. 187	48 01 00.10 89 48 43.86	66 08 15	246 08 10	P. R. T. 154	144.4	2.15948
P. R. T. 152	48 00 59.87 89 48 34.09	92 02 02	272 01 55	P. R. T. 187	202.5	2.30650
P. R. T. 185	48 01 02.64 89 48 31.03	36 35 07	216 35 05	P. R. T. 152	106.5	2.02725
P. R. T. 183	48 01 03.27 89 48 25.08	80 57 52	260 57 48	P. R. T. 185	124.9	2.09642
Ref. Mon. 1326	48 01 01.20 89 48 27.61	73 03 25	253 03 20	P. R. T. 152	140.4	2.14730
		122 11 30	302 11 27	P. R. T. 185	83.7	1.92267
		219 16 09	39 16 11	P. R. T. 183	82.9	1.91866
		249 38 05	69 38 09	Ref. Mon. 1325	131.4	2.11860
P. R. T. 181	48 00 59.31 89 48 25.50	143 03 25	323 03 23	Ref. Mon. 1326	72.8	1.86227
		217 23 08	37 23 11	Ref. Mon. 1325	130.8	2.11661
P. R. T. 148	48 00 56.79 89 48 25.43	178 56 19	358 56 19	P. R. T. 181	77.9	1.89152
P. R. T. 146	48 00 50.92 89 48 20.70	151 37 08	331 37 04	P. R. T. 148	206.1	2.31406
P. R. T. 179	48 00 51.29 89 48 16.65	82 06 38	262 06 35	P. R. T. 146	84.7	1.92786
P. R. T. 144	48 00 50.67 89 48 09.78	97 44 57	277 44 52	P. R. T. 179	143.8	2.15774
P. R. T. 177	48 00 53.71 89 48 00.28	64 28 46	244 28 39	P. R. T. 144	218.2	2.33884
P. R. T. 142	48 00 53.22 89 47 50.75	94 24 57	274 24 50	P. R. T. 177	198.1	2.29687
P. R. T. 175	48 00 55.33 89 47 47.81	43 01 07	223 01 05	P. R. T. 142	89.4	1.95128
P. R. T. 140	48 00 59.87 89 47 41.33	43 30 20	223 30 13	P. R. T. 142	283.5	2.45253
		43 43 18	223 43 13	P. R. T. 175	194.1	2.28803
P. R. T. 173	48 01 02.54 89 47 42.86	338 56 03	158 56 04	P. R. T. 140	88.3	1.94594
P. R. T. 171	48 01 06.95 89 47 29.57	61 24 25	241 24 19	Ref. Mon. 1327	203.3	2.30814
		63 40 47	243 40 37	P. R. T. 173	307.3	2.48754
Ref. Mon. 1328	48 01 05.03 89 47 38.10	2 47 59	182 47 59	Ref. Mon. 1327	38.0	1.58015
		251 26 19	71 26 25	P. R. T. 171	186.3	2.27030
P. R. T. 138	48 01 04.86 89 47 15.30	102 20 51	282 20 41	P. R. T. 171	302.7	2.48108
P. R. T. 169½	48 01 04.82 89 47 01.96	90 14 00	270 13 50	P. R. T. 138	276.4	2.44158
P. R. T. 136	48 01 04.29 89 46 57.98	92 46 59	272 46 46	P. R. T. 138	359.3	2.55551
		101 11 23	281 11 20	P. R. T. 169½	84.1	1.92475
P. R. T. 169	48 01 07.92 89 46 47.27	63 12 27	243 12 19	P. R. T. 136	248.6	2.39558

PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
P. R. T. 134	48 01 06.79 89 46 43.81	116 03 45	296 03 42	P. R. T. 169	79.8	1.90175
P. R. T. 132	48 01 10.41 89 46 40.34	32 44 28 357 55 54	212 44 25 177 55 54	P. R. T. 134 P. R. T. 132½	132.9 32.6	2.12338 1.51292
P. R. T. 171–F	48 01 05.42 89 47 15.71	99 20 43	279 20 33	P. R. T. 171	291.2	2.46417
P. R. T. 171–E	48 01 04.28 89 47 04.28	98 28 41	278 28 33	P. R. T. 171–F	239.3	2.37886
P. R. T. 171–D	48 01 05.21 89 46 54.19	82 13 06	262 12 59	P. R. T. 171–E	211.0	2.32435
P. R. T. 171–C	48 01 06.46 89 46 49.78	67 03 32	247 03 29	P. R. T. 171–D	99.3	1.99693
Ref. Mon. 1329	48 01 06.30 89 46 54.36	266 58 44 354 06 07	86 58 47 174 06 07	P. R. T. 171–C P. R. T. 171–D	95.1 33.9	1.97797 1.52988
P. R. T. 171–B	48 01 08.68 89 46 46.52	44 32 59	224 32 57	P. R. T. 171–C	96.4	1.98409
P. R. T. 171–A	48 01 09.20 89 46 42.46	79 22 29 229 32 21 263 53 22	259 22 26 49 32 23 83 53 24	P. R. T. 171–B P. R. T. 132 P. R. T. 132½	85.6 57.6 45.3	1.93257 1.76052 1.65577
P. R. T. 132–C	48 01 14.98 89 46 37.65	21 34 18	201 34 16	P. R. T. 132	151.9	2.18168
P. R. T. 132–B	48 01 17.92 89 46 34.74	33 37 50	213 37 48	P. R. T. 132–C	108.9	2.03717
P. R. T. 132–A	48 01 22.61 89 46 31.56	24 21 52	204 21 50	P. R. T. 132–B	159.5	2.20285
Ref. Mon. 1330	48 01 20.77 89 46 29.03	137 15 24	317 15 22	P. R. T. 132–A	77.2	1.88782
Ref. Mon. 1331	48 01 22.34 89 46 27.72	29 21 00 95 55 17	209 20 59 275 55 14	Ref. Mon. 1330 P. R. T. 132–A	55.6 80.1	1.74504 1.90362
P. R. T. 167	48 01 22.43 89 46 31.59	26 02 13	206 02 06	P. R. T. 132	413.2	2.61621
P. R. T. 165	48 01 21.20 89 46 26.65	110 15 42	290 15 38	P. R. T. 167	109.1	2.03777
P. R. T. 130	48 01 14.15 89 46 26.34	178 17 10	358 17 10	P. R. T. 165	218.1	2.33860
P. R. T. 128	48 01 14.72 89 46 19.86	82 26 30	262 26 25	P. R. T. 130	135.3	2.13124
P. R. T. 163	48 01 18.45 89 46 15.11	40 35 31	220 35 27	P. R. T. 128	151.5	2.18036
P. R. T. 126	48 01 19.14 89 46 07.01	82 47 40	262 47 34	P. R. T. 163	169.1	2.22809
P. R. T. 161	48 01 20.97 89 46 05.91	22 01 40	202 01 39	P. R. T. 126	61.1	1.78599
P. R. T. 159	48 01 23.68 89 45 51.34	74 31 09	254 30 58	P. R. T. 161	313.3	2.49591
P. R. T. 124	48 01 20.99 89 45 38.18	106 55 42	286 55 32	P. R. T. 159	284.9	2.45464
P. R. T. 157	48 01 22.35 89 45 34.18	63 09 01	243 08 58	P. R. T. 124	93.1	1.96890
P. R. T. 155	48 01 24.10 89 45 20.13	79 30 21	259 30 11	P. R. T. 157	296.0	2.47124
P. R. T. 153	48 01 20.32 89 45 11.82	124 06 11	304 06 05	P. R. T. 155	208.1	2.31822
P. R. T. 122	48 01 20.37 89 45 06.89	89 02 54	269 02 50	P. R. T. 153	102.2	2.00940
P. R. T. 120½	48 01 24.18 89 45 00.61	47 53 15	227 53 10	P. R. T. 122	175.3	2.24372
P. R. T. 151	48 01 25.63 89 44 57.49	50 11 05 55 18 08	230 10 58 235 18 06	P. R. T. 122 P. R. T. 120½	253.6 78.7	2.40409 1.89625
P. R. T. 149	48 01 20.91 89 44 47.73	125 47 37	305 47 30	P. R. T. 151	249.2	2.39663
P. R. T. 120	48 01 18.84 89 44 46.03	131 27 31 151 09 03	311 27 22 331 09 02	P. R. T. 151 P. R. T. 149	316.8 73.0	2.50074 1.86337
P. R. T. 147	48 01 20.60 89 44 43.25	46 41 24	226 41 22	P. R. T. 120	79.2	1.89867

PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
P. R. T. 118	48 01 20.52 89 44 40.17	92 11 43	272 11 41	P. R. T. 147	63.8	1.80477
P. R. T. 118–A	48 01 20.31 89 44 41.02	249 45 48	69 45 49	P. R. T. 118	18.7	1.27112
Ref. Mon. 1332	48 01 19.92 89 44 42.08	241 13 47	61 13 48	P. R. T. 118–A	25.0	1.39794
Ref. Mon. 1333	48 01 20.94 89 44 39.05	61 00 50	241 00 49	P. R. T. 118	26.5	1.42299
P. R. T. 145	48 01 17.53 89 44 36.71	142 08 52	322 08 49	P. R. T. 118	116.9	2.06769
P. R. T. 116	48 01 12.28 89 44 34.17	153 58 32 162 02 21	333 58 28 342 02 19	P. R. T. 118 P. R. T. 145	283.5 170.8	2.45250 2.23240
P. R. T. 114	48 01 13.84 89 44 17.23	82 10 30	262 10 17	P. R. T. 116	354.4	2.54944
P. R. T. 143	48 01 18.29 89 44 11.82	39 13 33	219 13 29	P. R. T. 114	177.4	2.24890
P. R. T. 141	48 01 18.94 89 43 59.04	85 36 50	265 36 40	P. R. T. 143	265.5	2.42401
P. R. T. 112	48 01 16.04 89 43 59.43	185 10 03	5 10 03	P. R. T. 141	90.2	1.95515
P. R. T. 139	48 01 12.99 89 43 53.21	126 03 51	306 03 46	P. R. T. 112	159.7	2.20325
P. R. T. 110	48 01 10.90 89 43 58.59	239 55 19	59 55 23	P. R. T. 139	128.9	2.11020
P. R. T. 108	48 01 07.97 89 43 56.80	157 47 14	337 47 13	P. R. T. 110	97.9	1.99073
P. R. T. 137	48 01 09.38 89 43 47.74	76 58 13	256 58 06	P. R. T. 108	192.8	2.28505
P. R. T. 106	48 01 08.47 89 43 35.77	96 24 36	276 24 27	P. R. T. 137	249.7	2.39736
P. R. T. 104	48 01 09.75 89 43 24.03	80 46 35	260 46 26	P. R. T. 106	246.5	2.39176
P. R. T. 135	48 01 14.80 89 43 29.04	326 21 20	146 21 24	P. R. T. 104	187.4	2.27272
P. R. T. 133	48 01 13.89 89 43 17.37	96 38 41	276 38 32	P. R. T. 135	243.4	2.38627
Ref. Mon. 1334	48 01 13.22 89 43 25.53	262 58 03	82 58 09	P. R. T. 133	170.3	2.23130
Ref. Mon. 1335	48 01 16.04 89 43 24.75	10 28 11 293 27 51	190 28 10 113 27 56	Ref. Mon. 1334 P. R. T. 133	88.7 166.7	1.94798 2.22198
P. R. T. 131	48 01 05.89 89 43 09.75	147 26 35	327 26 29	P. R. T. 133	293.3	2.46735
P. R. T. 129	48 01 02.13 89 43 14.65	221 11 51	41 11 55	P. R. T. 131	154.0	2.18746
P. R. T. 102	48 01 03.45 89 43 18.12	299 23 09	119 23 12	P. R. T. 129	82.5	1.91659
P. R. T. 127	48 01 02.26 89 43 22.93	249 47 37	69 47 41	P. R. T. 102	106.4	2.02694
P. R. T. 100	48 01 01.28 89 43 27.71	251 21 55 252 58 55	71 22 02 72 58 59	P. R. T. 102 P. R. T. 127	209.8 103.5	2.32180 2.01484
P. R. T. 125	48 00 57.90 89 43 27.11	173 13 03	353 13 03	P. R. T. 100	105.0	2.02119
P. R. T. 98–A	48 00 55.48 89 43 28.65	186 14 09 203 09 24	6 14 10 23 09 25	P. R. T. 100 P. R. T. 125	180.0 81.3	2.25539 1.90991
Ref. Mon. 1336	48 00 51.33 89 43 24.69	147 22 04 166 07 26	327 22 01 346 07 24	P. R. T. 98–A P. R. T. 125	152.2 209.0	2.18247 2.32017
P. R. T. 123	48 00 50.54 89 43 25.91	173 34 41	353 34 40	P. R. T. 100	333.7	2.52334
P. R. T. 98	48 00 47.97 89 43 25.64	174 02 38 174 19 27	354 02 36 354 19 26	P. R. T. 100 P. R. T. 125	413.2 308.2	2.61616 2.48883
P. R. T. 121	48 00 49.48 89 43 21.84	59 20 58	239 20 55	P. R. T. 98	91.5	1.96126
P. R. T. 96	48 00 53.71 89 43 11.36	58 58 04 59 03 57	238 57 56 239 03 46	P. R. T. 121 P. R. T. 98	253.4 344.9	2.40386 2.53773

PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
P. R. T. 119	48 01 02.17 89 43 09.12	10 04 14	190 04 12	P. R. T. 96	265.4	2.42392
P. R. T. 117	48 01 02.05 89 42 59.00	91 00 51	271 00 43	P. R. T. 119	209.9	2.32202
P. R. T. 115	48 00 57.71 89 42 57.37	165 52 54	345 52 53	P. R. T. 117	138.2	2.14047
P. R. T. 94	48 00 55.41 89 42 59.75	214 45 59	34 46 01	P. R. T. 115	86.5	1.93685
Ref. Mon. 1338	48 00 48.48 89 43 02.43	28 56 47	208 55 25	Pigeon	4,751.4	3.67682
		134 33 19	314 31 39	Butte	3,908.1	3.59197
		158 28 31	338 28 20	P. R. T. 133	843.6	2.92611
		194 34 11	14 34 13	P. R. T. 94	221.1	2.34462
		200 12 35	20 12 39	P. R. T. 115	303.7	2.48250
		261 41 05	81 45 29	Auto	7,450.1	3.87216
Ref. Mon. 1337	48 00 49.33 89 42 59.34	67 49 35	247 49 33	Ref. Mon. 1338	69.2	1.84031
		177 24 49	357 24 49	P. R. T. 94	188.1	2.27432
P. R. T. 92	48 00 48.88 89 43 00.73	185 43 46	5 43 47	P. R. T. 94	202.9	2.30720
		244 04 14	64 04 15	Ref. Mon. 1337	32.0	1.50457
P. R. T. 111	48 00 46.96 89 42 57.18	113 24 52	293 24 48	Ref. Mon. 1338	118.7	2.07458
		128 52 56	308 52 53	P. R. T. 92	94.5	1.97557
		148 32 43	328 32 41	Ref. Mon. 1337	85.9	1.93420
P. R. T. 88	48 00 40.57 89 43 00.35	198 24 42	18 24 44	P. R. T. 111	208.0	2.31806
P. R. T. 109	48 00 35.63 89 42 58.33	164 41 26	344 41 25	P. R. T. 88	158.0	2.19859
P. R. T. 86	48 00 33.36 89 42 57.46	164 56 15	344 56 13	P. R. T. 88	230.5	2.36264
		165 28 24	345 28 23	P. R. T. 109	72.5	1.86054
P. R. T. 107	48 00 35.11 89 42 52.55	62 01 14	242 01 10	P. R. T. 86	115.1	2.06097
P. R. T. 84	48 00 36.40 89 42 44.82	70 16 09	250 16 00	P. R. T. 86	278.1	2.44425
		76 00 29	256 00 23	P. R. T. 107	165.1	2.21769
P. R. T. 105	48 00 37.39 89 42 40.77	69 59 58	249 59 55	P. R. T. 84	89.4	1.95154
P. R. T. 82	48 00 37.01 89 42 36.45	83 49 27	263 49 21	P. R. T. 84	174.5	2.24183
P. R. T. 103	48 00 38.42 89 42 29.11	73 58 15	253 58 10	P. R. T. 82	158.4	2.19981
		79 08 14	259 08 02	P. R. T. 84	331.7	2.52076
		82 28 34	262 28 25	P. R. T. 105	243.8	2.38706
P. R. T. 101	48 00 36.04 89 42 26.20	140 45 44	320 45 42	P. R. T. 103	95.1	1.97839
P. R. T. 101–A	48 00 38.70 89 42 29.44	320 48 25	140 48 27	P. R. T. 101	106.1	2.02561
P. R. T. 101–B	48 00 36.42 89 42 30.24	193 12 29	13 12 30	P. R. T. 101–A	72.44	1.85995
		277 57 41	97 57 44	P. R. T. 101	84.4	1.92632
Ref. Mon. 1340	48 00 38.97 89 42 30.51	290 46 42	110 46 43	P. R. T. 101–A	23.7	1.37450
		315 27 25	135 27 28	P. R. T. 101	127.1	2.10426
		355 56 41	175 56 41	P. R. T. 101–B	79.1	1.89829
Ref. Mon. 1339	48 00 36.53 89 42 31.00	187 39 53	7 39 53	Ref. Mon. 1340	76.0	1.88098
		205 44 41	25 44 42	P. R. T. 101–A	74.3	1.87122
		278 44 11	98 44 14	P. R. T. 101	100.5	2.00210
		282 43 25	102 43 25	P. R. T. 101–B	16.1	1.20755
P. R. T. 80	48 00 30.80 89 42 24.79	169 44 58	349 44 57	P. R. T. 101	164.5	2.21611
P. R. T. 99	48 00 28.56 89 42 18.68	118 38 54	298 38 50	P. R. T. 80	144.3	2.15923
P. R. T. 78	48 00 23.09 89 42 11.41	130 37 20	310 37 10	P. R. T. 80	365.5	2.56285
		138 13 20	318 13 15	P. R. T. 99	226.3	2.35470
P. R. T. 97	48 00 23.88 89 42 04.92	79 43 28	259 43 23	P. R. T. 78	136.7	2.13588
P. R. T. 76	48 00 24.26 89 42 00.38	81 04 47	261 04 39	P. R. T. 78	231.4	2.36438
		83 02 04	263 02 01	P. R. T. 97	94.8	1.97667
P. R. T. 95	48 00 27.24 89 41 58.22	25 54 53	205 54 51	P. R. T. 76	102.4	2.01050
P. R. T. 74	48 00 29.56 89 41 46.75	73 11 41	253 11 32	P. R. T. 95	248.2	2.39483
P. R. T. 93	48 00 32.10 89 41 42.06	51 09 48	231 09 45	P. R. T. 74	124.8	2.09630

PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
P. R. T. 72	48 00 33.79	66 11 00	246 10 49	P. R. T. 74	323.5	2.50981
	89 41 32.48	75 14 29	255 14 22	P. R. T. 93	205.5	2.31271
Ref. Mon. 1341	48 00 36.87	59 23 40	239 23 34	P. R. T. 72	187.0	2.27181
	89 41 24.71					
P. R. T. 89	48 00 39.75	71 47 30	251 47 20	Ref. Mon. 1341	284.1	2.45352
	89 41 11.69					
Ref. Mon. 1342	48 00 36.86	90 05 07	270 04 59	Ref. Mon. 1341	231.0	2.36363
	89 41 13.57	203 34 36	23 34 37	P. R. T. 89	97.2	1.98788
P. R. T. 70	48 00 36.98	88 56 08	268 56 02	Ref. Mon. 1341	173.7	2.23987
	89 41 16.33					
P. R. T. 68	48 00 35.78	108 04 14	288 04 10	P. R. T. 70	119.5	2.07739
	89 41 10.85	171 55 20	351 55 19	P. R. T. 89	123.9	2.09293
P. R. T. 87	48 00 36.24	85 22 52	265 22 46	P. R. T. 68	177.3	2.24867
	89 41 02.32					
P. R. T. 66	48 00 36.17	88 32 14	268 31 57	P. R. T. 68	467.1	2.66940
	89 40 48.32	90 27 45	270 27 35	P. R. T. 87	290.2	2.46275
P. R. T. 85	48 00 39.41	52 57 03	232 56 58	P. R. T. 66	166.3	2.22084
	89 40 41.92					
P. R. T. 64	48 00 40.02	83 02 06	263 02 00	P. R. T. 85	155.7	2.19221
	89 40 34.46					
P. R. T. 83	48 00 42.48	72 54 22	252 54 13	P. R. T. 64	257.8	2.41132
	89 40 22.57					
P. R. T. 81	48 00 35.72	142 10 01	322 09 55	P. R. T. 83	264.1	2.42183
	89 40 14.75					
P. R. T. 62	48 00 26.97	143 41 19	323 41 06	P. R. T. 83	594.3	2.77402
	89 40 05.59	144 54 13	324 54 06	P. R. T. 81	330.3	2.51897
P. R. T. 79	48 00 27.82	78 11 21	258 11 16	P. R. T. 62	129.1	2.11099
	89 39 59.49					
P. R. T. 60	48 00 28.03	82 50 49	262 50 40	P. R. T. 62	264.0	2.42164
	89 39 52.95	87 16 33	267 16 28	P. R. T. 79	135.7	2.13270
Blink	48 00 26.92	56 03 36	236 00 30	Pigeon	6,250.7	3.79593
	89 40 43.27	103 01 03	282 59 20	Ref. Mon. 1338	2,960.1	3.47130
		121 02 07	300 58 43	Butte	6,614.2	3.82048
		248 48 16	68 50 56	Auto	4,813.9	3.68250
		280 24 44	100 27 20	Danger	4,433.6	3.64676
Horn	48 00 13.52	105 59 19	285 58 27	Blink	1,503.1	3.17700
	89 39 33.56	277 35 14	97 36 59	Danger	2,941.2	3.46853
		352 02 18	172 02 34	Mt. Josephine	3,081.5	3.48876
Poplar	48 00 29.98	2 20 06	182 20 01	Mt. Josephine	3,563.1	3.55183
	89 39 05.98	48 21 15	228 20 55	Horn	765.0	2.88367
		87 19 32	267 18 20	Blink	2,018.8	3.30510
		113 21 26	293 16 50	Butte	8,368.7	3.92266
		290 56 35	110 57 59	Danger	2,509.6	3.39960
P. R. T. 75½	48 00 39.21	74 53 33	254 52 43	Blink	1,455.4	3.16298
	89 39 35.48	294 58 52	114 59 14	Poplar	674.6	2.82906
		357 07 17	177 07 19	Horn	794.3	2.90000
Sight	48 00 36.05	120 22 24	300 20 54	Auto	2,882.3	3.45974
	89 35 06.65	263 47 40	83 48 52	Between	2,025.5	3.30653
		326 44 13	146 44 50	Morris	1,871.2	3.27212
Boulder	48 00 02.28	111 50 11	291 48 37	Sight	2,805.9	3.44807
	89 33 00.99	154 54 28	334 54 07	Between	1,393.2	3.14401
Ledge	48 00 35.64	119 43 54	299 43 40	Between	465.9	2.66833
	89 33 09.97	349 45 22	169 45 29	Boulder	1,047.3	3.02007
North Arm Rock	48 00 53.13	43 14 25	223 13 32	Boulder	2,156.0	3.33364
	89 31 49.74	72 00 41	251 59 41	Ledge	1,748.4	3.24264
		137 05 19	317 04 18	West End	2,509.2	3.39954
		213 49 15	33 51 15	Mollie	6,010.2	3.77889
Cliff	48 00 19.58	79 25 34	259 23 52	Boulder	2,908.7	3.46370
	89 30 43.05	99 16 08	279 14 18	Ledge	3,085.3	3.48930
		101 55 15	281 53 11	Between	3,525.6	3.54723
		126 52 12	306 51 22	North Arm Rock	1,727.5	3.23741
		132 55 58	312 54 07	West End	4,220.5	3.62536
		198 02 54	18 04 04	Mollie	6,340.9	3.80215
P. R. T. 77	48 00 39.35	25 36 34	205 36 28	P. R. T. 60	387.5	2.58825
	89 39 44.87	271 16 25	91 16 32	P. R. T. 75½	194.6	2.28923
P. R. T. 58	48 00 37 04	106 39 29	286 39 20	P. R. T. 77	248.1	2.39458
	89 39 33.40	147 10 41	327 10 39	P. R. T. 75½	79.5	1.90017

PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
P. R. T. 75	48 00 37.58	83 38 57	263 38 52	P. R. T. 58	150.8	2.17829
	89 39 26.17	97 59 51	277 59 37	P. R. T. 77	391.3	2.59251
		104 33 34	284 33 27	P. R. T. 75½	199.3	2.29952
P. R. T. 73	48 00 27.24	155 02 00	335 01 55	P. R. T. 75	352.6	2.54723
	89 39 18.99					
Ref. Mon. 1343	48 00 23.68	155 38 12	335 38 10	P. R. T. 73	120.7	2.08174
	89 39 16.59					
Ref. Mon. 1344	48 00 22.35	156 47 29	336 47 22	P. R. T. 75	511.9	2.70917
	89 39 16.44	160 40 19	340 40 17	P. R. T. 73	159.8	2.20371
		175 38 49	355 38 49	Ref. Mon. 1343	41.0	1.61278
P. R. T. 69	48 00 16.86	138 08 13	318 08 08	Ref. Mon. 1344	227.6	2.35716
	89 39 09.11					
P. R. T. 54	48 00 12.67	140 33 45	320 33 36	Ref. Mon. 1344	387.1	2.58784
	89 39 04.58	144 00 42	324 00 39	P. R. T. 69	160.0	2.20415
P. R. T. 67	48 00 14.41	71 20 48	251 20 43	P. R. T. 54	167.5	2.22393
	89 38 56.92					
P. R. T. 52	48 00 15.36	72 42 22	252 42 12	P. R. T. 54	278.8	2.44526
	89 38 51.73	74 44 50	254 44 46	P. R. T. 67	111.4	2.04701
P. R. T. 65	48 00 22.99	20 53 46	200 53 43	P. R. T. 52	252.3	2.40187
	89 38 47.39					
P. R. T. 63	48 00 22.14	94 00 00	273 59 47	P. R. T. 65	375.4	2.57451
	89 38 29.32					
P. R. T. 50	48 00 12.25	150 29 50	330 29 44	P. R. T. 63	350.9	2.54519
	89 38 20.99					
P. R. T. 61	48 00 16.19	51 08 32	231 08 27	P. R. T. 50	193.7	2.28703
	89 38 13.71					
P. R. T. 48	48 00 17.68	49 26 02	229 26 00	P. R. T. 61	71.1	1.85200
	89 38 11.11					
P. R. T. 59	48 00 25.35	336 38 20	156 38 24	P. R. T. 48	257.8	2.41124
	89 38 16.04					
P. R. T. 57	48 00 33.01	350 34 08	170 34 09	P. R. T. 59	240.0	2.38016
	89 38 17.93					
P. R. T. 55	48 00 34.97	64 37 22	244 37 17	P. R. T. 57	141.1	2.14965
	89 38 11.78					
P. R. T. 46	48 00 33.74	114 39 07	294 39 04	P. R. T. 55	90.7	1.95773
	89 38 07.80					
Ref. Mon. 1346	48 00 34.19	257 15 20	77 15 24	P. R. T. 55	109.0	2.03749
	89 38 16.91	274 10 40	94 10 47	P. R. T. 46	189.3	2.27713
Ref. Mon. 1345	48 00 32.17	171 18 10	351 18 10	Ref. Mon. 1346	63.2	1.80058
	89 38 16.45	228 12 30	48 12 34	P. R. T. 55	129.8	2.11328
P. R. T. 53	48 00 37.37	69 28 58	249 28 47	P. R. T. 46	319.6	2.50460
	89 37 53.36					
P. R. T. 44½	48 00 36.41	101 44 02	281 43 57	P. R. T. 53	146.1	2.16478
	89 37 46.46					
P. R. T. 51	48 00 39.66	31 12 46	211 12 44	P. R. T. 44½	117.5	2.07016
	89 37 43.52					
P. R. T. 49	48 00 42.44	66 11 44	246 11 37	P. R. T. 51	212.7	2.32769
	89 37 34.13					
P. R. T. 47½	48 00 42.97	86 31 55	266 31 45	P. R. T. 49	270.9	2.43278
	89 37 21.08					
P. R. T. 47	48 00 40.78	119 39 03	299 38 59	P. R. T. 47½	136.7	2.13590
	89 37 15.35					
P. R. T. 44	48 00 38.15	115 35 48	295 35 42	P. R. T. 47	188.0	2.27405
	89 37 07.17					
Ref. Mon. 1348–A	48 00 45.83	42 07 30	222 07 22	P. R. T. 44	319.6	2.50460
	89 36 56.83					
Ref. Mon. 1347–A	48 00 45.89	36 24 01	216 23 55	P. R. T. 44	297.0	2.47282
	89 36 58.67	273 04 53	93 04 54	Ref. Mon. 1348–A	38.1	1.58146
P. R. T. 45	48 00 42.96	224 22 46	44 22 49	Ref. Mon. 1347–A	126.9	2.10351
	89 37 02.95	235 03 03	55 03 07	Ref. Mon. 1348–A	154.8	2.18968
P. R. T. 40	48 00 49.03	23 23 29	203 23 27	Ref. Mon. 1348–A	107.8	2.03262
	89 36 54.76	39 51 28	219 51 25	Ref. Mon. 1347–A	126.2	2.10112
Ref. Mon. 1347	48 00 49.10	2 02 17	182 02 17	Ref. Mon. 1348–A	101.0	2.00445
	89 36 56.66	22 51 07	202 51 06	Ref. Mon. 1347–A	107.3	2.03076
		272 57 25	92 57 26	P. R. T. 40	39.3	1.59391

PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
P. R. T. 39	48 00 54.70 89 36 53.57	20 19 08	200 19 06	Ref. Mon. 1347	184.5	2.26589
Ref. Mon. 1348	48 00 49.00 89 36 54.68	117 27	297 27	P. R. T. 40	1.99	0.29885
P. R. T. 38	48 00 56 42 89 36 47.60	66 44 50	246 44 46	P. R. T. 39	134.6	2.12910
P. R. T. 37	48 00 59 45 89 36 46.18	17 26 14 46 11 43	197 26 13 226 11 38	P. R. T. 38 P. R. T. 39	98.2 212.2	1.99223 2.32667
P. R. T. 35	48 01 05.31 89 36 39.56	37 09 21	217 09 16	P. R. T. 37	227.2	2.35634
P. R. T. 36	48 01 03.85 89 36 38.45	153 05 44	333 05 43	P. R. T. 35	50.8	1.70605
P. R. T. 33	48 01 03.54 89 36 33.60	95 18 03 113 52 12	275 17 59 293 52 08	P. R. T. 36 P. R. T. 35	100.9 135.0	2.00400 2.13046
P. R. T. 34	48 00 57.26 89 36 34.85	187 38 14	7 38 15	P. R. T. 33	195.8	2.29173
P. R. T. 31	48 00 55.40 89 36 33.83	159 44 18 181 04 54	339 44 17 1 04 54	P. R. T. 34 P. R. T. 33	61.4 251.7	1.78819 2.40084
P. R. T. 29	48 00 52.69 89 36 33.66	177 42 25	357 42 25	P. R. T. 31	83.8	1.92337
P. R. T. 32	48 00 46.32 89 36 32.30	171 48 23	351 48 22	P. R. T. 29	198.7	2.29828
P. R. T. 27	48 00 41.66 89 36 30.13	162 40 50 167 52 18	342 40 48 347 52 15	P. R. T. 32 P. R. T. 29	150.8 348.4	2.17826 2.54208
P. R. T. 30	48 00 39.91 89 36 33.91	235 27 28	55 27 31	P. R. T. 27	95.1	1.97831
P. R. T. 28	48 00 36.97 89 36 37.99	222 53 31 228 20 33	42 53 34 48 20 39	P. R. T. 30 P. R. T. 27	124.0 217.9	2.09355 2.33820
P. R. T. 26	48 00 29.37 89 36 32.29	153 16 01	333 15 57	P. R. T. 28	262.7	2.41942
P. R. T. 24	48 00 26.93 89 36 30.84	158 18 54	338 18 53	P. R. T. 26	81.2	1.90968
P. R. T. 22	48 00 23.62 89 36 27.65	147 10 37	327 10 35	P. R. T. 24	121.8	2.08577
Ref. Mon. 1349	48 00 22.07 89 36 23.29	117 49 46	297 49 43	P. R. T. 22	102.1	2.00915
Ref. Mon. 1349–A	48 00 23.46 89 36 24.03	93 38 45 340 22 23	273 38 42 160 22 24	P. R. T. 22 Ref. Mon. 1349	75.2 45.5	1.87606 1.65843
P. R. T. 18	48 00 21.44 89 36 15.71	97 02 36	277 02 30	Ref. Mon. 1349	158.4	2.19971
P. R. T. 17	48 00 23.26 89 36 16.08	76 14 22 352 18 58	256 14 17 172 18 58	Ref. Mon. 1349 P. R. T. 18	154.0 56.6	2.18765 1.75259
P. R. T. 16	48 00 20.63 89 36 11.54	130 45 22	310 45 19	P. R. T. 17	124.1	2.09375
P. R. T. 15	48 00 19.45 89 36 01.96	100 25 38 111 53 29	280 25 31 291 53 19	P. R. T. 16 P. R. T. 17	201.9 315.3	2.30512 2.49871
P. R. T. 14	48 00 17.75 89 36 04.64	226 29 45	46 29 47	P. R. T. 15	76.5	1.88392
Ref. Mon. 1350	48 00 17.80 89 35 54.37	107 57 52	287 57 46	P. R. T. 15	165.4	2.21855
Ref. Mon. 1351	48 00 18.64 89 35 50.86	70 26 59 96 14 11	250 26 56 276 14 03	Ref. Mon. 1350 P. R. T. 15	77.3 231.5	1.88810 2.36462
Granite	48 00 26.41 89 35 27.01	234 47 37 258 01 16 283 49 16	54 47 52 78 02 43 103 51 04	Sight Between Boulder	516.2 2,489.7 3,117.2	2.71286 3.39614 3.49376
View	48 00 07.79 89 34 58.15	133 52 59 168 34 57	313 52 38 348 34 51	Granite Sight	829.9 890.5	2.91900 2.94961
Ref. Mon. 1357	48 00 04.71 89 35 08.43	150 07 23 182 10 22 245 56 16	330 07 09 2 10 24 65 56 24	Granite Sight View	773.1 968.7 233.3	2.88823 2.98617 2.36792
Upper	47 59 57.66 89 34 56.11	130 26 08 172 17 59	310 25 59 352 17 57	Ref. Mon. 1357 View	335.4 315.5	2.52561 2.49903
Ref Mon. 1360	47 59 47.56 89 35 04.46	171 10 30 191 49 44 209 01 35	351 10 27 11 49 48 29 01 41	Ref. Mon. 1357 View Upper	535.9 638.2 365.8	2.72905 2.80495 2.55239

PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 1362	47 59 52.50	74 39 34	254 39 14	Ref. Mon. 1360	576.7	2.76092
	89 34 37.63	112 35 45	292 35 31	Upper	414.8	2.61785
Ref. Mon. 1363	47 59 47.30	90 51 32	270 51 12	Ref. Mon. 1360	552.4	2.74224
	89 34 37.82	130 10 55	310 10 40	Upper	496.3	2.69575
		181 21 07	1 21 07	Ref. Mon. 1362	160.9	2.20651
Ban	47 59 52.76	60 10 21	240 10 11	Ref. Mon. 1363	339.3	2.53055
	89 34 23.62	88 26 23	268 26 13	Ref. Mon. 1362	290.6	2.46335
		329 29 03	149 29 08	Morris	264.3	2.42213
Ref. Mon. 1364	47 59 53.62	344 50	164 50	Ban	27.65	1.44170
	89 34 23.97					
Ref. Mon. 1365	47 59 49.09	81 04 32	261 04 19	Ref. Mon. 1363	357.9	2.55376
	89 34 20.76	106 45 26	286 45 14	Ref. Mon. 1362	365.3	2.56262
		152 22 59	332 22 57	Ban	127.8	2.10648
Ref. Mon. 1366	47 59 56.69	47 08 34	227 08 25	Ref. Mon. 1365	345.0	2.53788
	89 34 08.56	68 44 20	248 44 09	Ban	335.0	2.52500
North Pigeon	47 59 58.09	27 27 56	207 27 51	Ref. Mon. 1365	313.3	2.49595
	89 34 13.79	51 02 15	231 02 08	Ban	262.0	2.41832
		291 45 37	111 45 41	Ref. Mon. 1366	116.8	2.06728
Staple Point	47 59 58.46	64 18 01	244 17 57	Ref. Mon. 1366	125.6	2.09909
	89 34 03.10	87 06 35	267 06 27	North Pigeon	221.9	2.34620
		223 47 24	43 48 04	Ledge	1,591.3	3.20174
		264 45 30	84 46 16	Boulder	1,293.0	3.11160
Rock	48 00 11.76	4 02 38	184 02 37	North Pigeon	423.2	2.62656
	89 34 12.35	240 17 25	60 18 11	Ledge	1,488.6	3.17278
		281 11 42	101 12 35	Boulder	1,508.1	3.17843
		334 58 56	154 59 03	Staple Point	453.5	2.65659
		350 24 57	170 25 00	Ref. Mon. 1366	472.0	2.67398
P. R. T. 11	48 00 18.97	76 44 35	256 44 30	Ref. Mon. 1350	157.4	2.19697
	89 35 46.98	82 44 41	262 44 38	Ref. Mon. 1351	81.0	1.90855
		84 06 35	264 06 22	P. R. T. 14	368.0	2.56584
		92 45 06	272 44 55	P. R. T. 15	310.9	2.49261
		237 44 24	57 44 54	Sight	988.4	2.99492
		288 50 00	108 50 36	View	1,069.5	3.02918
P. R. T. 10	48 00 07.72	132 41 36	312 41 22	P. R. T. 11	512.4	2.70962
	89 35 28.81	207 41 33	27 41 49	Sight	988.1	2.99482
		269 48 25	89 48 47	View	635.6	2.80318
Ref. Mon. 1354	48 00 06.94	96 40 48	276 40 41	P. R. T. 10	207.5	2.31710
	89 35 18.87	122 31 32	302 31 11	P. R. T. 11	691.1	2.83957
		195 43 24	15 43 33	Sight	934.0	2.97036
Ref. Mon. 1355	48 00 11.10	32 38 06	212 38 03	Ref. Mon. 1354	152.7	2.18392
	89 35 14.89	70 05 35	250 05 25	P. R. T. 10	306.8	2.48690
		110 04 14	290 3 50	P. R. T. 11	708.1	2.85010
Ref. Mon. 1353	48 00 15.19	9 33 34	189 33 33	P. R. T. 10	234.1	2.36931
	89 35 26.93	296 50 26	116 50 35	Ref. Mon. 1355	279.8	2.44679
		326 43 53	146 43 59	Ref. Mon. 1354	304.9	2.48417
Ref. Mon. 1352 ecc	48 00 13.22	246 44 27	66 44 32	Ref. Mon. 1353	154.5	2.18890
	89 35 33.78	279 28 07	99 28 21	Ref. Mon. 1355	397.0	2.59875
		302 05 43	122 05 54	Ref. Mon. 1354	365.0	2.56227
Ref. Mon. 1352	48 00 12.80	243 34 26	63 34 27	Ref. Mon. 1352 ecc	28.9	1.46144
	89 35 35.03	246 14 28	66 14 34	Ref. Mon. 1353	183.4	2.26338
Island I	48 00 11.90	119 53 07	299 53 05	Ref. Mon. 1352 ecc	81.7	1.91200
	89 35 30.37	214 58 23	34 58 26	Ref. Mon. 1353	124.1	2.09378
		302 43 57	122 44 06	Ref. Mon. 1354	283.4	2.45241
Island G	48 00 10.85	11 39 30	191 39 30	P. R. T. 10	98.6	1.99396
	89 35 27.85	188 01 55	8 01 56	Ref. Mon. 1353	135.5	2.13209
		302 57 23	122 57 30	Ref. Mon. 1354	221.9	2.34618
Island H	48 00 09.24	258 50 35	78 50 45	Ref. Mon. 1355	297.7	2.47377
	89 35 28.98	288 42 32	108 42 39	Ref. Mon. 1354	221.4	2.34519
		355 38 13	175 38 13	P. R. T. 10	47.0	1.67228
Island F	48 00 12.89	92 45 26	272 45 19	Ref. Mon. 1352 ecc	206.8	2.31560
	89 35 23.82	137 39 44	317 39 42	Ref. Mon. 1353	96.0	1.98220
		286 39 50	106 39 57	Ref. Mon. 1355	193.1	2.28575
Ref. Mon. 1358	47 59 59.42	194 16 07	14 16 09	Ref. Mon. 1357	168.4	2.22635
	89 35 10.43	280 22 28	100 22 39	Upper	301.8	2.47967
Ref. Mon. 1356	48 00 05.07	36 02 40	216 02 35	Ref. Mon. 1358	215.5	2.33353
	89 35 04.31	82 36 12	262 36 09	Ref. Mon. 1357	86.0	1.93468
Ref. Mon. 1359	47 59 57.01	1 45 26	181 45 26	Ref. Mon. 1360	291.9	2.46526
	89 35 04.03	119 19 33	299 19 28	Ref. Mon. 1358	152.2	2.18233
		159 01 13	339 01 10	Ref. Mon. 1357	254.6	2.40588
		178 39 18	358 39 18	Ref. Mon. 1356	248.9	2.39599
		262 59 30	82 59 36	Upper	165.4	2.21852
Island E	47 59 52.62	151 12 09	331 12 05	Ref. Mon. 1358	239.9	2.38012
	89 35 04.85	187 10 23	7 10 24	Ref. Mon. 1359	136.8	2.13613
		357 00 58	177 00 59	Ref. Mon. 1360	156.2	2.19382

PIGEON RIVER, MINOR SCHEMES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 1361	47 59 49.78	74 32 45	254 32 36	Ref. Mon. 1360	256.9	2.40976
	89 34 52.52	162 59 29	342 59 26	Upper	254.6	2.40591
		254 44 47	74 44 58	Ref. Mon. 1362	319.8	2.50483
		284 07 47	104 07 58	Ref. Mon. 1363	314.2	2.49724
Island D	47 59 47.44	91 06 12	271 06 05	Ref. Mon. 1360	196.0	2.29229
	89 34 55.01	215 33 30	35 33 32	Ref. Mon. 1361	88.8	1.94836
		246 31 45	66 31 58	Ref. Mon. 1362	392.6	2.59396
		270 43 07	90 43 20	Ref. Mon. 1363	356.4	2.55190
Island C	47 59 46.76	168 30 33	348 30 32	Ref. Mon. 1361	95.3	1.97907
	89 34 51.60	238 29 11	58 29 21	Ref. Mon. 1362	339.6	2.53097
		266 39 35	86 39 45	Ref. Mon. 1363	286.2	2.45670
Island B	47 59 48.28	110 11 40	290 11 35	Ref. Mon. 1361	134.6	2.12894
	89 34 46.42	234 22 25	54 22 31	Ref. Mon. 1362	224.2	2.35057
		279 37 34	99 37 40	Ref. Mon. 1363	181.0	2.25760
Island A	47 59 50.32	108 57 51	288 57 44	Ref. Mon. 1362	207.4	2.31682
	89 34 28.17	231 24 56	51 25 00	Ban	120.8	2.08193
		303 41 11	123 41 20	Morris	274.8	2.43894
I. W. C. Mon. 3	47 59 58.22	8 35 38	188 35 36	Morris	400.8	2.60292
	89 34 14.26	268 10 31	88 10 39	Staple Point	231.4	2.36436
		291 45 11	111 45 15	Ref. Mon. 1366	127.1	2.10425

DESCRIPTIONS OF TRIANGULATION AND TRAVERSE STATIONS

The stations in the following list are arranged according to the class of triangulation to which they belong and also according to geographical subdivisions of the boundary. The stations available for use in any region may be determined by inspecting the triangulation sketches which accompany this report under a separate cover. The index to triangulation and traverse stations (p. 587) should be consulted if the name of the station for which a description is sought is known.

Within the parentheses in each description immediately following the name of the station is the name of the Province or State and the district or county in which the station is situated, and the name of the Government organization or the member of the boundary survey party that established the station. This person is generally the chief of party; in some cases, however, he is the member of the party who was responsible for securing the desired degree of precision in the measurement of the angles. This association of the name of the station with the name of the person who established the station and whose name appears on the field notebooks is intended to facilititate, in later years, any reference to these data in the Government archives. The first date within the parentheses is that of the establishment of the station; the last date is the year in which the station was last occupied or inspected.

All azimuths given in the descriptions are reckoned continuously from true south around by west to 360°, south being 0°, west 90°, north 180°, and east 270°. Where magnetic azimuths or bearings are given, they are indicated as such.

All distances are horizontal unless otherwise stated.

The standard station marks and boundary monuments (see pp. 91 and 92, and figs. 1 and 2, p. 89) are described in detail on page 90.

Any person who finds that any boundary monument or any station in this list has been disturbed or damaged is requested to send such information to the Commissioner, International Boundary Commission, Washington, D. C., or Ottawa, Ontario.

NORTHWESTERNMOST POINT OF LAKE OF THE WOODS TO LAKE SUPERIOR, REFERENCE MONUMENTS

Reference Monument 1 (East Reference Monument) (Ontario, Kenora District; C. H. Sinclair, 1913; 1922).—On the north shore of Northwest Angle Inlet of Lake of the Woods, about 40 miles southwest of Kenora, Ontario, and 34 miles north of Warroad, Minn.; 7 miles west of Magnusons Island and one-half mile north of the entrance to Harrison Creek, at the edge of the poplar growth on the east side of the meadow; the monument is 465.1 meters due east of the north terminus of the meridional boundary between Manitoba and Minnesota.

Station mark: A cast-iron obelisk, 5 feet high, marked "Reference Mark" on the east face, set in a square concrete base.

Reference Monument 2 (West Reference Monument) (Manitoba, Provencher District; C. H. Sinclair, 1913; 1922).—On the southwest shore of Northwest Angle Inlet of Lake of the Woods, about 40 miles southwest of Kenora, Ontario, and 34 miles north of Warroad, Minn.; 7½ miles west of Magnusons Island and three-fourths mile northwest of the entrance to Harrison Creek, just north of the road allowance at the south end of section 13, township 5, range 17 east, at the edge of the poplar growth; the monument is 386.6 meters due west of the north terminus of the meridional boundary between Manitoba and Minnesota.

Station mark: A cast-iron obelisk, 5 feet high, marked "Reference Mark" on the west face, set in a square concrete base.

Monument 924 (Manitoba, Provencher District; Minnesota, Lake of the Woods County; Boundary Commission, 1874; C. H. Sinclair, 1913).—About 41 miles southwest of Kenora, Ontario, and 33 miles north of

Warroad, Minn.; about three-eighths mile from the southwest shore of Northwest Angle Inlet of Lake of the Woods and about 100 meters north of Harrison Creek.

Station mark: A cast-iron obelisk, 5 feet high, set in a square concrete base.

Monument 925 (Manitoba, Provencher District; Minnesota, Lake of the Woods County; Boundary Commission, 1874; C. H. Sinclair, 1913; 1922).—About 41 miles southwest of Kenora, Ontario, and 33 miles north of Warroad, Minn.; on the southwest shore of Northwest Angle Inlet of Lake of the Woods. It is about 0.4 mile northwest of the mouth of Harrison Creek and about 80 meters from the shore line.

Station mark: A cast-iron obelisk, 5 feet high, set in a square concrete base.

Reference Monument 3 (Ontario, Kenora District; J. J. McArthur, 1912; 1922).—About 40 miles southwest of Kenora, Ontario, and 34 miles north of Warroad, Minn.; on the north shore of Northwest Angle Inlet of Lake of the Woods, 7 miles west of Magnusons Island and just north of the entrance to Harrison Creek; monument 1 is 1,900 feet northwest. Monument 3 is set in low, wet ground about 300 feet from the tree line.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 4 (Minnesota, Lake of the Woods County; J. J. McArthur, 1912; 1917).—About 40 miles southwest of Kenora, Ontario, and 33 miles north of Warroad, Minn.; on the south shore of Northwest Angle Inlet of Lake of the Woods, 6 miles west of Magnusons Island, and on the east side of the entrance to Bear Creek; the monument is on solid ground in the poplar wood close to the right bank of the creek.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 5 (Ontario, Kenora District; J. J. McArthur, 1912; 1917).—About 39 miles southwest of Kenora, Ontario, and 33 miles north of Warroad, Minn.; on the north shore of Northwest Angle Inlet of Lake of the Woods, 6 miles west of Magnusons Island, opposite the entrance to Bear Creek; the monument is in low wet ground close to the tree line about on line with the general direction in which Bear Creek flows.

Station mark: A wrought-iron post, about 12 inches high, set in a square concrete base.

Reference Monument 6 (Minnesota, Lake of the Woods County; J. J. McArthur, 1912; 1917).—About 39 miles southwest of Kenora, Ontario, and 33 miles north of Warroad, Minn.; on the south shore of Northwest Angle Inlet, 5 miles west of Magnusons Island, near the east side of the entrance to Poplar Creek; the monument is in low wet ground close to the tree line.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 7 (Ontario, Kenora District; J. J. McArthur, 1912; 1917).—About 39 miles southwest of Kenora, Ontario, and 33 miles north of Warroad, Minn.; on the north shore of Northwest Angle Inlet of Lake of the Woods, 5 miles west of Magnusons Island, opposite the entrance to Poplar Creek; the monument is in low wet ground close to the tree line about on line with the general direction in which Poplar Creek flows.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 8 (Minnesota, Lake of the Woods County; J. J. McArthur, 1912; 1917).—About 39 miles southwest of Kenora, Ontario, and 33 miles north of Warroad, Minn.; on the south shore of Northwest Angle Inlet of Lake of the Woods, 4 miles west of Magnusons Island, on the east side of the more eastern of two narrow inlets about 500 feet deep and 700 feet apart; the monument is in low wet ground.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 9 (Ontario, Kenora District; J. J. McArthur, 1912; 1917).—About 38 miles southwest of Kenora, Ontario, and 33 miles north of Warroad, Minn.; on the north side of Northwest Angle Inlet of Lake of the Woods, 4 miles west of Magnusons Island and due north of reference monument 8; the monument is in low wet ground close to the tree line.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 10 (Minnesota, Lake of the Woods County; J. J. McArthur, 1912; 1917).—About 39 miles southwest of Kenora, Ontario, and 33 miles north of Warroad, Minn.; on the south shore of Northwest Angle Inlet of Lake of the Woods, nearly 3 miles west of Magnusons Island; about 1,000 feet east of the entrance to a creek 1 mile southwest of reference monument 11; the monument is in low wet ground about 200 feet from the tree line.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 11 (Ontario, Kenora District; J. J. McArthur, 1912; 1922).—About 38 miles southwest of Kenora, Ontario, and 33 miles north of Warroad, Minn.; in Northwest Angle Inlet of Lake of the Woods, 2 miles west of Magnusons Island on a rocky island about 200 feet long, near several larger islands; the monument is on the bare rock top of the island.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 12 (Minnesota, Lake of the Woods County; J. J. McArthur, 1912; 1917).—About 39 miles southwest of Kenora, Ontario, and 33 miles north of Warroad, Minn.; on the south shore of Northwest Angle Inlet of Lake of the Woods, 2 miles west of Magnusons Island, about 300 feet from the west side of a narrow inlet due south of reference monument 11; the monument is in low wet ground about 700 feet from the tree line.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 13 (Ontario, Kenora District; J. J. McArthur, 1912; 1922).—About 37 miles southwest of Kenora, Ontario, and 34 miles north of Warroad, Minn.; on the north shore of Northwest Angle Inlet of Lake of the Woods, 1 mile west of Magnusons Island; on the top of the more western of two knolls on a prominent rocky point. The monument is about 150 feet from the shore and 30 feet above the water level.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 14 (Minnesota, Lake of the Woods County; J. J. McArthur, 1913; reset by G. T. Prinsep, 1922).—About 39 miles southwest of Kenora, Ontario, and 34 miles north of Warroad, Minn.; on the south side of Northwest Angle Inlet of Lake of the Woods, 1 mile southwest of Magnusons Island and due south of reference monument 13; in shallow water near the floating bog which forms the shore.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 15 (Ontario, Kenora District; J. J. McArthur, 1912; 1917).—About 36 miles southwest of Kenora, Ontario, and 35 miles north of Warroad, Minn.; on a rocky knoll on the north side of Northwest Angle Inlet of Lake of the Woods, three-fourths mile north of Magnusons Island and one-half mile west of Buckete Island. The monument is about 300 feet from the shore and 50 feet above the high-water mark.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 16 (Minnesota, Lake of the Woods County; J. J. McArthur, 1912; 1917).—About 36 miles southwest of Kenora, Ontario, and 35 miles north of Warroad, Minn.; on the northwest end of Magnusons Island, at the entrance of Northwest Angle Inlet of Lake of the Woods, about 1,500 feet west of the ridge which lies in a north and south direction on the island. The monument is in low wet ground close to the shore; a long narrow belt of weeds extends to the north.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 17 (Ontario, Kenora District; J. J. McArthur, 1912; 1917).—About 36 miles southwest of Kenora, Ontario, and 35 miles north of Warroad, Minn.; on the southwest end of Buckete Island at the entrance to Northwest Angle Inlet of Lake of the Woods. The monument is about 100 feet from the shore and 400 feet east of the end of the point and is a few feet above the high-water mark.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 18 (Minnesota, Lake of the Woods County; J. J. McArthur, 1912; 1917).—About 36 miles southwest of Kenora, Ontario, and 35 miles north of Warroad, Minn.; on the north side of Magnusons Island, the island at the entrance to Northwest Angle Inlet of Lake of the Woods; on a rock ledge due south of reference monument 17, close to the shore.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 19 (Ontario, Kenora District; J. J. McArthur, 1912; 1917).—About 35 miles southwest of Kenora, Ontario, and 36 miles north of Warroad, Minn.; on the small island in Lake of the Woods one-half mile north of American Point and 500 feet east of the long low island southeast of Buckete Island at the entrance to Northwest Angle Inlet of Lake of the Woods.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 20 (Minnesota, Lake of the Woods County; J. J. McArthur, 1912; 1917).—About 35 miles southwest of Kenora, Ontario, and 36 miles north of Warroad, Minn.; on the east end of American Point on an island at the entrance to Northwest Angle Inlet of Lake of the Woods, the next island east of Magnusons Island.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 21 (Ontario, Kenora District; J. J. McArthur, 1912; 1917).—About 35 miles southwest of Kenora, Ontario, and 36 miles north of Warroad, Minn.; on the west end of the large island one-half mile east of Buckete Island and northeast of American Point, at the entrance to Northwest Angle Inlet.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 22.—Destroyed.

Reference Monument 23 (Ontario, Kenora District; J. J. McArthur, 1912; 1917).—About 35 miles southwest of Kenora, Ontario, and 36 miles north of Warroad, Minn.; on the island about 1,000 feet long in an east and west direction, 1,500 feet northeast of the east end of American Point, at the entrance to Northwest Angle Inlet. The monument is on the south side of the island, toward the west end; reference monument 21 is about 1,200 feet northwest.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 24 (Minnesota, Lake of the Woods County; J. J. McArthur, 1912; 1917).—About 34 miles southwest of Kenora, Ontario, and 36 miles northeast of Warroad, Minn.; on the island in Lake of the Woods, 1,200 feet long in a north and south direction, one-third mile north of Brush Island, and 2 miles southeast of the entrance to Northwest Angle Inlet. The monument is on the east side of the island, toward the north end.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 25 (Ontario, Kenora District; J. J. McArthur, 1912; 1917).—About 34 miles southwest of Kenora, Ontario, and the same distance northeast of Warroad, Minn.; on the small flat island in Lake of the Woods, 200 feet off the east side of Brush Island; about 3 miles southeast of the entrance to Northwest Angle Inlet.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 26 (Minnesota, Lake of the Woods County; J. J. McArthur, 1912; 1917).—On Brush Island in Lake of the Woods, about 34 miles southwest of Kenora, Ontario, and 36 miles northeast of Warroad, Minn.; on the northeast end of the island, about 3 miles southeast of the entrance to Northwest Angle Inlet. There is an island about 300 feet long 700 feet to the east.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 27 (Ontario, Kenora District; J. J. McArthur, 1912; 1917).—About 34 miles southwest of Kenora, Ontario, and 36 miles northeast of Warroad, Minn.; on the low island in Lake of the Woods, about 300 feet in diameter, 700 feet off the east side of Brush Island, about 3 miles southeast of the entrance to Northwest Angle Inlet. The monument is on the south end of the island.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 28 (Ontario, Kenora District; J. J. McArthur, 1912; 1917).—On the large island south of Windfall Island in Lake of the Woods, about 36 miles northeast of Warroad, Minn., and 34 miles southwest of Kenora, Ontario; at the southwest end of the island, 2,000 feet north of the west end of Passage Island. The part of the island on which the monument is situated is separated from the main island by a marsh.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 29 (Ontario, Kenora District; J. J. McArthur, 1912; 1917).—On Passage Island in Lake of the Woods, about 36 miles northeast of Warroad, Minn., and 34 miles southwest of Kenora, Ontario. The monument is at the west end of the island (this is a narrow island nearly a mile long in an east and west direction northeast of Flag Island). Reference monument 28 is about 2,200 feet northwest.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 30 (Minnesota, Lake of the Woods County; J. J. McArthur, 1912; 1917).—On Flag Island in Lake of the Woods, about 36 miles northeast of Warroad, Minn., and 34 miles southwest of Kenora, Ontario; on the northeast side of the island, one-fourth mile southeast of the prominent point at the north end of the island. Reference monument 29 is about 1,200 feet north.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 31 (Ontario, Kenora District; J. J. McArthur, 1912; 1917).—About 36 miles northeast of Warroad, Minn., and 34 miles southwest of Kenora, Ontario; on the very small island in Lake of the Woods, 500 feet from the most southern point of Cyclone Island and 1,500 feet north of the northwest point of Oak Island.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 32 (Minnesota, Lake of the Woods County; J. J. McArthur, 1912; 1917).—On Oak Island in Lake of the Woods, about 36 miles northeast of Warroad, Minn., and 34 miles southwest of Kenora, Ontario; on the north end of the island. The monument is at the northwest side of the bay, 1,000 feet from the northwest point of the island.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 33 (Ontario, Kenora District; J. J. McArthur, 1912; 1917).—On Center Island in Lake of the Woods, about 36 miles northeast of Warroad, Minn., and 34 miles southwest of Kenora, Ontario; at the south end of the island which is 1,500 feet in diameter and lies between Cyclone and Oak Islands.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 34 (Minnesota, Lake of the Woods County; J. J. McArthur, 1912; 1917).—On Oak Island, in Lake of the Woods, about 36 miles northeast of Warroad, Minn., and 34 miles southwest of Kenora, Ontario; on the northeast point of the island.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 35 (Ontario, Kenora District; J. J. McArthur, 1912; 1917).—On an island in Lake of the Woods, about 36 miles northeast of Warroad, Minn., and 34 miles southwest of Kenora, Ontario. The monument is on the west end of the small island 800 feet east of the northeast end of Oak Island.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 36 (Minnesota, Lake of the Woods County; J. J. McArthur, 1912; 1917).—On Oak Island in Lake of the Woods, about 36 miles northeast of Warroad, Minn., and 35 miles southwest of Kenora, Ontario. The monument is on the east side of the island on a point at the south side of a large bay and is about 900 feet west of the northwest end of Squaw Island.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 37 (Ontario, Kenora District; J. J. McArthur, 1912; 1917).—On Squaw Island in Lake of the Woods, about 36 miles northeast of Warroad, Minn., and 35 miles southwest of Kenora, Ontario; on the west side of the northwest end of the island. Reference monument 36, on the east side of Oak Island, is about 900 feet west.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 38 (Minnesota, Lake of the Woods County; J. J. McArthur, 1913; 1917).—About 35 miles northeast of Warroad, Minn., and 36 miles south of Kenora, Ontario; on the small island in Lake of the Woods three-fourths mile south of the southeast point of Oak Island. The monument is on the south side of the island. Reference monument 39 is one-half mile east.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 39 (Ontario, Kenora District; J. J. McArthur, 1913; 1917).—About 35 miles northeast of Warroad, Minn., and 36 miles south of Kenora, Ontario; on the small island in Lake of the Woods one-half mile south of the southwest point of Squaw Island. The monument is on the west end of the island. Reference monument 38 is one-half mile west.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 40 (Minnesota, Lake of the Woods County; J. J. McArthur, 1913; 1917).—About 32 miles northeast of Warroad Minn., and 35 miles northwest of Rainy River, Ontario; on the small island in Lake of the Woods one-third mile west of Bear Island and three-fourths mile east of the north end of Hay Island. The latter is a low triangular island, each side measuring about three-fourths mile.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 41 (Ontario, Kenora District; J. J. McArthur, 1913; 1917).—On Bear Island in Lake of the Woods, about 32 miles northeast of Warroad, Minn., and 35 miles northwest of Rainy River, Ontario. The monument is on the most western point of the island, one-third mile east of reference monument 40.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 42 (Minnesota Lake of the Woods County; J. J. McArthur, 1913; 1917).—On an island in Lake of the Woods, about 31 miles northeast of Warroad, Minn., and 34 miles northwest of Rainy River, Ontario.

The monument is on the east end of the island, which is about 1,000 feet long and lies about 2,000 feet northwest of the northwest point of Big Island, 2,000 feet southeast of the east end of Hay Island, and the same distance southwest of Bear Island. Hay Island is the low triangular island, each side measuring about three-fourths mile. Reference monument 41 is 1 mile north.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 43 (Ontario, Kenora District, J. J. McArthur, 1913; 1917).—On Big Island in Lake of the Woods, about 31 miles northeast of Warroad, Minn., and 34 miles northwest of Rainy River, Ontario; on the most northwestern point of the island. The monument is on the west side of and about 200 feet south of the end of the point. Reference monument 42 is about one-half mile north.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 44 (Minnesota, Lake of the Woods County; J. J. McArthur, 1913; 1917).—On Rose Island in Lake of the Woods, about 29 miles northeast of Warroad, Minn., and the same distance northwest of Rainy River, Ontario; 1,500 feet off the south end of Sugar Point, the point between two large bays on the west side of Big Island. The monument is about 300 feet northeast of the south point of the island.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 45 (Ontario, Kenora District; J. J. McArthur, 1913; 1917).—On an island in Lake of the Woods, about 29 miles northeast of Warroad, Minn., and the same distance northwest of Rainy River, Ontario; 300 feet off the south end of Sugar Point, the point between two large bays on the west side of Big Island. The monument is on the west side of the island.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 46 (Minnesota, Lake of the Woods County; J. J. McArthur, 1913; 1917).—On an island in Lake of the Woods, about 29 miles northeast of Warroad, Minn., and 27 miles northwest of Rainy River, Ontario; one-half mile southwest of the point of Big Island that is midway between the south end of Big Island and Sugar Point. The monument is on the east end of the island.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 47 (Ontario, Kenora District; J. J. McArthur, 1913; 1917).—On Big Island in Lake of the Woods, about 29 miles northeast of Warroad, Minn., and 27 miles northwest of Rainy River, Ontario; near the south end of the point of Big Island that is midway between the south end of Big Island and Sugar Point.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in concrete in rock in place.

Reference Monument 48 (Minnesota, Lake of the Woods County; Jesse Hill, 1917).—On an island in Lake of the Woods, about 12½ miles northwest of Baudette, Minn., and Rainy River, Ontario; 2 miles north of the mouth of Rainy River. The monument is on the most eastern knoll on the long narrow island one-half mile southwest of the two lighthouses.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 49 (Ontario, Rainy River District; J. J. McArthur, 1913).—On an island in Lake of the Woods, about 13½ miles northwest of Baudette, Minn., and Rainy River, Ontario; 3 miles north of the mouth of Rainy River. The monument is on the high knoll near the middle of the island one-half mile northeast of the two lighthouses.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a concrete base.

Reference Monument 50 (Minnesota, Lake of the Woods County; J. J. McArthur, 1917).—In section 13, township 162 north, range 32 west, on the point at the west side of the mouth of Rainy River, about 11 miles northwest of Baudette, Minn., and Rainy River, Ontario; a little over one-half mile north of Wheelers Point (the long point on the left side of the river near the mouth). The monument is near the shore and above the bank.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 51 (Ontario, Rainy River District; J. J. McArthur, 1917).—In Spohn Township, at the east side of the mouth of Rainy River near where the shore turns from a northerly to an easterly direction toward McGinnis Creek (1 mile distant), about 11½ miles northwest of Baudette, Minn., and Rainy River, Ontario. The monument is on low ground below the high-water mark.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 52 (Minnesota, Lake of the Woods County; J. J. McArthur, 1917).—In section 19, township 162 north, range 31 west, on the west side of Rainy River, about 10½ miles northwest of Baudette, Minn., and Rainy River, Ontario, about ½ mile east of the fish house of the Armstrong Trading Co.; 28 feet off the bank at the tip of Wheelers Point (the long point near the mouth of the river). The monument is below the high-water mark.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 53 (Ontario, Rainy River District; J. J. McArthur, 1917).—In the Wild Lands Reserve, section 8, on the east side of Rainy River, about 10½ miles northwest of Baudette, Minn., and Rainy River, Ontario; one-third mile southeast of Wheelers Point and about 1,000 feet southwest of a small inlet on the Canadian side of the river.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 54 (Minnesota, Lake of the Woods County; J. J. McArthur, 1917).—In section 24, township 162 north, range 32 west; on the west side of Rainy River, about 10 miles northwest of Baudette, Minn., and Rainy River, Ontario; one-half mile southwest of the long point (Wheelers Point) near the mouth of the river. The monument is just below the bank.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 55 (Ontario, Rainy River District; J. J. McArthur, 1913; 1917).—In the Wild Lands Reserve, section 16; on the right side of Rainy River, about 9½ miles northwest of Baudette, Minn., and Rainy River, Ontario; 1 mile above the long point, near the mouth of the river, just south of a sawmill. The monument is above the bank.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base. A small tower was erected over the monument.

Reference Monument 56 (Minnesota, Lake of the Woods County, J. J. McArthur, 1917).—In section 25, township 162 north, range 32 west; on the left side of Rainy River, about 9½ miles northwest of Baudette, Minn., and Rainy River, Ontario; 1 mile above the long point near the mouth of the river. The monument is just below the bank and 200 feet north of a small creek. Reference monument 55 is about 2,000 feet east.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 57 (Ontario, Rainy River District; J. J. McArthur, 1913; 1917).—In the Wild Lands Reserve, section 16; on the right side of Rainy River, about 9 miles northwest of Baudette, Minn., and Rainy River, Ontario; one-half mile below Wilson Creek. The monument is just above the bank north of a little inlet.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 58 (Minnesota, Lake of the Woods County; J. J. McArthur, 1913; 1917).—In section 36, township 162 north, range 32 west; on the left side of Rainy River, about 9 miles northwest of Baudette, Minn., and Rainy River, Ontario; one-half mile below Wilson Creek. The monument is above the bank 200 feet north of a little creek near a frame house.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 59 (Ontario, Rainy River District, J. J. McArthur, 1913; 1917).—In the Wild Lands Reserve, section 16; on the right side of Rainy River, about 8½ miles northwest of Baudette, Minn., and Rainy River, Ontario; on the north side of the mouth of Wilson Creek. The monument is just above the bank near a log house.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 60 (Minnesota, Lake of the Woods County; J. J. McArthur, 1913; 1917).—In section 36, township 162 north, range 32 west; on the left side of Rainy River, about 8½ miles northwest of Baudette, Minn., and Rainy River, Ontario; southwest of the mouth of Wilson Creek, between two small creeks about 700 feet apart and 200 feet from the southern one; about 250 feet north of the farmhouse of Charles Miller. The monument is close to the shore and above the bank.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 61 (Ontario, Rainy River District; J. J. McArthur, 1913; 1917).—In the Wild Lands Reserve, section 24; on the right side of Rainy River, about 7½ miles northwest of Baudette, Minn., and Rainy River, Ontario; two-thirds mile south of Wilson Creek, well above the bank in a small clearing, east and a little north of reference monument 62.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 62 (Minnesota, Lake of the Woods County; J. J. McArthur, 1913; 1917).—In section 1, township 161 north, range 32 west; on the left side of Rainy River, about 7½ miles northwest of Baudette, Minn., and Rainy River, Ontario; where the shore takes a slight jog to the west one-third mile north of Corstein Creek, and about 150 feet east of the farmhouse of Andrew Johnson. The monument is close to the shore and above the bank.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 63 (Ontario, Rainy River District; J. J. McArthur, 1913; 1917).—In the Wild Lands Reserve, section 32; on the right side of Rainy River, about 7 miles northwest of Baudette, Minn., and Rainy River, Ontario; one-fourth mile north of a small creek. The monument is close to the shore and above the bank.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 64 (Minnesota, Lake of the Woods County; J. J. McArthur, 1913; 1917).—In section 1, township 161 north, range 32 west; on the left side of Rainy River, about 7 miles northwest of Baudette, Minn., and Rainy River, Ontario; on a point about one-fourth mile south of Corstein Creek and nearly a mile north of Wabanica Creek.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 65 (Ontario, Rainy River District; J. J. McArthur, 1913; 1917).—In the Wild Lands Reserve, section 40; on the right side of Rainy River, about 6 miles northwest of Baudette, Minn., and Rainy River, Ontario; east and a little south of the mouth of Wabanica Creek and about one-half mile northwest of a smaller creek on the Canadian side.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 66 (Minnesota, Lake of the Woods County; J. J. McArthur, 1913; 1917).—In section 6, township 161 north, range 31 west; on the left side of Rainy River about 7 miles northwest of Baudette, Minn., and Rainy River, Ontario; two-thirds mile north of the mouth of Wabanica Creek and 1,000 feet south of the point on which reference monument 64 is situated; close to the shore and above the bank.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 67 (Ontario, Rainy River District; J. J. McArthur, 1913; reset by G. T. Prinsep, 1922).—In the Wild Lands Reserve, section 41; on the right side of Rainy River, about 5½ miles northwest of Baudette, Minn., and Rainy River, Ontario; 1 mile southeast of the mouth of Wabanica Creek; between the road and the river bank in front of the farmhouse of Frank Reid, about 400 feet south of the bend of the road; 18 feet from the bank.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 68 (Minnesota, Lake of the Woods County; J. J. McArthur, 1917).—In section 7, township 161 north, range 31 west; on the left side of Rainy River, about 6 miles northwest of Baudette, Minn., and Rainy River, Ontario; 1,000 feet south of Wabanica Creek and 600 feet southeast of the Lutheran Church; close to the shore and above the bank.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 69 (Ontario, Rainy River District; J. J. McArthur, 1913; reset by G. T. Prinsep, 1922).—In the Wild Lands Reserve, section 41; on the right side of Rainy River, about 5 miles northwest of Baudette, Minn., and Rainy River, Ontario; on the northeast side of the road about 500 feet northwest of the schoolhouse near the farm buildings of Oscar Nelson. The monument is about 60 feet from the bank and just north of it is an inlet 100 feet wide extending 800 feet inland.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 70 (Minnesota, Lake of the Woods County; J. J. McArthur, 1913; 1917).—In section 18, township 161 north, range 31 west; on the left side of Rainy River, 5¾ miles northwest of Baudette, Minn., and Rainy River, Ontario; two-thirds mile upstream from the Lutheran Church on Wabanica Creek; 500 feet north of a small creek. The monument is close to the edge of a high bank.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 71 (Ontario, Rainy River District; J. J. McArthur, 1913; reset by G. T. Prinsep, 1922).—In the Wild Lands Reserve, section 48; on the right side of Rainy River, 4½ miles northwest of the bridge between Baudette, Minn, and Rainy River, Ontario; on the low point on the north side of the small creek about on line with the direction of flow of Winter Road River.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 72 (Minnesota, Lake of the Woods County; J. J. McArthur, 1913; 1922).—In section 18, township 161 north, range 31 west; on the left side of Rainy River, about 5 miles northwest of the bridge between Baudette, Minn., and Rainy River, Ontario; above the high bank, in a clearing just north of a good sized creek 1 mile south of Wabanica Creek; about midway between a large creek and a smaller one, which are 800 feet apart.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 73 (Ontario, Rainy River District; J. J. McArthur, 1913; reset by G. T. Prinsep, 1922).—In the Wild Lands Reserve, section 49; on the right side of Rainy River, 4 miles northwest of the bridge between Baudette, Minn., and Rainy River, Ontario; above the bank about 200 feet south of the mouth of the creek on the Canadian side, a little upstream from the mouth of Winter Road River.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 74 (Minnesota, Lake of the Woods County; J. J. McArthur, 1913; 1922).—In section 17, township 161 north, range 31 west; on the left side of Rainy River, 4⅛ miles northwest of the bridge between Baudette, Minn., and Rainy River, Ontario; 250 feet from the north side of the mouth of Winter Road River, close to the shore and above the bank. The monument is close to a group of farm buildings.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 75 (Ontario, Rainy River District; J. J. McArthur, 1913; 1922).—In the Wild Lands Reserve, section 51; on the right side of Rainy River, 3 miles northwest of the bridge between Baudette, Minn., and Rainy River, Ontario; opposite a creek on the United States side of the river 1 mile upstream from the mouth of Winter Road River. The monument is on a low point where the approach to the shore is blocked by an accumulation of deadheads and washed-up limbs of trees; best reached by landing near reference monument 77, about 1,000 feet south.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 76 (Minnesota, Lake of the Woods County; J. J. McArthur, 1913; 1922).—In section 20, township 161 north, range 31 west; on the left side of Rainy River, 4 miles northwest of the bridge between Baudette, Minn., and Rainy River, Ontario; 1,400 feet upstream from the mouth of Winter Road River. It is in thick woods, above the bank, and close to the shore.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 77 (Ontario, Rainy River District; J. J. McArthur, 1913; 1917).—In the Wild Lands Reserve, section 51; on the right side of Rainy River, 2¾ miles northwest of the bridge between Baudette, Minn., and Rainy River, Ontario; close to the shore and the high-water mark at the south end of an accumulation of deadheads and washed-up limbs of trees. There is a small creek about 900 feet due east. Reference monument 75 is about 1,000 feet to the northwest.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 78 (Minnesota, Lake of the Woods County; J. J. McArthur, 1913; reset by G. T. Prinsep, 1922).—In section 21, township 161 north, range 31 west; on the left side of Rainy River, 3¼ miles northwest of the bridge between Baudette, Minn., and Rainy River, Ontario; on the south side of a small inlet 1,000 feet north of a large creek. The monument is close to the shore and above the bank.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 79 (Ontario, Rainy River District; J. J. McArthur, 1913; 1917).—In the Wild Lands Reserve, section 52; on the right bank of Rainy River, 2½ miles northwest of the bridge between Baudette, Minn., and Rainy River, Ontario; on the west side of the mouth of a small creek due north of a large creek on the United States side; close to the shore and above the bank.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 80 (Minnesota, Lake of the Woods County; J. J. McArthur, 1913; 1917).—In section 28, township 161 north, range 31 west; on the left side of Rainy River, 2¾ miles northwest of the bridge between Baudette, Minn., and Rainy River, Ontario. It is opposite reference monument 77 and about 150 feet from the shore.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 81 (Ontario, Rainy River District; J. J. McArthur, 1913; reset by G. T. Prinsep, 1922).—In the Wild Lands Reserve, section 52; on the right side of Rainy River, 1¾ miles northwest of the bridge between Baudette, Minn., and Rainy River, Ontario; 300 feet southeast of the mouth of a small creek that is opposite the north end of the boom on the United States side. It is about 25 feet from the bank.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 82 (Minnesota, Lake of the Woods County; J. J. McArthur, 1913; 1917).—In section 28, township 161 north, range 31 west; on the left side of Rainy River, 2¼ miles northwest of the bridge between Baudette, Minn., and Rainy River, Ontario; on the west side of the mouth of a large creek just below the boom on the United States side. The monument is close to the shore and above the bank and about 300 feet from a group of farm buildings.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 83 (Ontario, Rainy River District; J. J. McArthur, 1913; 1917).—In the Wild Lands Reserve, section 53; on the right side of Rainy River, 1¼ miles northwest of the bridge between Baudette, Minn., and Rainy River, Ontario; on the southeast side of the mouth of a small creek opposite the south end of the boom on the United States side.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 84 (Minnesota, Lake of the Woods County; J. J. McArthur, 1913; 1922).—In section 27, township 161 north, range 31 west; on the left side of Rainy River, 1¾ miles northwest of the bridge between Baudette, Minn., and Rainy River, Ontario; one-third mile southeast of the mouth of a large creek and near

the north end of the boom; about 150 feet from the shore and a little more than halfway up the slope, near the ruins of an old mill.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 85 (Ontario, Rainy River District; J. J. McArthur, 1913; 1922).—In Atwood Township, section 33; on the right side of Rainy River, two-thirds mile northwest of the bridge between Baudette, Minn., and Rainy River, Ontario; in the pine grove used as a picnic ground, just above the bank of the river and at the end of the road.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 86 (Minnesota, Lake of the Woods County; J. J. McArthur, 1913; 1917).—In section 27, township 161 north, range 31 west; on the left side of Rainy River, a little over a mile northwest of the bridge between Baudette, Minn., and Rainy River, Ontario; about halfway between the bank and the W. D. & P. Railway siding which parallels the river. Reference monument 83, on the Canadian side of the river, is directly opposite.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 87 (Ontario, Rainy River District; Jesse Hill, 1914; 1925).—On the north bank of Rainy River opposite Baudette, Minn. The station is on the retaining wall of the northeast end of the Canadian National Railway bridge crossing Rainy River. It is about 3 meters southeast of the southeast rail of the track.

Station mark: A standard 8-inch manganese-bronze reference post set in the wall. A bronze disk is set in the retaining wall on the other side of the track 5.61 meters distant from the monument.

Reference Monument 88 (Minnesota, Lake of the Woods County; J. J. McArthur, 1913; 1922).—In section 35, township 161 north, range 31 west; on the left side of Rainy River, one-half mile northwest of the bridge between Baudette, Minn., and Rainy River, Ontario; 400 feet north of a small creek; above the bank and close to the shore.

Station mark: A wrought-iron post, about 12 inches high and 2 inches square, set in a square concrete base.

Reference Monument 89 (Minnesota, Lake of the Woods County; Jesse Hill, 1914; 1925).—On the south bank of Rainy River at Baudette, Minn. The station is on the retaining wall at the southwest end of the Canadian National Railway bridge crossing Rainy River. It is about 3 meters southeast of the southeast rail of the track.

Station mark: A standard 8-inch manganese-bronze reference post set in the wall. A bronze disk set in the retaining wall on the other side of the track is 6.08 meters distant from the monument. An aluminum disk marked "U. S. Geological Survey B. M. 1084" is set in the same retaining wall as the bronze disk and 0.3 meter distant from it.

Reference Monument 90 (Ontario, Rainy River District; Jesse Hill, 1914; 1925).—On the north bank of Rainy River, at the foot of Fourth Street, in the town of Rainy River, Ontario. The station is about 6 meters west of the center of the street, 21 meters from the shore end of the pier, and 22 meters from the corner of the River View Hotel.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A 1-inch iron rod set 4 feet in the ground, marking triangulation station "Pounder," which is also Department of Public Works triangulation station "H," is 1.84 meters east of the monument.

Reference Monument 91 (Minnesota, Lake of the Woods County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, across from the east end of the town of Rainy River, Ontario. The station is about 8 meters above and 21 meters back from the river's edge, 26 meters northwest of the end of the rail of a footbridge across a creek, and about 76 meters east of the old Spooner saloon building.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A bronze disk set in concrete, marking triangulation station "Bachtel," is 0.66 meter north of the monument.

Reference Monument 92 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about five-eighths mile east of Fourth Street in the town of Rainy River, Ontario. The station is about 3 meters above and 5 meters back from the river, 37 meters west of the pumping plant, 91 meters east of the old water tank, 9 meters southwest of Mr. Sage's house and in line with the west line of his lot.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. The monument has been covered by a fill so that the top just projects above the surface of the ground.

Reference Monument 93 (Minnesota, Lake of the Woods County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about 1 mile southeast of the dock in the town of Rainy River, Ontario. The station is about 6 meters above and 8 meters back from the river and 3 meters from the top of the bank. It is southwest of the Canadian sorting boom and opposite the mouth of a slough.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 94 (Minnesota, Lake of the Woods County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about 1½ miles southeast of the town of Rainy River, Ontario. The station is about 130 meters southeast of a slough and 150 meters south of a house. It is about 480 meters northwest of the southeast corner of section 6, township 160 north, range 30 west, about 9 meters above and 30 meters back from the river's edge and 3 meters from the top of the bank.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 95 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about 2 miles southeast of the town of Rainy River, Ontario. The station is about 61 meters from an old house and is between two fences, 7 meters west of one and 14 meters east of the other. It is 2 meters above and 8 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A bronze disk set in concrete, marking triangulation station "Level," is 0.81 meter southwest of the monument.

Reference Monument 96 (Minnesota, Lake of the Woods County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about 2½ miles east of the town of Rainy River, Ontario. The station is in a hayfield, about 90 meters west of a fence, about 250 meters west of the east line of section 8, township 160 north, range 30 west, about 200 meters east of a house, and about 2 meters above and 15 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A buried stone and ball of wire marking triangulation station "Derrick" are 9.49 meters south of the monument.

Reference Monument 97 (Minnesota, Lake of the Woods County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about 3 miles east of the town of Rainy River, Ontario. The station is on the edge of a grainfield opposite the upper end of the sheer boom to the Canadian side, and about 38 meters east of a fence. It is about 4 meters above and 6 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 98 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about 3 miles west of Clementson, Minn., in a hayfield, 2 meters above and 15 meters back from the river's edge. A 24-inch elm tree is on the bank of the river, southwest 20 meters distant, and a large flat rock is north 4 meters distant from the station. The lumber company's boarding house on the south side of the river bears east-southeast about 700 meters from the station.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 99 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about 2⅜ miles west of Clementson, Minn. The station is near the edge of a hayfield, about 1 meter back from the river bank, and is about 125 meters southeast of Walk's house.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A ball of wire and a cross on a stone (both underground), marking triangulation station "Walk," are 28.96 meters distant from the monument in azimuth 215° 20′.

Reference Monument 100 (Minnesota, Lake of the Woods County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about 1½ miles west of Clementson, Minn. The station is about 10 meters back from the river's edge, near the edge of an old driveway.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross in a stone over a buried ball of wire marks triangulation station "Solid," 5.52 meters north of the monument.

Reference Monument 101 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about 1¼ miles west of Clementson, Minn. The station is about 12 meters back from the river's edge at a point where the bank is irregular. There is a small swale about 15 meters west of the station and the old Ely house is 100 meters distant.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried ball of wire marks triangulation station "Buffy," 3.31 meters southwest of the monument.

Reference Monument 102 (Minnesota, Lake of the Woods County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about 1 mile west of Clementson, Minn. The station is about 70 meters east of the end of a clearing, and is 8 meters above and 20 meters back from the river's edge. It is opposite the mouth of a small creek.

Station mark: A standard 8-inch manganese-bronze reference post set in concrete. A cross cut in a stone over a buried ball of wire marks triangulation station "Gus," 2.62 meters north-northwest of the monument.

Reference Monument 103 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about five-eighths mile west of Clementson, Minn. The station is about 8 meters back from the river's edge, 130 meters east of a fence, and 75 meters southwest of an old hewed-timber house.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried ball of wire, marking triangulation station "Pasture," is 6.80 meters southwest of the monument.

Reference Monument 104 (Minnesota, Lake of the Woods County; Jesse Hill, 1914; 1921).—On the south bank of Rainy River, on the west side of the mouth of Rapid River. The station is about 1 meter above and 3 meters back from the river's edge, and about 45 meters east of the end of the small point of land.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete bass. A bronze disk set in concrete, marking triangulation station "Rapid," is 2.82 meters southwest of the monument.

Reference Monument 105 (Ontario, Rainy River District; Jesse Hill, 1914; 1921).—On the north shore of Rainy River, about 1⅛ miles northeast of Clementson, Minn. The station is in a hayfield, 9 meters above and 15 meters back from the river's edge, and about 5 meters from the edge of the bank. It is about 75 meters northeast of the mouth of Sleeman Creek. A 16-inch elm tree bears southwest 8 meters distant from the station.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 106 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about 1½ miles northeast of Clementson, Minn. The station is on a bend in the river 1 meter above and 3 meters back from the river's edge. It is about one sixth of a mile west of the Milne house.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A bronze disk set in concrete, marking triangulation station "Milne," is 2.17 meters north of the monument.

Reference Monument 107 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about 1¾ miles northeast of Clementson, Minn. The station is about 24 meters back from the river's edge and 9 meters east of a swale. It is near the edge of a hayfield and is about 75 meters west of a north-and-south road.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried ball of wire, marking triangulation station "Kearney," is 16.93 meters north of the monument.

Reference Monument 108 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about 2¼ miles east of Clementson, Minn. The station is near the edge of the river bank about 125 meters east of the mouth of Hanson Creek.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 109 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about 2¾ miles east of Clemenston, Minn., about 75 meters east of the range line, and about midway between Bunting and Budrow Creeks. The station is on a bench about 5 meters above and 13 meters back from the river's edge. It is 2 meters south of a fence, about 38 meters south of Lipkie's barn, and back of a boathouse.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a ball of wire, marking triangulation station "Lipkie," is 0.94 meter south of the monument.

Reference Monument 110 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about 3 miles east of Clementson, Minn. The station is about 10 meters above and 25 meters back from the river's edge, about 15 meters southeast of a small building and about 50 meters east of Robinson's house.

Station mark: A standard 8-inch manganese, bronze reference post set in concrete. A bronze disk set in a concrete base, marking triangulation station "Robinson," is 24.40 meters north-northwest of the monument.

Reference Monument 111 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about 3 miles west of Pinewood, Ontario. The station is about 8 meters above and 9 meters back from the river's edge and about 150 meters west of the mouth of a creek. It is about 60 meters west by north of an old house.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 112 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about 2¾ miles west of Pinewood, Ontario. The station is on top of the bank about 6 meters above and 11 meters back from the river's edge. It is about 2 meters west of a fence and 6 meters northwest of a 20-inch leaning pine tree. A north-and-south section-line road comes down to the river at this point.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 113 (Ontario, Rainy River District; Jesse Hill, 1914; 1921).—On the north bank of Rainy River, about 2¼ miles west of Pinewood, Ontario, and three-fourths of a mile northwest of Central, Minn. The station is on a slope of the bank about 2 meters above and 8 meters back from the river's edge, and about 60 meters south of Smart's house. The piling of an old pier is about 28 meters west of the station.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 114 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about one-third mile west of Central, Minn. The station is at the end of a north-and-south section-line road between sections 2 and 3, township 160 north, range 29 west; about 4 meters east of a fence, and about 11 meters above and 30 meters back from the river's edge. It is about 18 meters northwest of the corner of a schoolhouse.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 115 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about one-third mile east of Central, Minn., and about 1¼ miles west-southwest of Pinewood, Ontario. The station is on a slope of the bank about 6 meters above and 30 meters back from the river's edge. It is just south of a trail and about 40 meters east-northeast of Tellner's house.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 116 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, on the east side of the mouth of Pine Creek, and about 200 meters west of the Pinewood, Ontario, Catholic Church. The station is about 4 meters above and about 6 meters back from the river's edge. It is about 27 meters east of a fence.

Station mark: A standard 8-inch manganese-bronze reference post set in concrete. A ¾-inch iron rod, marking triangulation station "Pine" (Laplace station "E" of the Department of Public Works of Canada), is 1.64 meters south of the monument. A post 4 inches by 4 inches and 2 feet high marked "△G" serves as a reference to the triangulation station.

Reference Monument 117 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about three-eighths mile southeast of Pinewood, Ontario. The station is about 10 meters above and 40 meters back from the river's edge. It is just outside the fence on Johnson's property and about 28 meters northeast of a barn.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a ball of wire, marking triangulation station "John," is 4.53 meters southwest of the monument.

Reference Monument 118 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about 1 mile east of Pinewood, Ontario. The station is about 5 meters above and 6 meters back from the river's edge and about 8 meters west of the center of a small washout or creek.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 119 (Minnesota, Koochiching County; Jesse Hill, 1918; 1921).—On the south bank of Rainy River, about 1¼ miles east of Pinewood, Ontario, and about 300 meters east of the mouth of Whitefish Creek. The station is above the boat landing for Border, Minn., about 4 meters back from the top of the bank. It is about three-fourths meter east of a north-and-south fence opposite a post with a nail in it.

Station mark: A standard 8-inch manganese-bronze reference post set in concrete.

Reference Monument 120 (Ontario, Rainy River District; Jesse Hill, 1914; 1921).—On the north shore of Rainy River, about 1¾ miles east of Pinewood, Ontario. The station is about 2 meters above and 5 meters back from the river's edge, in a pasture. It is about 40 meters east of the mouth of a creek.

Station mark: A standard 8-inch manganese-bronze reference post set in concrete.

Reference Monument 121 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south shore of Rainy River, about 2 miles southeast of Pinewood, Ontario. The station is on Kavanaghs Point, about 30 meters east of Kavanagh's house. It is about 9 meters above and 18 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in concrete.

Reference Monument 122 (Ontario, Rainy River District; Jesse Hill, 1914; 1918). — On the east bank of Rainy River, about 1⅝ miles north of the Frontier (Minn.) schoolhouse. The station is between two fields on Craigen's property, and near the summit of the ridge between the river and a creek. It is just west of a small graveyard.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a ball of wire, marking triangulation station "Craigen," is 6.46 meters northeast of the monument.

Reference Monument 123 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the west bank of Rainy River, about 1⅛ miles north of the Frontier (Minn.) schoolhouse. The station is at the edge of a hay field on a slope of the bank, about 9 meters above and 15 meters back from the river's edge. It is about one-fourth mile south of Svenson's house.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 124 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the east bank of Rainy River, about 1 mile north of the Frontier (Minn.) schoolhouse and about 150 meters south of the mouth of Clement Creek. The station is about 15 meters northwest from the northwest corner of Pearson's house and about 5 meters above and 9 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A bronze disk set in concrete, marking triangulation station "Pearson," is 1.32 meters east of the monument.

Reference Monument 125 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the east bank of Rainy River, about five-eighths mile northeast of the Frontier (Minn.) schoolhouse. The station is about 9 meters above and 21 meters back from the river's edge. It is about 2 meters below the top of the bank and 3 meters from the edge of a field. A log house bears north-northeast about 100 meters from the station.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 126 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the west bank of Rainy River, about 125 meters east of the Frontier (Minn.) schoolhouse. The station is on a slope of the bank about 4 meters above and 9 meters back from the river's edge and about 80 meters south of the section line.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a ball of wire, marking triangulation station "Cut," is 1.69 meters northeast of the monument.

Reference Monument 127 (Ontario, Rainy River District; Jesse Hill, 1914; 1921).—On the east bank of Rainy River, about one-half mile north of the Frontier (Minn.) store. The station is on a gravel ridge sloping toward the river, about 20 meters southwest from an old log house. It is about 8 meters above and 18 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 128 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the west bank of Rainy River, about 350 meters northwest of the Frontier (Minn.) store. The station is on the bank about 6 meters above and 12 meters back from the river's edge, and about 9 meters southeast of a small creek bed.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 129 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the west bank of Rainy River, about 40 meters east of the Frontier (Minn.) store. The station is about 4 meters above and 6 meters back from the river's edge, in the edge of a garden.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 130 (Ontario, Rainy River District; Jesse Hill, 1914; 1921).—On the north bank of Rainy River, about one-half mile east of the Frontier (Minn.) store. The station is in a field near the west corner, about 4 meters from the southwest side and 24 meters from the northwest side. It is about 3 meters above and 12 meters back from the water's edge. A building is about 80 meters north-northwest from the station.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 131 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about 1 mile southeast of the Frontier (Minn.) store. The station is about 8 meters above the water, and is just east of the mouth of a small creek.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 132 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about 1¼ miles east of the Frontier (Minn.) store. The station is about 1 meter above and 6 meters back from the river's edge. It is about 200 meters east of an old pier and 40 meters west of a fence.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a ball of wire, marking triangulation station "Meadow," is 4.57 meters southwest of the monument.

Reference Monument 133 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about 1⅝ miles east of the Frontier (Minn.) store, and about 200 meters west of the mouth of a small creek. The station is about 14 meters above and 18 meters back from the river's edge. It is just east of a half-moon bay and near a cow trail.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a ball of wire, marking triangulation station "Clear" is 8.60 meters northwest of the monument.

Reference Monument 134 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about 2¼ miles east of the Frontier (Minn.) store. The station is on a slope of the bank about 6 meters above and 9 meters back from the river's edge. A small shack bears northeast about 60 meters from the station.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 135 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about 2⅝ miles east of the Frontier (Minn.) store. The station is about 8 meters above and 18 meters back from the river's edge. Cameron's house bears east-northeast across the river from the station.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 136 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about 1¼ miles west of the Boucherville (Ontario) post office. The station is on the west side of a swale about 150 meters west of the mouth of Cameron Creek at the point where the road turns and leaves the river. It is about 6 meters above and 9 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 137 (Minnesota, Koochiching County; Jesse Hill, 1914; 1921).—On the south bank of Rainy River, about one-fourth mile southwest of the Boucherville (Ontario) post office. The station is about 7 meters above and 15 meters back from the river's edge, about 60 meters east of Bilyew's house, and about 50 meters east of the section line.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a ball of wire, marking triangulation station "Bilyew," is 11.65 meters southeast of the monument.

Reference Monument 138 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about one-third mile east of the Boucherville (Ontario) post office and about 70 meters east of Del Vipont's log cabin. The station is about 4 meters above and 5 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a ball of wire, marking triangulation station "Del," is 2.19 meters south of the monument.

Reference Monument 139 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about five-eighths mile southeast of the Boucherville (Ontario) post office and about one-fifth mile southwest of the west end of an island in the river. The station is on the point of land between the river and the west side of a small creek. It is about 2 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 140 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the east end of a large island in Rainy River, about 1 mile east of the Boucherville (Ontario) post office. The station is about 7 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a ball of wire, marking triangulation station "Isle," is 39.79 meters east of the monument.

Reference Monument 141 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about 1⅜ miles west of Birchdale Landing, Minn. The station is near the east end of a flat point and is about 3 meters above and 7 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A bronze disk set in concrete, marking triangulation station "Curve," is 1.24 meters north of the monument.

Reference Monument 142 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about 1 mile west of Birchdale Landing, Minn. The station is about 2 meters above and 6 meters back from the river's edge, on a flat point. A leaning poplar tree with a small notch is about 4 meters southwest of the station.

Station mark: A standard 8-inch manganese-bronze reference post set in concrete. A cross cut in a stone over a buried bottle, marking triangulation station "Storm," is 4.20 meters south of the monument.

Reference Monument 143 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about three-fourths mile west of Birchdale Landing, Minn., on a rounded projection of the river bank. The station is about 6 meters above and 11 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in an 8-inch stone over a ball of wire, marking triangulation station "Break," is 8.36 meters north of the monument.

Reference Monument 144 (Minnesota, Koochiching County; Jesse Hill, 1914; 1921).—On the south bank of Rainy River, about one-half mile west of Birchdale Landing, Minn. The station is on a rock point projecting into the river, about 160 meters east of the mouth of a small creek.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk set in the rock, marking triangulation station "Howard," is 0.20 meter north of the monument.

Reference Monument 145 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, opposite Birchdale Landing, Minn. The station is in the timber about 2 meters above and 10 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross on a stone over a buried bottle, marking triangulation station "Parson," is 9.11 meters south of the monument.

Reference Monument 146 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about one-half mile east of Birchdale Landing, Minn. The station is about 10 meters above and 30 meters back from the river's edge, and is opposite an island about 150 meters long near the Canadian shore.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Cave," is 19.11 meters north of the monument.

Reference Monument 147 (Ontario, Rainy River District; E. R. Martin, 1913; 1918).—On the north bank of Rainy River, about three-fourths mile east of Birchdale Landing, Minn. The station is on a high bank about 9 meters above and 9 meters back from the river's edge. It is in a fence line and is about 30 meters south of an old Indian house.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 148 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about 1 mile east of Birchdale Landing, Minn. The station is on a rock point, about 2 meters above and 9 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone, marking triangulation station "Lean," is 9.35 meters northeast of the monument.

Reference Monument 149 (Ontario, Rainy River District; E. R. Martin, 1913; 1918).—On the north bank of Rainy River, about 1⅛ miles east of Birchdale Landing, Minn. The station is on a grassy point, about 2 meters above and 9 meters back from the river's edge. It is about 60 meters east of a small prominent point.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 150 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about 1½ miles east of Birchdale Landing, Minn., and one-half mile below the head of Long Sault Rapids. The station is on a rock ledge just west of the west end of an island about 140 meters long near the United States shore.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A cross cut in the rock, marking triangulation station "Tom," is 0.71 meter northwest of the monument.

Reference Monument 151 (Ontario, Rainy River District; E. R. Martin, 1913; 1918).—On the north bank of Rainy River, about two-fifths mile below the head of Long Sault Rapids. The station is in a field about 3 meters from a fence line and about 1 meter above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 152 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about one-third mile below the head of Long Sault Rapids. The station is on a point just east of a small island and about 6 meters from the river's edge. A large rock is in the water just out from the station.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A buried bottle, marking triangulation station "Muck," is 2.03 meters northeast of the monument.

Reference Monument 153 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River at the head of Long Sault Rapids. The station is on top of a plateau about 23 meters above and 18 meters back from the river's edge. It is in a cleared grassy place, in which are a number of outcropping bowlders. A path from the river above the rapids passes near the station.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A bronze disk cemented in an outcropping rock, marking triangulation station "Right," is 2.05 meters south of the monument.

Reference Monument 154 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River at the head of Long Sault Rapids. The station is on a rocky point about 1 meter above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A cross cut in a flat rock surrounded by a small pile of stones, marking triangulation station "Left," is 5.40 meters northeast of the monument.

Reference Monument 155 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about one-fourth mile east of the head of Long Sault Rapids and about 45 meters west of the mouth of a small creek. The station is about 3 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a gray granite bowlder, marking triangulation station "Dog," is 7.60 meters south of the monument.

Reference Monument 156 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River about one-third mile east of the head of Long Sault Rapids, and across the river slightly east of south of the mouth of a small creek. The station is about 2 meters above the water, near the edge of the brush.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Cat," is 6.02 meters north-northwest from the monument.

Reference Monument 157 (Ontario, Rainy River District; Jesse Hill, 1918).—On the north bank of Rainy River, about one-half mile east of the head of Long Sault Rapids and on the first point above the rapids. The station is below a rocky bluff, about 2 meters above and 9 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A bronze disk cemented in a round-topped rock, marking triangulation station "Colt," is 4.78 meters southeast from the monument.

Reference Monument 158 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about three-fourths mile east of the head of Long Sault Rapids and nearly opposite the mouth of Sturgeon River. The station is near the timber line and about 2 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Ogren," is 6.29 meters north of the monument.

Reference Monument 159 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about 1 mile east of the head of Long Sault Rapids, about three-eighths mile east of the mouth of Sturgeon River, and about 75 meters west of the east line of the Indian reservation. The station is near some leaning birch trees and is about 4 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Plumb," is 11.68 meters southwest from the monument.

Reference Monument 160 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about 1⅛ miles east of the head of Long Sault Rapids on a farm belonging to Theodor Olsen. The station is on a grassy slope, about 6 meters above high-water mark, and is about 60 meters east of the mouth of a small creek. It is about 125 meters northeast of Olsen's house.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A bronze disk set in concrete, marking triangulation station "Olsen," is 14.13 meters north of the monument.

Reference Monument 161 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River about 1½ miles east of the head of Long Sault Rapids and about one-third mile east of the eastern limit of the old Indian reserve. The station is about 7 meters above and 17 meters back from high-water line. It is about 5 meters east of an old fence.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Pistol," is 16.78 meters south of the monument.

Reference Monument 162 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about 1 mile west of Barwick, Ontario, and about 100 meters west of the mouth of a small creek. The station is about 10 meters above the river, on the property of D. Smith. It is about 1 meter from the southwest corner of Smith's first pole fence and about 50 meters southwest of his house.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A bronze disk set in concrete, marking triangulation station "Square," is 0.74 meter north of the monument.

Reference Monument 163 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about three-fourths mile west of Barwick, Ontario, on the property of Mr. Hanson. The station is about 4 meters above the river and is about 3 meters from the northeast corner of Hanson's barn.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A bronze disk set in a concrete block 1 foot square, marking triangulation station "Hansen," is 1.49 meters north of the monument.

Reference Monument 164 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about one-fourth mile west of Barwick, Ontario, and opposite the west end of a long sandy island. The station is about 6 meters above the water and about 15 meters south of a house.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. Triangulation station "Hartley," is 2.67 meters south of the monument.

Reference Monument 165 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, in front of the Manitou (Minn.) post office. The station is about 40 meters east of the ferry landing and about 5 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone about 20 by 36 inches, marking triangulation station "Office," is 20.59 meters northeast of the monument.

Reference Monument 166 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about one-half mile east of Barwick, Ontario. The station is in front of a frame house and is about 6 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A bronze disk cemented in rock, marking triangulation station "Watts," is 1.14 meters south of the monument.

Reference Monument 167 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about five-eighths mile east of the Manitou (Minn.) post office and about 225 meters east of a north-and-south section-line road. The station is about 3 meters above and 13 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a round-topped rock, marking triangulation station "Wick," is 12.28 meters north of the monument.

Reference Monument 168 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about 1⅛ miles east of Barwick, Ontario. The station is about 60 meters east of the section-line road, about 40 meters southeast of a log building and near the south edge of a road along the river. It is about 8 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A cross cut in a granite outcrop near a large black rock, marking triangulation station "Fern," is 39.44 meters southwest of the monument.

Reference Monument 169 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about 1 mile east of the Manitou (Minn.) post office, and about one-fourth mile west of the mouth of Burton Creek. The station is about 8 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Lock," is 34.37 meters north of the monument.

Reference Monument 170 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about 1½ miles east of Barwick, Ontario, and about 150 meters east of the mouth of Sims Creek. The station is about 8 meters above and 35 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Beaver," is 20.12 meters south of the monument.

Reference Monument 171 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the United States shore of Rainy River, about 1⅜ miles east of the Manitou (Minn.) post office and about 325 meters east of the mouth of Burton Creek. The station is about 10 meters above and 30 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Know," is 31.96 meters northeast of the monument.

Reference Monument 172 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about three-fourths mile west of Manitou Rapids. The station is about 90 meters west of the west end of a long island and is about 1 meter above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 173 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about three-fourths mile west of Manitou Rapids and opposite the middle of a long island near the Canadian shore. The station is about 2 meters above the water level and is about 18 meters west of J. Lewis's boat landing.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A bronze disk set in concrete, marking triangulation station "Lewis," is 7.47 meters north-northwest from the monument.

Reference Monument 174 (Ontario, Rainy River District; E. R. Martin, 1913; 1918).—On the north bank of Rainy River, about 200 meters below the lower end of Manitou Rapids. The station is on the bank about 2 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 175 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, in a little cove just below Manitou Rapids. The station is about 2 meters above high-water mark.

Station mark: A standard 8-inch manganese bronze reference post set in a concrete base. A cross cut in a large rock below the high-water level, marking triangulation station "Over," is 13.84 meters north of the monument.

Reference Monument 176 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River near the middle of Manitou Rapids. The station is on a rocky flat and about 0.6 meter above the water. A pile of rocks has been built around the station.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk set in the rock, marking triangulation station "Canoe," is 0.08 meter from the monument.

Reference Monument 177 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, at the head of Manitou Rapids. The station is about 12 meters above and about 25 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze post set in a concrete base. A cross cut in a stone, marking triangulation station "Rapid," is 3.79 meters west of the monument.

Reference Monument 178 (Ontario, Rainy River District; E. R. Martin, 1913; 1918).—On the north bank of Rainy River, about three-eighths mile east of the head of Manitou Rapids and about 45 meters west of the mouth of Bear Creek. The station is about 6 meters above the water, in a hayfield, just inside the fence.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 179 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the Canadian shore of Rainy River, about 1 mile east of Manitou Rapids and opposite a long narrow island near the United States shore. The station is about 8 meters above and about 25 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a rock, marking triangulation station "Flat," is 25.68 meters south of the monument.

Reference Monument 180 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about 1 mile west of the Indus (Minn.) school. The station is about 6 meters above and 14 meters back from the river's edge, on a grassy bank. It is about 45 meters west of the heavy timber growth.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A bronze disk set in a concrete block 1 foot square, marking triangulation station "Spring," is 13.57 meters south of the monument.

Reference Monument 181 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about seven-eighths mile west of the Indus (Minn.) school and about 120 meters east of the mouth of

a small stream. The station is about 3 meters above and about 12 meters back from the river's edge, and is about 18 meters west of a fence.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "George," is 12.26 meters north-northwest of the monument.

Reference Monument 182 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, about three-eighths mile northwest of the Indus (Minn.) school. The station is in front of Benjamin Wilcox's house and is about 9 meters above and 30 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut on a flat rock nearly level with the ground, marking triangulation station "Shut," is 30.70 meters south of the monument.

Reference Monument 183 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about 300 meters east of the Indus (Minn.) school. The station is in front of Mr. Sunderson's house and is about 2 meters above and about 13 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Sunder," is 13.35 meters north of the monument.

Reference Monument 184 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River in the western part of Emo, Ontario. The station is about 10 meters above the river and about 13 meters back of the Canadian National Railway pump house.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A bronze disk cemented in rock, marking triangulation station "Emo west base," is 1.49 meters northeast from the monument.

Reference Monument 185 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River at Indus, Minn. The station is about 4 meters above and 12 meters back from the river's edge and about 4 meters back from the top of the bank. It is about 14 meters west of the board walk to the boat landing.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 186 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the east bank of Rainy River, about one-half mile southeast of the hotel in Emo, Ontario. The station is about 9 meters above and 45 meters back from the river's edge. It is near Fred Cruikshank's front fence and about 65 meters from his house.

Station mark: A standard 8-inch manganese-bronze reference post set in concrete. A 2-inch bronze disk set in a concrete block 1 foot square, marking triangulation station "Crook," is 1.12 meters east of the monument.

Reference Monument 187 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the east bank of Rainy River, about 1 mile southeast of the Emo (Ontario) hotel and about 275 meters northeast of the north end of Smoot Island. The station is on a high bank about 7 meters above the water. It is on the property of Thomas Boucher about 85 meters south of his pig house and about 150 meters southwest of his barn.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A bronze disk set in a concrete block, marking triangulation station "Boucher," is 2.01 meters west from the monument.

Reference Monument 188 (Minnesota, Koochiching County; Jesse Hill, 1918).—On the southern end of Smoot Island in Rainy River, about 1¼ miles above the Emo (Ontario) hotel. The station is about 2 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a rock.

Reference Monument 189 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the west bank of Rainy River, about 1½ miles south of the Emo (Ontario) hotel and about one-fourth mile south of Smoot Island. The station is about 3 meters above and 12 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a rock, marking triangulation station "Vega," is 12.00 meters east of the monument.

Reference Monument 190 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the west bank of Rainy River, about 2 miles south of the Emo (Ontario) hotel and about midway between Smoot Island and Conmee Island. The station is in front of Joseph McComb's house and is about 10 meters above and 31 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in an outcropping rock, marking triangulation station "McComb," is at the river's edge 31.07 meters east of the monument.

Reference Monument 191 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the east bank of Rainy River, about 2⅜ miles south of the Emo (Ontario) hotel, about three-eighths mile north of Conmee Island, and about 125 meters north of the mouth of a small stream. The station is about 8 meters above and 23 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a large rock near the river's edge, marking triangulation station "Boat," is 23.02 meters west of the monument.

Reference Monument 192 (Ontario, Rainy River District; E. R. Martin, 1913; 1918).—On Conmee Island in Rainy River, about 3⅛ miles south of the Emo (Ontario) hotel. The station is about 325 meters north of the south end of the island and about 45 meters east of the west shore. It is about 7 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 193 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the west bank of Rainy River, about 3⅞ miles south of the Emo (Ontario) store and about one-half mile south of the south end of Conmee Island. The station is on the property of Mr. Marceau, about 7 meters above and 35 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 194 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the east bank of Rainy River, about 4½ miles south of the Emo (Ontario) store and about 200 meters north of the mouth of Locking Creek. The station is about 10 meters above and 25 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A 2-inch bronze disk set in a rock about 0.6 by 1 meter in size, at the river's edge, marking triangulation station "Uncle," is 25.34 meters west of the monument.

Reference Monument 195 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the west bank of Rainy River, about 1¼ miles north of the Aylesworth, Ontario, post office. The station is about 8 meters above and 40 meters back from the river's edge, on the property of Mr. La Point, and about 65 meters north of the woods.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A 2-inch bronze disk set in a concrete block about 1 foot square, marking triangulation station "Francois," is near the river's edge, 39.93 meters east of the monument.

Reference Monument 196 (Ontario, Rainy River District; E. R. Martin, 1913; 1918).—On the east bank of Rainy River, about three-fourths mile north of the Aylesworth (Ontario) post office. The station is about 1 meter above the river and about 3 meters north of a large white birch tree, in a pasture.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 197 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the east bank of Rainy River, about 260 meters north of the Aylesworth (Ontario) post office. The station is near the edge of a steep bank about 7 meters above and 15 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A 2-inch bronze disk set in a concrete block about 1 foot square, marking triangulation station "Swan," is 9.96 meters north-northwest of the monument.

Reference Monument 198 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the Canadian shore of Rainy River, about 200 meters south of the Aylesworth (Ontario) post office. The station is near the edge of the steep bank about 9 meters above and 30 meters back from the river's edge. It is near the west side of a farm road, about 110 meters south of an east-and-west section-line road to the river.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Linquist," is 1.14 meters southwest of the monument.

Reference Monument 199 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the west bank of Rainy River, about three-eighths mile south of the Aylesworth (Ontario) post office. The station is about 5 meters above the water and near an old dock on Mr. Degraw's property. It is just north of the line between townships 158 and 159 north.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A nail in a timber of the old dock, marking triangulation station "Degraw," is 10.38 meters east of the monument.

Reference Monument 200 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the east bank of Rainy River, about 570 meters north of the Loman (Minn.) school. The station is about 8 meters above and 25 meters back from the river. It is on W. B. Ogden's property, about 75 meters southwest from his house and about 15 meters from his chicken house.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross in a stone over a buried bottle, marking triangulation station "Tip," is 1.20 meters west from the monument.

Reference Monument 201 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the west bank of Rainy River, about 50 meters northeast of the Loman (Minn.) school. The station is about 7 meters above and about 10 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A 2-inch bronze disk set in a concrete block about 1 foot square, marking triangulation station "School," is 0.93 meter west of the monument.

Reference Monument 202 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about three-fourths mile northwest of the mouth of Black River at Loman, Minn. The station is about 8 meters above and 30 meters back from the river's edge and about 1 meter north of a pasture fence.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "McIntosh," is 1.59 meters north of the monument.

Reference Monument 203 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River opposite the house of Mack Loman at Loman, Minn., and north and opposite the mouth of Black River. The station is about 2 meters above and about 6 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Shore," is 4.92 meters south from the monument.

Reference Monument 204 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River, about 135 meters east of the mouth of Black River at Loman, Minn. The station is on top of the bank, facing the railroad and the river, on Henry Metcalf's property, about 95 meters east of his house and 35 meters west of his barn. It is about 8 meters above and 35 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A 2-inch bronze disk set in a block of concrete about 1 foot square, marking triangulation station "Metcalf," is 1.57 meters north of the monument.

Reference Monument 205 (Ontario, Rainy River District; Jesse Hill, 1914; 1918).—On the north bank of Rainy River, opposite and about 200 meters upriver from the hoisting plant at Loman Station, Minn. The monument is on a high bank about 5 meters above and 20 meters back from the river's edge. It is near a path parallel to the river and about 40 meters west of the mouth of a small stream.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Tepee," is 4.01 meters southwest from the monument.

Reference Monument 206 (Ontario) Rainy River District; Jesse Hill, 1914; 1918).—On the Canadian shore of Rainy River, about seven-eighths mile east of the mouth of Black River at Loman, Minn., and about 320 meters east of the mouth of a small creek. The station is on a grassy slope on the property of Mr. Armstrong, about 7 meters above and 25 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Armstrong," is 16.31 meters southeast of the monument.

Reference Monument 207 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On Watrous Island in Rainy River, about 1¼ miles east of the mouth of Black River at Loman, Minn. The station is near the west end of the island, about 4 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A 2-inch bronze disk set in a flat-topped rock at the water's edge, marking triangulation station "Simp," is 21.51 meters west-northwest of the monument.

Reference Monument 208 (Ontario, Rainy River District; Jesse Hill 1914; 1918).—On the north bank of Rainy River, about 1½ miles west of the mouth of Big Fork River and about 40 meters west of the mouth of Turner Creek. The station is about 7 meters above and 20 meters back from the river's edge, on the west side of a gully.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A 2-inch bronze disk set in a concrete block about 1 foot square, marking triangulation station "Clark," is 3.59 meters south of the monument.

Reference Monument 209 (Minnesota, Koochiching County; Jesse Hill, 1914; 1926).—On the south bank of Rainy River, about three-fourths mile west of the mouth of Big Fork River. The station is about 5 meters above and 15 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A 2-inch bronze disk set in a concrete block 10 by 12 inches, marking triangulation station "High," is 5.29 meters north of the monument.

Reference Monument 210 (Ontario, Rainy River District; Jesse Hill, 1914; 1926).—On the north bank of Rainy River, opposite the mouth of Big Fork River. The station is about 8 meters above the water and 3 meters from the edge of the bank, near a line fence.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone 6 or 8 inches in diameter, marking triangulation station "Fence," is 2.56 meters southeast of the monument.

Reference Monument 211 (Minnesota, Koochiching County; Jesse Hill, 1914; 1926).—On the south bank of Rainy River, about one-fourth mile east of the mouth of Big Fork River. The station is about 4 meters above and 11 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 212 (Ontario, Rainy River District; E. R. Martin, 1913; 1926).—On the north bank of Rainy River, about 1 mile west of Big Fork, Ontario, and 1 mile east of the mouth of Big Fork River. The station is at the southwest corner of the section-line road running north. It is about 9 meters above and 35 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 213 (Minnesota, Koochiching County; Jesse Hill, 1914; 1926).—On the United States shore of Rainy River, about 1⅛ miles east of the mouth of Big Fork River, about 1 mile west of Big Fork, Ontario, and about one-half mile east of the Laurel (Minn.) wharf. The station is about 9 meters above and 30 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A 2-inch bronze disk set in a large rock just above high water, marking triangulation station "Fred," is 27.36 meters north of the monument.

Reference Monument 214 (Minnesota, Koochiching County; E. R. Martin, 1913; 1926).—On the south bank of Rainy River, across and a little down river from Big Fork, Ontario. The station is on the property of Fred Smith, on the east edge of a grass field, just west of a small stream. It is about 9 meters above and 45 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 215 (Ontario, Rainy River District; Jesse Hill, 1914; 1926).—On the north bank of Rainy River, about five-eighths mile east of Big Fork, Ontario. The station is on the property of Alonzo Spencer in a field near the high bank. It is about 9 meters above and 30 meters back from the river's edge. Several poplar trees are near the station.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Spencer," is 2.21 meters south of the monument.

Reference Monument 216 (Minnesota, Koochiching County; Jesse Hill, 1914; 1926).—On the south bank of Rainy River, about 1¼ miles east of Big Fork, Ontario, and about 60 meters west of the mouth of a small stream. The station is about 9 meters above and 30 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A 2-inch bronze disk set in concrete, marking triangulation station "Burnt," is 3.11 meters north-northeast of the monument.

Reference Monument 217 (Ontario, Rainy River District; Jesse Hill, 1914; 1926).—On the north bank of Rainy River, about 1½ miles east of Big Fork, Ontario, and one-half mile southwest of the mouth of La Vallee River. The station is near the south edge of a field and about 110 meters southwest of the mouth of a small stream. It is about 10 meters above and 15 meters back from the river's edge. A very large pine tree is about 15 meters west of the station.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Dun," is 1.51 meters south of the monument and 13.8 meters east of the pine tree.

Reference Monument 218 (Minnesota, Koochiching County; Jesse Hill, 1914; 1926).—On the south bank of Rainy River, about 330 meters east of the mouth of La Vallee River. The station is in a large meadow about midway between the woods and a clearing in which is an abandoned lumber camp. It is near the edge of the bank about 3 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Plain," is 1.58 meters north of the monument.

Reference Monument 219 (Ontario, Rainy River District; Jesse Hill, 1914; 1926).—On the north bank of Rainy River, about one-half mile northeast of the mouth of La Vallee River. The station is on the south side of a road about 40 meters west of its junction at the section corner with a north and south road. It is about 10 meters above and 25 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A 2-inch bronze disk set in a concrete block about 1 foot square, marking triangulation station "Ward," is 17.42 meters south from the monument.

Reference Monument 220 (Minnesota, Koochiching County; Jesse Hill, 1914; 1926).—On the south bank of Rainy River, about one-half mile east of the mouth of La Vallee River and on the upriver side of the big bend in Rainy River. The station is in the timber across the river from George Ward's house. It is about 5 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Point," is 3.46 meters north-northeast of the monument.

Reference Monument 221 (Ontario, Rainy River District; E. R. Martin, 1913; 1926).—On the north bank of Rainy River, about 1½ miles downstream from the mouth of Little Fork River and about 320 meters southeast

from the mouth of a small and crooked stream. The station is in a grain field near the river bank, about 2 meters above the water. Several elm trees are near the station.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 222 (Minnesota, Koochiching County; Jesse Hill, 1914; 1926).—On the south bank of Rainy River, about 1¼ miles downstream from the mouth of Little Fork River and about 260 meters downstream from the line between ranges 25 and 26 west. The station is in the timber, about 11 meters above and 30 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Move," is 21.45 meters north of the monument.

Reference Monument 223 (Ontario, Rainy River District; E. R. Martin, 1913; 1926).—On the north bank of Rainy River, about seven-eighths mile downstream from the mouth of Little Fork River and about 470 meters east of the west line of an Indian reservation. The station is about 125 meters east of Peter Spence's house and about 4 meters above and 15 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Peter," is 13.64 meters south of the monument.

Reference Monument 224 (Minnesota, Koochiching County; Jesse Hill, 1914; 1926).—On the south bank of Rainy River, about three-fourths mile downstream from the mouth of Little Fork River. The station is about 2 meters above and 9 meters back from the river's edge, near the bushes.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle below high water, marking triangulation station "Cass," is 8.67 meters north-northeast of the monument.

Reference Monument 225 (Ontario, Rainy River District; Jesse Hill, 1914; 1926).—On the north bank of Rainy River, about 330 meters downstream from the mouth of Little Fork River. The station is on a high bank about 10 meters above and 30 meters back from the river's edge. It is about 40 meters southwest of a house.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A 2-inch bronze disk set in concrete, marking triangulation station "Indian," is 1.36 meters south of the monument.

Reference Monument 226 (Minnesota, Koochiching County; Jesse Hill, 1914; 1926).—On the south bank of Rainy River opposite the west end of a small sandy island lying off the mouth of Little Fork River. The station is on the bank near the bushes, about 4 meters above and 10 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Little," is 13.50 meters east-northeast of the monument.

Reference Monument 227 (Minnesota, Koochiching County; Jesse Hill, 1914; 1926).—On the south bank of Rainy River, about 500 meters east of the mouth of Little Fork River. The station is in William Watrous's front pasture about 200 meters east of his house. It is on a high bank about 9 meters above and 15 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A 2-inch bronze disk set in concrete, marking triangulation station "Watrous," is 1.08 meters north of the monument.

Reference Monument 228 (Ontario, Rainy River District; Jesse Hill, 1914; 1926).—On the north bank of Rainy River, about seven-eighths mile east of the mouth of Little Fork River and about 150 meters east of the mouth of a small creek. The station is in the southeast corner of A. Bowen's front yard, about 20 meters southeast of his house. It is about 7 meters above and 10 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A 2-inch bronze disk set in a concrete block, marking triangulation station "Bowen," is 0.56 meter north of the monument.

Reference Monument 229 (Ontario, Rainy River District; Jesse Hill, 1914; 1926).—On the north bank of Rainy River, about 1½ miles east of the mouth of Little Fork River and about 350 meters west of the mouth of Watson Creek. The station is in a grove of elm trees on the property of W. H. Conner. It is about 3 meters above and 10 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Grove," is 3.66 meters southwest of the monument.

Reference Monument 230 (Minnesota, Koochiching County; Jesse Hill, 1914; 1926).—On the south bank of Rainy River, about 2 miles east of the mouth of Little Fork River and about 220 meters east of the line between sections 27 and 28, Township 70 north, range 25 West. The station is about 12 meters above and 30 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Axe," is 28.15 meters north of the monument.

Reference Monument 231 (Minnesota, Koochiching County; Jesse Hill, 1914; 1926).—On the south bank of Rainy River, about five-eighths mile west of Isherwood, Ontario. The station is about 7 meters above and 25 meters back from the river's edge at a point about 100 meters west of the mouth of a small creek.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a large solid rock at the river's edge, marking triangulation station "Saw," is 26.20 meters northwest of the monument.

Reference Monument 232 (Ontario, Rainy River District; Jesse Hill, 1914; 1926).—On the north bank of Rainy River at Isherwood, Ontario. The station is on the property of Mr. Isherwood, the postmaster, east across a deep gully from his house. It is about 9 meters above and 50 meters back from the river's edge. The entrance from the gully to a field is just south of the station.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A 2-inch bronze disk set in a concrete block about 1 foot square, marking triangulation station "Isherwood," is 0.84 meter east of the monument.

Reference Monument 233 (Minnesota, Koochiching County; Jesse Hill, 1914; 1926).—On the south bank of Rainy River, about one-half mile east of Isherwood, Ontario. The station is about 9 meters above and 30 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Small," is 20.01 meters north of the monument.

Reference Monument 234 (Ontario, Rainy River District; Jesse Hill, 1914; 1926).—On the Canadian shore of Rainy River, about 1⅛ miles east of Isherwood, Ontario, and about 500 meters east of the mouth of Bartley Creek. The station is about 3 meters above and 8 meters back from the river's edge. The ruins of an old house are about 70 meters northwest of the station.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Beach," is 7.34 meters south of the monument.

Reference Monument 235 (Minnesota, Koochiching County; Jesse Hill, 1914; 1926).—On the south bank of Rainy River, about 1¼ miles east of Isherwood, Ontario. The station is in the woods about 130 meters east of the mouth of a small creek and about 8 meters above and 35 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Twig," is 18.80 meters north of the monument.

Reference Monument 236 (Ontario, Rainy River District; Jesse Hill, 1914; 1926).—On the north bank of Rainy River, about 1¾ miles east of Isherwood, Ontario. The station is about 20 meters west of an old abandoned pier and about 110 meters west of the mouth of a small creek. It is about 8 meters above and 20 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 237 (Ontario, Rainy River District; E. R. Martin, 1913; 1926).—On the north bank of Rainy River, about 6½ miles downstream from the dam at Fort Frances, Ontario. The station is about 250 meters southeast of the angle where the river road turns from the south to the west. It is at the southwest edge of a small timber tract owned by Alfred Wilson and is about 8 meters above and 25 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 238 (Minnesota, Koochiching County; E. R. Martin, 1913; 1926).—On the east bank of Rainy River, about 6¼ miles downstream from the dam at International Falls, Minn., and about 130 meters west and 40 meters south of the northwest corner of section 20, township 70 north, range 24 west. The station is on a point about 30 meters west of a small bight. It is about 1 meter above and 8 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A 2-inch bronze disk set in a concrete block about 1 foot square, marking triangulation station "Berry," is 8.34 meters northeast of the monument.

Reference Monument 239 (Minnesota, Koochiching County; Jesse Hill, 1914; 1926).—On the east bank of Rainy River, about 6 miles downstream from the dam at International Falls, Minn., and about 340 meters northeast of the southwest corner of section 17, Township 70 north, range 24 west. The station is in a clearing about 11 meters above and 40 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried square plug, marking triangulation station "Rasp," is 13.41 meters west of the monument.

Reference Monument 240 (Ontario, Rainy River District; Jesse Hill, 1914; 1926).—On the west bank of Rainy River, about 5¾ miles downstream from the dam at Fort Frances, Ontario, and about 80 meters south of the mouth of a small creek. The station is on the property of William Wilson about 50 meters from his house. It is about 8 meters above and 35 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A 2-inch bronze disk set in a concrete block about 1 foot square, marking triangulation station "Wilson," is 2.51 meters northeast of the monument.

Reference Monument 241 (Minnesota, Koochiching County; Jesse Hill, 1914; 1926).—On the east bank of Rainy River, about 5⅝ miles downstream from the dam at International Falls, Minn., and about 80 meters south of the mouth of a creek. The station is about 500 meters south of the north line of section 17, township 70 north, range 25 west, about 6 meters above and 15 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Bush," is 13.56 meters west of the monument.

Reference Monument 242 (Ontario, Rainy River District; Jesse Hill, 1914; 1926).—On the west bank of Rainy River, about 5⅛ miles downstream from the dam at Fort Frances, Ontario, about 400 meters south of the mouth of a small creek and about 600 meters north of the township line. The station is about 125 meters south of the woods and about 10 meters above and 35 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Hole," is 26.13 meters east-southeast of the monument.

Reference Monument 243 (Minnesota, Koochiching County; Jesse Hill, 1914; 1926).—On the east bank of Rainy River, about 4⅜ miles downstream from the dam at International Falls, Minn., and about 340 meters south of the north line of section 8, township 70 north, range 24 west. The station is on an open grassy slope on the property of John Henry, about 3 meters above and 5 meters back from the river's edge. There are several elm trees to the east of the station.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A 2-inch bronze disk set in a concrete block about 1 foot square, marking triangulation station "Open," is 4.23 meters west of the monument.

Reference Monument 244 (Ontario, Rainy River District; E. R. Martin, 1913; 1926).—On the west bank of Rainy River, about 3½ miles downstream from the dam at Fort Frances, Ontario, and about one-fourth mile below the big bend where the river turns from a westerly to a southerly course. The station is about 10 meters east of the center of the road paralleling the river and about 100 meters south of the forks of the road. It is on the property of Joseph Bone, across the road and 28 meters distant from his house. It is about 15 meters above and 75 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 245 (Ontario, Rainy River District; Jesse Hill, 1914; 1926).—On the island in the big bend of Rainy River, 3⅜ miles downstream from the dam at Fort Frances, Ontario. The station is on the highest point of the island, about 1 meter above and 5 meters north of the south shore.

Station mark: A standard 8-inch manganese-bronze reference post set in solid rock. A 2-inch bronze disk set in the rock and marking triangulation station "Third," is 0.16 meter north of the monument.

Reference Monument 246 (Minnesota, Koochiching County; Jesse Hill, 1914; 1918).—On the south bank of Rainy River in the big bend of the river, 3 miles downstream from the dam at International Falls, Minn. The station is about 80 meters west and 20 meters south of the northwest corner of section 5, township 70 north, range 24 west, and about 240 meters northeast of the rocky island lying in the bend of the river. It is about 8 meters above and 30 meters back from the edge of the river.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a buried bottle, marking triangulation station "Short," (E. R. Martin, 1913; 1914), is 18.16 meters north of the station.

Reference Monument 247 (Ontario, Rainy River District; Jesse Hill, 1914; 1926).—On the north bank of Rainy River, about 2¾ miles downstream from the dam at Fort Frances, Ontario; about one-fourth mile east of the mouth of a small stream; and about one-fourth mile west of the range line. The station is about 3 meters above and 10 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A cross cut in a stone over a glass jar, marking triangulation station "English," is 9.27 meters southeast by east from the monument.

Reference Monument 248 (Ontario, Rainy River District; E. R. Martin, 1913; 1926).—On the north bank of Rainy River, about 2⅛ miles downstream from the dam at Fort Frances, Ontario. The station is about 60 meters west of a small stream passing just west of an old brick kiln. It is about 1 meter above high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 249 (Minnesota, Koochiching County; Jesse Hill, 1914; 1926).—On the south bank of Rainy River, about 1⅞ miles downstream from the dam at International Falls, Minn., and about 30 meters west of the mouth of a small stream. The station is on a round-topped rock which is part of a ledge projecting into the water. It is about 3 meters above and 5 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A 2-inch bronze disk set in the rock and marking triangulation station "Dump," is 0.06 meter north of the monument.

Reference Monument 250 (Ontario, Rainy River District; Jesse Hill, 1914; 1926).—On the north bank of Rainy River, about 1¼ miles downstream from the dam at Fort Frances, Ontario. The station is on William Fair's property, on the first prominent point of the shore below Fort Frances. It is on a rock ledge about 5 meters above and 20 meters back from the river's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A 2-inch bronze disk set in the rock, marking triangulation station "Fish," is 0.08 meter west of the monument.

Reference Monument 251 (Ontario, Rainy River District; E. C. Barnard, 1913; 1926).—On Rainy River, on the highest point and on the west end of the second island below the boat landing at International Falls, Minn.

Station mark: A standard 8-inch manganese-bronze reference post set in rock. A bronze disk, marking triangulation station "Falls," is set in the same ledge, 0.13 meter distant.

Reference Monument 252 (Ontario, Rainy River District; E. C. Barnard, 1913; 1926).—On Rainy River, on the highest point and on the southeast side of the first island below the boat landing at International Falls, Minn.

Station mark: A standard 8-inch manganese-bronze reference post set in rock. A bronze disk, marking triangulation station "National," is set in the same ledge, 0.14 meter distant.

Reference Monument 253 (Ontario, Rainy River District; E. C. Barnard, 1913; 1918).—On Rainy River, on the highest point and on the southwest end of the island about 180 meters below the boat landing at Fort Frances, Ontario.

Station mark: A standard 8-inch manganese-bronze reference post set in rock.

Reference Monument 254 (Minnesota, Koochiching County; E. C. Barnard, 1913).—In the yard of the International Falls Paper Co., about 90 meters north of First Street, in line with Third Avenue, about 55 meters southwest of the shore of Rainy River and the same distance from the south end of the international bridge.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk marked "U. S. Geological Survey B. M. 1126," which is triangulation station "U. S. G. S. B. M.," is set in the same ledge, 0.15 meter distant.

Reference Monument 255 (Minnesota, Koochiching County; E. C. Barnard, 1913; 1918).—On Rainy River, on the downstream end of the small island on which the middle pier of the Fort Frances-International Falls bridge rests.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk, marking triangulation station "River," is set in the same ledge 0.12 meter distant.

Reference Monument 256 (Ontario, Rainy River District; E. C. Barnard, 1913; 1918).—On Rainy River, on the upstream end of the Fort Frances-International Falls bridge pier between the sluiceway and the river. It is south of the retaining wall of the sluiceway and 28.6 meters from the bridge abutment on the Canadian side of the river.

Station mark: A standard 8-inch manganese-bronze reference post set in the bridge pier. A bronze disk, marking triangulation station "Bridge," is set in the same pier, 0.09 meter distant.

Reference Monument 257 (Minnesota, Koochiching County; E. C. Barnard, 1913; 1918).—On Rainy River, about three-fourths mile upstream from the Fort Frances-International Falls bridge and about 45 meters south of the railway track. It is on the highest point of a rocky knoll.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk, marking triangulation station "Rock," is set in the same ledge, 0.15 meter distant.

Reference Monument 258 (Minnesota, Koochiching County; E. C. Barnard, 1913; 1918).—On the south bank of Rainy River, about 1¼ miles upstream from the Fort Frances-International Falls bridge. It is opposite a large mill on the Canadian shore. It is about 45 meters west of a railway bridge over a small slough, about 12 meters south of the railway track, and 1 meter in front of a cabin.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A bronze disk, marking triangulation station "Cabin," is set in a concrete base, 1.56 meters distant.

Reference Monument 259 (Minnesota, Koochiching County; E. C. Barnard, 1913; 1918).—On the south bank of Rainy River, about 1¾ miles upstream from the Fort Frances-International Falls bridge. It is on the river side of Mr. Kelly's house from which it is distant about 55 meters.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 260 (Ontario, Rainy River District; E. C. Barnard, 1913; 1918).—On the north bank of Rainy River, about 2 miles upstream from the Fort Frances-International Falls bridge. It is on the south side and east end of Scott Street, about 8 meters from the river bank.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A bronze disk, set in a concrete base and marking triangulation station "Transformer," is south of the station 3.66 meters distant.

Reference Monument 261 (Minnesota, Koochiching County; E. C. Barnard, 1913; 1918).—On the south bank of Rainy River, about one-half mile downstream from the Canadian National Railway bridge at Ranier, Minn., about 1 meter inland from the high-water mark on a high timbered point which is about 240 meters upstream from Jamison Landing. It is about 0.3 meter above the high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk, marking triangulation station "Jamison," is set in the same ledge at a distance of 0.08 meter.

Reference Monument 262 (Minnesota, Koochiching County; E. C. Barnard, 1913; 1918).—On the south bank of Rainy River, about 240 meters downstream from Hubbard (or Yacht) Point and about 400 meters upstream from Jamison Landing. It is about 0.2 meter above and 2 meters inland from high-water mark

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk, marking triangulation station "Canoe," is set in the same ledge 0.17 meter distant.

Reference Monument 263 (Ontario, Rainy River District; E. C. Barnard, 1913; 1918).—On the north bank of Rainy River, about 460 meters from the west end of the Canadian National Railway bridge. It is at the point where the railway crosses the wagon road and is about 23 meters from the railway and about 8 meters from the river bank.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A bronze disk, marking triangulation station "Muskrat," is set in a concrete base 1.16 meters distant.

Reference Monument 264 (Minnesota, Koochiching County; E. C. Barnard, 1913; 1918).—On the south bank of Rainy River, near the center of the end of Yacht (or Hubbard) Point, about 10 meters back from the shore line. It is about 8 meters south of a large lone pine tree.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A bronze disk, marking triangulation station "Hubbard," is set in a concrete base at a distance of 8.80 meters in azimuth 158° 20′ from the monument.

Reference Monument 265 (Ontario, Rainy River District; E. C. Barnard, 1913; 1926).—At the outlet of Rainy Lake, on the top of the lake end of the west abutment of the Canadian National Railway bridge. It is 1.36 meters from the north rail of the track.

Station mark: A standard 8-inch manganese-bronze reference post set in the top of the abutment.

Reference Monument 266 (Minnesota, Koochiching County; E. C. Barnard, 1913; 1926).—At the outlet of Rainy Lake, on top of the lake end of the second pier from the east end of the Canadian National Railway bridge.

Station mark: A standard 8-inch manganese-bronze reference post set in the top of the pier. A bronze disk, marking triangulation station "Rainy Lake 1," is set in the pier 0.10 meter distant.

Reference Monument 267 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On the west end of Rainy Lake, about 1½ miles north of Ranier, Minn., on a high rocky knoll about 30 meters northeast of an old church and about 60 meters from the lake shore. It is about 11 meters above the lake level.

Station mark: A standard 8-inch manganese bronze reference post set in ledge rock. A bronze disk, marking triangulation station "Rainy Lake 3," is set in the same ledge at a distance of 0.21 meter.

Reference Monument 268 (Minnesota, Koochiching County; James H. Van Wagenen, 1913).—On the west end of Rainy Lake, on the point of the shore about one-fourth mile northeast of the railroad station in Ranier, Minn. It is on a rock about 1 meter in diameter and 9 meters from the shore.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk, marking "Rainy Lake 2," is set in the same rock 0.09 meter distant.

Reference Monument 269 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, on the southern point of the island which is about one-half mile northeast of Lost Island. It is about 4.5 meters above the lake level; about 30 meters from the water's edge on the east, south, and west; and is the highest point of rock at this distance from the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge. A bronze disk, marking triangulation station "Rainy Lake 8," is set in the same ledge 0.12 meter distant.

Reference Monument 270 (Minnesota, Koochiching County; James H. Van Wagenen, 1913; 1925).—On Rainy Lake, on the north end of Signal Island, the most northern of the Fransen Islands. It is about 11 meters from the shore line and about 3 meters above the level of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge. A bronze disk, marking triangulation station "Rainy Lake 9," is set in the same ledge 0.14 meter south of the monument. A standard United States Coast and Geodetic Survey station mark disk, marking station "Lake," is set in the ledge 0.2 meter southwest of the monument. A standard United States Coast and Geodetic Survey reference-mark disk is set in the ledge 9.9 meters southeast of the monument.

Reference Monument 271 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, on a small island about 2¼ miles northeast of the Fransen Islands and about one-fourth mile north of the high island (Eight Mile Island) on which reference monument 272 is located. It is on the highest point of the

southern end of the island, about 5.5 meters above the lake level, about 22 meters from the south shore, and about 45 meters from the east and west shores.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk, marking triangulation station "Rainy Lake 28," is set in the same ledge at a distance of 0.13 meter.

Reference Monument 272 (Minnesota, Koochiching County; James H. Van Wagenen, 1913; 1925).—On Rainy Lake, on Eight Mile Island, a small island about 6 miles east of Ranier, Minn., near the middle of the lake. It is on the highest point of the island, about 15 meters above the lake level and about 30 meters from the east and south shores.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk, marking triangulation station "Rainy Lake 12," is set in the same ledge at a distance of 0.13 meter.

Reference Monument 273 (Minnesota, Koochiching County; James H. Van Wagenen, 1913; 1925).—On Rainy Lake, on the extreme eastern point of Red Sucker Island at the narrowest part of the American Narrows. It is about 1.5 meters above the lake level, about 12 meters from the east shore, and about 8 meters from the north shore.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk, marking triangulation station "Rainy Lake 35," is set in the same ledge at a distance of 0.17 meter.

Reference Monument 274 (Ontario, Rainy River District; James H. Van Wagenen, 1913; 1925).—On Rainy Lake, on the east side of American Narrows, on the west end of the small island which lies between Red Pine and Red Sucker Islands. It is about 1 meter above the lake level, about 5 meters from the south shore, 8 meters from the west shore, and 12 meters from the north shore. It is about 12 meters south of a pine tree which is blazed on four sides and marked "91245" on the west side.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk, marking triangulation station "Rainy Lake 34," is set in the same ledge at a distance of 0.10 meter.

Reference Monument 275 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, on the southwestern point of Red Pine Island. It is about 1 meter above the water surface, about 8 meters from the south shore, 5 meters from the west shore, and 2 meters from the north shore of the point.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk, marking triangulation station "Rainy Lake 36," is set in the same ledge at a distance of 0.13 meter.

Reference Monument 276 (Minnesota, Koochiching County; James H. Van Wagenen, 1913).—On Rainy Lake, on the small round island just north of the middle of Grindstone Island. It is in the center of the island and on its highest point.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk, marking triangulation station "Rainy Lake 39," is set in the same ledge at a distance of 0.18 meter.

Reference Monument 277 (Ontario, Rainy River District; James H. Van Wagenen, 1913; 1925).—On Rainy Lake, on the small island about one-half mile due north of Powder (or Lobstick) Island and about one-half mile east of the buildings on the point on the south shore of Sand Point Island. The island is about 50 meters long (its east and west dimension) and about 12 meters wide. The monument is on its highest point.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk, marking triangulation station "Rainy Lake 27," is set in the same ledge at a distance of 0.07 meter.

Reference Monument 278 (Minnesota, Koochiching County; James H. Van Wagenen, 1913; 1925).—On Rainy Lake, on Powder (or Lobstick) Island, the small island five-eighths mile southeast of the buildings on the low point on the south side of Sand Point Island. It is about 8 meters southeast of a prominent lobstick tree (a tree which has had its limbs cut off to make it recognizable as a range mark) and is about 1 meter above the water surface.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk, marking triangulation station "Rainy Lake 26," is set in the same ledge at a distance of 0.12 meter.

Reference Monument 279 (Minnesota, St. Louis County; James H. Van Wagenen, 1913).—On Rainy Lake, on the north end of Steamboat Island, just north of the steamboat channel, about 1 mile north of the entrance to Cranberry Bay and about 2½ miles south of Little Rocky Narrows. There is a rock about 30 meters long and 3 meters wide about 30 meters distant from the north shore. The station is about 7 meters from the west shore, 30 meters from the north shore, and 15 meters from the east shore, and is about 2.5 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk, marking triangulation station "Rainy Lake 41," is set in the same ledge at a distance of 0.38 meter.

Reference Monument 280 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, on a small island about 1¾ miles northeast of Steamboat Island. The island is the most western of the large group of small islands northwest of Brule Narrows. The station is on the highest point of the island,

about 3.5 meters above the lake level, midway between the east and west ends of the island and about 8 meters from the north shore.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk, marking triangulation station "Rainy Lake 47," is set in the same ledge at a distance of 0.29 meter.

Reference Monument 281 (Minnesota, St. Louis County; James H. Van Wagenen, 1913).—On Rainy Lake, on a small island about 2½ miles east of Steamboat Island and about 1¼ miles northwest of MacKenzie Island. The island is the most southern of the large group of small islands northwest of Brule Narrows; it is barren except for a few dead trees; and it is about 120 meters long and 60 meters wide. The station is about 1.5 meters above the lake level, about 22 meters from the west shore, 30 meters from the south shore, and 6 meters from the north shore.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk, marking triangulation station "Rainy Lake 44," is set in the same ledge at a distance of 0.44 meter.

Reference Monument 282 (Minnesota, St. Louis County; James H. Van Wagenen, 1913).—On Rainy Lake, on a small island at the eastern end of the group of small islands northwest of Brule Narrows, and about 1¼ miles northwest of MacKenzie Island. The island is timbered, rather high, and is about one-half mile south by west of Bald Island, a high barren island. The station is on the highest part of the east end of the island, about 8 meters from the north and south shores and about 15 meters from the east end of the island.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk, marking triangulation station "Rainy Lake 45," is set in the same ledge at a distance of 0.25 meter.

Reference Monument 283 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, near the highest point of Bald Island, a high, bold, barren island, on the south side of the entrance to Seine Bay. It is near the center of the island and about 18 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk, marking triangulation station "Baldy," is set in the same ledge at a distance of 0.43 meter. Three iron bolts were set as reference marks for triangulation station "Baldy." (See p. 500.)

Reference Monument 284 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, on an island at the north side of the entrance to Bleak Bay, about 1¾ miles due north of the western end of MacKenzie Island, and about three-fourths mile east of Bald Island. It is on the southwest point of the island, about 2.5 meters above the lake level, about 9 meters from the west shore, 9 meters from the south shore, and 38 meters from the southwest tip of the island.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk, marking triangulation station "Rainy Lake 48," is set in the same ledge at a distance of 0.46 meter.

Reference Monument 285 (Minnesota, St. Louis County; James H. Van Wagenen, 1913).—On Rainy Lake, on a small island about 340 meters from the mainland at the west entrance to Brule Narrows. The island is about 40 meters long (east and west), 12 meters wide, and is bare except for two trees. The station is at approximately the highest point of the island, about 1.5 meters above the lake level, about 4.5 meters from the south shore, and about 22 meters from the west shore.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk, marking triangulation station "Rainy Lake 42," is set in the same ledge at a distance of 0.35 meter.

Reference Monument 286 (Ontario, Rainy River District; James H. Van Wagenen, 1913; 1925).—On Rainy Lake, on the south end of the large island just west of MacKenzie Island, at the west entrance to Brule Narrows. It is on approximately the highest point of this part of the island, about 8 meters above the level of the lake, about 9 meters from the east shore, 54 meters from the south shore, and 150 meters from the west shore.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk, marking triangulation station "Rainy Lake 50," is set in the same ledge at a distance of 0.39 meter.

Reference Monument 287 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, on the extreme southern point of MacKenzie Island, on the north side of Brule Narrows near the western entrance. The station is about 1 meter above the lake level and about 15 meters from the end of the point.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk, marking triangulation station "Rainy Lake 54," is set in the same ledge at a distance of 0.30 meter.

Reference Monument 288 (Minnesota, St. Louis County; James H. Van Wagenen, 1913).—On Rainy Lake, on the east end of an island on the south side and near the middle of Brule Narrows, about 360 meters southwest of the lone tree used as a range mark by steamboat pilots. The station is about 2 meters above the lake level, about 15 meters from the east end of the island and about 3 meters from the north shore.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk, marking triangulation station "Rainy Lake 56," is set in the same ledge at a distance of 0.32 meter.

Reference Monument 289 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, on the west end of the large island which is at the north side of the east entrance to Brule Narrows. It is

on a high point of the island about 4.5 meters above the lake level, about 50 meters southeast of the head of a small bay, about 50 meters east of several tall Norway pine trees, and about 30 meters west of a little swamp. Three lines of sight are cut from the station through the timber to the southeast, south, and southwest.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk, marking triangulation station "Rainy Lake 61," is set in the same ledge at a distance of 0.26 meter.

Reference Monument 290 (Minnesota, St. Louis County; James H. Van Wagenen, 1913).—On Rainy Lake, on the south side of Brule Narrows, on a point of the mainland about three-fourths mile inside the east entrance and about three-fourths mile southeast of Lone Tree Island. It is about 4 meters above the lake level, about 15 meters from the north shore, 75 meters from the east shore, and 54 meters from the south shore.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk marking triangulation station "Rainy Lake 59" is set in the same ledge at a distance of 0.37 meter.

Reference Monument 291 (Minnesota, St. Louis County; James H. Van Wagenen, 1913; 1925).—On Rainy Lake, on the end of Point Observe (Soldier Point) at the south side of the east entrance to Brule Narrows. It is on the highest part of the point about 1 meter above the lake level and about 2 meters from the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk marking triangulation station "Rainy Lake 60" is set in the same ledge at a distance of 0.34 meter.

Reference Monument 292 (Ontario, Rainy River District; James H. Van Wagenen, 1913; 1925).—On Rainy Lake, on a small timbered island on the north side of the east entrance to Brule Narrows. It is on the highest point of the island about 3 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk marking triangulation station "Rainy Lake 66" is set in the same ledge at a distance of 0.37 meter.

Reference Monument 293 (Minnesota, St. Louis County; James H. Van Wagenen, 1913).—On Rainy Lake, about 2½ miles southeast of the east entrance to Brule Narrows, on the high prominent point at the northeast end of Shelland Island, the most eastern of the Pine Islands. It is about 6 meters above the lake level and about 30 meters from the end of the point.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk marking triangulation station "Rainy Lake 65" is set in the same ledge at a distance of 0.24 meter.

Reference Monument 294 (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Rainy Lake, about 3¾ miles east of the east entrance to Brule Narrows, on a small, high, bare island about 50 meters southwest of Anchor island. It is about 2.5 meters above the lake level, about 2 meters from the east shore of the island 15 meters from the west shore, and 21 meters from the north shore.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A standard U. S. C. & G. S. station mark disk, marking traverse station "Manitou" is set in the rock 11.89 meters from the station in azimuth 296° 43′.

Reference Monument 295 (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Rainy Lake, about 8½ miles east of the eastern entrance to Brule Narrows about three-fourths mile north of Minnitaki (or Gowdy) Island, on the south end of a small island which is near the middle of the lake. The station is about 3.5 meters above the lake level, about 9 meters from the south shore and 18 meters from the west shore.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 296 (Minnesota, St. Louis County; James H. Van Wagenen, 1914).—On Rainy Lake, about 8½ miles east of the eastern entrance to Brule Narrows, about one-fourth mile north of Minnitaki (or Gowdy) Island, on the eastern end of a small timbered island, the most northern of a group of small islands. The station is about 3 meters above the lake level and about 3 meters from the shore.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 297 (Minnesota, St. Louis County; James H. Van Wagenen, 1914).—On Rainy Lake, about 9½ miles east of Brule Narrows, on a small, high, timbered island about 4 miles northwest of Kettle Falls of the boundary channel, and 1 mile due south of the west end of Black Point Island. The station is on the highest part of the island near the center, about 7 meters above the lake level and about 30 meters from the northeast shore.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 298 (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Rainy Lake on a small, low island about 10 miles east of the east entrance to Brule Narrows, about 4 miles northwest of Kettle Falls of the boundary channel and 360 meters southeast of a high rocky cliff on Black Point Island. The station is near the center of the island and on its highest point, about 2 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 299 (Minnesota, St. Louis County; James H. Van Wagenen, 1914).—On Rainy Lake, on the northwest point of Sand Bay Island, about 11 miles east of the east entrance to Brule Narrows and about

3 miles northwest of Kettle Falls of the boundary channel. It is on the highest part of a bold rocky point about 8 meters above the lake level. West of the station is a group of small jack pines and east of it are several tall Norway pines.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 300 (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Rainy Lake, on Vague Point, a prominent point about 12 miles east of the eastern entrance to Brule Narrows, about 1¼ miles northwest of Breezy Island, and about 1¾ miles northeast of Sand Narrows. It is in burnt jack-pine timber, about 3 meters above the lake level, about 45 meters north of the south shore of the point and about 340 meters east of the southwest extremity of the point.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock. A bronze disk marking triangulation station "Vague" is set in the same ledge at a distance of 0.31 meter. Two iron bolts, reference marks for triangulation station "Vague," are distant about 5 meters from the monument.

Reference Monument 301 (Minnesota, St. Louis County; James H. Van Wagenen, 1914; 1925).—On Rainy Lake, on the east end of Rabbit Island, the first timbered island east of Sand Narrows, about 12 miles east of the east entrance to Brule Narrows and about 2 miles north of Kettle Falls of the boundary channel. The station is about 2 meters above the lake level and at the extreme eastern end of the island.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 302 (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Rainy Lake, on the south end of Breezy Island, about 12½ miles east of the east entrance to Brule Narrows and about 3 miles north of Kettle Falls of the boundary channel. It is on the highest point of the southern end of the island, about 13 meters above the lake level, on a bare ladge about 100 meters southeast of the narrowest part of the island.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 303 (Minnesota, St. Louis County; James H. Van Wagenen, 1914; 1925).—On Rainy Lake, about 1½ miles north of Kettle Falls of the boundary channel and about one-half mile northwest of Surveyors Island and the mouth of Kettle River. The station is on the second point from the north of the four points which project eastward from this part of the mainland. It is about 5 meters above the lake level, about 5 meters from the south shore of the point, and about 15 meters from the east end of the point.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 304 (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Rainy Lake, about 1½ miles north of Kettle Falls of the boundary channel and about one-fourth mile north of Surveyors Island and the mouth of Kettle River; near the south shore of the largest island off the northwest shore of Oak Point Island. It is on the highest part of the west half of the island, about 7 meters above the lake level, about 25 meters from the south shore, and about 70 meters from the southwest point of the island.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 305 (Minnesota, St. Louis County; James H. Van Wagenen, 1913).—On Rainy Lake, on Surveyors Island, at the mouth of Kettle River, about 1¼ miles north of Kettle Falls of the boundary channel. The monument is on the west end of the island on its highest point, about 4 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in solid rock.

Reference Monument 306 (Ontario; Rainy River District; James H. Van Wagenen, 1914).—On the northwest point of Oak Point Island, at the mouth of Kettle River. It is on a high bare rock about 14 meters above the lake level, about 110 meters from the north shore of the point, and about 80 meters from the little bay on line between the station and Surveyors Island. Through the timber on the point five lines of sight have been cut from the station toward other triangulation stations.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 307 (Minnesota, St. Louis County; James H. Van Wagenen, 1914).—On Kettle River, on the mainland, about 300 meters south of Surveyors Island and the mouth of the river. It is on a high bare knoll, near the top of the steep slope, about 8 meters above the lake level and about 20 meters from the shore.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 308 (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Kettle River, on the first prominent point on the Oak Point Island shore after entering the river and one-fourth mile from its mouth. At high water the part of the point on which the station is located will become an island. The station is on the highest point of a bare rock about 2 meters from its west side and about 2 meters above the normal lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 309 (Minnesota, St. Louis County; James H. Van Wagenen, 1914; 1925).—On Kettle River, on the mainland, about 500 meters south of Surveyors Island and of the mouth of the river, on the point of land at the first bend in the river above its mouth. It is in the timber, on the highest rock on the point, about 5 meters above the water surface of the river, about 20 meters from the shore of the little bay on the northeast, and about 30 meters from the shore on the southeast.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 310 (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Kettle River, on the Oak Point Island shore, about 600 meters south of Surveyors Island and of the mouth of the river, and directly opposite the point of land at the first bend in the river above its mouth. It is about 9 meters above the water surface of the river and about 30 meters from the shore.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 311 (Minnesota, St. Louis County; James H. Van Wagenen, 1914).—On Kettle River, on the mainland, about 700 meters south of Surveyors Island and the mouth of the river, and at the first narrow place in the river above its mouth. It is about 5 meters above the water surface and about 30 meters from the shore.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 312 (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Kettle River, on the Oak Point Island shore, about 700 meters south of Surveyors Island and of the mouth of the river, and at the first narrow place in the river above its mouth. It is about 8 meters above the water surface and about 25 meters from the shore.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 313 (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Kettle River, on the Oak Point Island shore, about 1,050 meters south of Surveyors Island and the mouth of the river, and about 1,100 meters northeast of Kettle Falls of the boundary channel, on a low point at the second extremely narrow place in the river above its mouth. It is about 3 meters above the water surface, about 6 meters from the end of the point, about 2 meters from the west shore, and about 4 meters from the east shore.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 314 (Minnesota, St. Louis County; James H. Van Wagenen, 1914).—On Kettle River, on the mainland, about 1,050 meters south of Surveyors Island and the mouth of the river, about 1,100 meters northeast of Kettle Falls of the boundary channel, and on a high point at the second extremely narrow place in the river above its mouth. It is on a smooth high rock, about 7 meters above the water surface and about 15 meters from the shore.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 315 (Minnesota, St. Louis County; James H. Van Wagenen, 1914).—On Kettle River about 800 meters northeast of Kettle Falls of the boundary channel, and on a high point of the mainland which becomes an island at high water. The station is about 300 meters due south of the second extremely narrow place in the river above its mouth. It is on the highest bare rock on the north end of the point, about 6 meters above the water surface, about 30 meters from the east and west shores and about 50 meters from the northeast end of the point.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 316 (Minnesota, St. Louis County; James H. Van Wagenen, 1914).—On Kettle River, about 850 meters northeast of Kettle Falls of the boundary channel, on an island about 100 meters long which is about 25 meters southwest of the boundary channel. The station is on a bare rock near the center of the island, about 5 meters above the water surface, and about 6 meters northeast of the highest point on the island.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 317 (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Kettle River, about 1,000 meters northeast of Kettle Falls of the boundary channel, on an island about 100 meters long which is about 25 meters northeast of the boundary channel. It is near the center and on the highest point of the island, about 2.5 meters above the water surface, on a bare rock which slopes in all directions. It is about 6 meters from the northwest side of the island and about 13 meters from the southeast side.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 318 (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Kettle River, on the Oak Point Island shore, about 1,100 meters northeast of Kettle Falls of the boundary channel, and about 250 meters due east of the two islands between which the boundary passes. It is on the hillside on a bare white rock about 8 meters above the water surface and about 50 meters from the shore.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 319 (Minnesota, St. Louis County; James H. Van Wagenen, 1914).—On Kettle River, on the mainland, about 800 meters northeast of Kettle Falls of the boundary channel, near the end of the long peninsula which extends from Kettle Falls toward the northeast. It is about 150 meters south of the nearer of the two islands between which the boundary passes. It is on a high, bare rock, the highest in this vicinity, about 4 meters above the water surface, about 35 meters from the end of the point, and about 8 meters from the southeast shore of the point.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 320 (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Kettle River, on the Oak Point Island shore, about 1,050 meters east of Kettle Falls of the boundary channel, and about 100 meters east of the sharp bend in the steamboat channel where, on approaching Kettle Falls, the boats turn toward the southwest just before they enter the narrow part of the channel. It is on a high, bare rock about 4 meters above the water surface, about 10 meters from the north shore of the point, 18 meters from the south shore, and about 45 meters from the end of the point.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 321 (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Kettle River, about 650 meters east of the falls in the boundary channel at Kettle Falls. It is on the most northern point of an island which lies between the Canadian and American channels. It is on the highest bare rock on the point, about 5 meters above the water surface of the river, about 35 meters from the west shore of the point, about 20 meters from the north shore, and about 25 meters from the east shore.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 322 (Minnesota, St. Louis County; James H. Van Wagenen, 1914).—On Kettle River, about 600 meters east of the falls in the boundary channel at Kettle Falls. It is on the southeastern extremity of the long, high peninsula which extends toward the northeast from the dam in the boundary channel. It is about 5 meters above the water surface of the river, about 10 meters from the east and west shores of the point, and about 2 meters from the south shore.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 323 (Minnesota, St. Louis County; James H. Van Wagenen, 1914).—On Kettle River about 220 meters east of the falls in the boundary channel at Kettle Falls. It is on a broad point of the mainland which projects south toward the first narrow place in the boundary channel east of the American (or Boundary) Falls. It is on a bare ledge in scattered timber, about 3.5 meters above the water surface, about 12 meters from the south shore and about 27 meters from the west shore.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 324 (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Kettle River, about 260 meters east of the dam at the boundary falls. It is on the most western point of an island which lies between the Canadian and boundary channels. It is on the highest bare rock on the point, about 5 meters above the water surface below the falls, about 12 meters from the end of the point, and about 10 meters from the northwest shore.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 325 (Minnesota, St. Louis County; James H. Van Wagenen, 1914).—On Kettle River, on a point of the mainland, about 12 meters downstream from the north end of the dam in the boundary channel at Kettle Falls. It is about 8.5 meters above the water surface of the river below the falls, and about 9 meters from the shore.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 326 (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Kettle River, on the hillside, about 27 meters downstream from the south end of the dam in the boundary channel at Kettle Falls. It is on a bare rock about 9 meters above the water surface in the river below the falls and about 15 meters from the shore.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 327 (Minnesota, St. Louis County; James H. Van Wagenen, 1914).—On Kettle River at the outlet of Lake Namakan on the first small, bare point projecting from the mainland, about 90 meters upstream from the dam in the boundary channel at Kettle Falls. It is on the highest point of the rock about 2.5 meters above the surface of the river above the dam, and about 5 meters from the end of the point.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 328 (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Kettle River at the outlet of Lake Namakan, on the steep, rocky hillside about 100 meters upstream from the south end of the dam in the boundary channel at Kettle Falls. It is about 7 meters from the shore and about 6 meters above the water surface in the river above the falls.

Station mark: A standard 8-inch manganese-bronze reference post set in ledge rock.

Reference Monument 329 (Ontario, Rainy River District; James H. Van Wagenen, 1914; 1925).—On Namakan Lake, about half a mile west of the international dam at Kettle Falls, on a knoll at the entrance to the narrows; about 50 feet from the shore and about 10 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 330 (Minnesota, St. Louis County; James H. Van Wagenen, 1914; 1915).—On Namakan Lake, about half a mile west of the international dam at Kettle Falls, about 175 feet east of the entrance to the narrows; about 70 feet from shore and 20 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 331 (Ontario, Rainy River District; J. J. McArthur, 1915; 1925.)—On Namakan Lake about three-fourths of a mile west of Kettle Falls, on the north side of the island, the second from the United States shore; about 20 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 332 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1925).—On Namakan Lake about three-fourths of a mile west of Kettle Falls, on the highest point of the island, the first from the United States shore; about 7 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 333 (Ontario, Rainy River District; J. J. McArthur, 1915; 1925).—On Namakan Lake, about 1 mile west of Kettle Falls, on a point near the middle of Squirrel Narrows; about 20 feet from the shore and 15 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 334 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—On Namakan Lake, about 1 mile west of Kettle Falls, on a point near the middle of Squirrel Narrows; about 20 feet from the shore and 20 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 335 (Ontario, Rainy River District; J. J. McArthur, 1915).—On Namakan Lake, 2 miles west of Kettle Falls, on a prominent point midway between Squirrel Narrows and Squaw Narrows; close to the shore and about 20 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 336 (Minnesota, St. Louis County; J. J. McArthur, 1915).—On Namakan Lake, 2 miles west of Kettle Falls, due north from reference monument 335; about 150 feet from the shore and 30 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 337 (Ontario, Rainy River District; J. J. McArthur, 1915; 1925).—On Namakan Lake, about 2½ miles west of Kettle Falls, where the channel makes a right-angle bend. It is on the west end of the rock ridge, 5 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 338 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1925).—On Namakan Lake, about 2½ miles west of Kettle Falls, where the channel makes a right-angle bend. It is on a small rocky island about 300 feet southwest of Mica Island near the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 339 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On Namakan Lake, about 3 miles west-southwest of Kettle Falls, on the point at the northeast end of Squaw Narrows; close to the shore and about 20 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 340 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1925).—On Namakan Lake, about 3 miles west-southwest of Kettle Falls, on a point near the middle of Squaw Narrows, close to the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 341 (Ontario, Rainy River District; J. J. McArthur, 1915).—On Namakan Lake, on the northwest point of Moose Island, the large island on the south side of the Canadian channel three-fourths mile south of Squaw Narrows. The monument is about 100 feet from the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 342 (Minnesota, St. Louis County; J. J. McArthur, 1915).—On Namakan Lake on the highest point of a circular island, on line with and the second from Squirrel Narrows. The monument is 20 or 30 feet above the high-water mark and 300 feet from shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 343 (Ontario, Rainy River District; J. J. McArthur, 1915).—On Namakan Lake, on the southwestern point of Moose Island, the large island on the south side of Canadian Channel 1 mile south of Squaw Narrows. The monument is close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 344 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1925).—On Namakan Lake, on an island of almost vertical strata, about 200 feet in diameter 1,500 feet west of reference monument 343. The monument is about 45 feet south of the highest point of the island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 345 (Ontario, Rainy River District; J. J. McArthur, 1915).—On Namakan Lake, on the east end of a narrow rocky island about 300 feet long, 2,000 feet south of reference monument 343.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 346 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1925).—On Namakan Lake, on Bivo Island; 200 feet from the eastern end of the island, which is about 800 feet long by 400 feet wide, lies 1,500 feet west of reference monument 345, and is one-half mile south of reference monument 344.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 347 (Ontario, Rainy River District; J. J. McArthur, 1915).—On Namakan Lake, on the northeastern end of a low island about 200 feet by 100 feet, two hundred feet south of Blue Island, which is about one-third of a mile in diameter.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 348 (Minnesota, St. Louis County; J. J. McArthur, 1915).—On Namakan Lake, on the northeastern end of Twinalligator Island, a circular island about 700 feet in diameter about a mile north of Junction Bay, the second island east of Namakan Island, an island about 2 miles long. The monument is about 30 feet above the high-water mark and 100 feet from the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill-hole in rock in place.

Reference Monument 349 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On Namakan Lake, on the west side of Randolph Island, about 1,000 feet south of the small low island in the bay. The monument is close to the shore line.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 350 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1925).—On Namakan Lake, on the southwest side of an island about 300 feet long, 1,000 feet west of Randolph Island. The monument is about 10 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 351 (Ontario, Rainy River District; J. J. McArthur, 1915; 1925).—On Namakan Lake, on the south side of the small island just south of Randolph Island; close to the shore line.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 352 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1925).—On Namakan Lake, on the northeastern slope of Jug Island, the more eastern of two about 1,500 feet long one-third mile south of Randolph Island. The monument is about 500 feet from the most eastern point, 200 feet from shore, and 40 or 50 feet above high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 353 (Ontario, Rainy River District; J. J. McArthur, 1915; 1925).—On Namakan Lake, on a small rocky island, the most southern of several islands south of Blackstone Island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 354 (Minnesota, St. Louis County; J. J. McArthur, 1915).—On Namakan Lake, on a bluff on the United States mainland due south from Blackstone Island about 1,000 feet west of an island 500 feet long which is close to the shore. The monument is about 100 feet from the shore and 20 or 30 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 355 (Ontario, Rainy River District; J. J. McArthur, 1915).—On Namakan Lake, on the highest part of Gull Island, which is about 1,000 feet long by 800 feet wide and lies 500 feet north of a much smaller island, midway between the Canadian and United States shores.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 356 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1925).—On Namakan Lake, on the highest part of an island about 1,500 feet long, one-third mile north of the point on the United States main-

land at the west side of the entrance of a large bay. There is a large body of open water to the north, east, and west.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place. Station "Namakan," a 2-inch bronze disk set in a drill hole in rock, is 0.11 meter northwest of the monument.

Reference Monument 357 (Ontario, Rainy River District; J. J. McArthur, 1915).—On Namakan Lake, on a low solitary island about 200 feet long, which lies about 500 feet from the Canadian mainland and about 2 miles northeast of Gull Island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 358 (Minnesota, St. Louis County; J. J. McArthur, 1915).—On Namakan Lake, on the most western tip of a solitary island about 500 feet long, half a mile from the United States shore and about 2 miles west of Namakan Narrows. The monument is close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 359 (Ontario, Rainy River District; J. J. McArthur, 1915).—Near the eastern end of Namakan Lake, about a mile northwest of Namakan Narrows. The monument is at the west end of an island 1,500 feet long, which lies near the middle of the west side of a large group of islands stretching in a northeasterly direction from the United States shore toward the Canadian mainland. The island is about one-half mile north of the Steamboat Channel. The monument is close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 360 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1923).—Near the eastern end of Namakan Lake, on a small island about a mile northwest of Namakan Narrows. The monument is about 800 feet southwest of reference monument 359.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 361 (Ontario, Rainy River District; J. J. McArthur, 1915).—Near the eastern end of Namakan Lake, about 1 mile northwest of Namakan Narrows, at the western end of an island 300 feet long, which lies 200 feet west of an island one-half mile long in a north and south direction. The monument is 2,200 feet east of reference monument 359.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 362 (Minnesota, St. Louis County; J. J. McArthur, 1915).—Near the eastern end of Namakan Lake, on the northeastern point of an island about 2,000 feet long in an east and west direction. The monument is 1,500 feet southwest of reference monument 361 and about 800 feet southeast of reference monument 359.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 363 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On the east side of the north entrance to Namakan Narrows, on a knoll about 20 feet above the high-water mark. The monument is close to the shore and 200 feet north of a small island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 364 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—On the west side of the north entrance to Namakan Narrows, on a knoll, 200 feet from the shore and about 25 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 365 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On a point about 300 feet long on the east side of Namakan Narrows two-thirds mile from the north end and about one-half mile from the south end of the narrows; close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 366 (Minnesota, St. Louis County; J. J. McArthur, 1915).—At the southeast end of a ridge on the west side of and 2,000 feet from the north end of Namakan Narrows; 200 feet from the shore and 60 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 367 (Ontario, Rainy River District; J. J. McArthur, 1915).—On the east side of Namakan Narrows on the north end of a ridge about one-third mile from the south entrance to the narrows; about 150 feet from the shore and 45 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 368 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—On the west side of Namakan Narrows, on the top of a knoll about one-third mile from the south entrance to the narrows; 100 feet from the shore and about 30 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 369 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On the east side of the south entrance to Namakan Narrows, on the top of a ridge; about 75 feet from the shore and 25 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 370 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—On the west side of the south entrance to Namakan Narrows, on the east side of a point on Sand Point Lake, 600 feet from reference monument 369.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 371 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On Sand Point Lake, on a ridge on the mainland one-fourth mile south of the entrance to Namakan Narrows, near the middle of the ridge and near the top.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 372 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—On Sand Point Lake, on a ridge at the east end of an island about 1,500 feet long, one-fourth mile south of the entrance to Namaken Narrows; about 150 feet from the most eastern tip of the island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 373 (Ontario, Rainy River District; J. J. McArthur, 1915).—One-half mile southeast of Namakan Narrows, on the northwest end of a small island in Sand Point Lake. The island is about 200 feet long and near the middle of the channel.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 374 (Minnesota, St. Louis County; J. J. McArthur, 1915).—Two-thirds mile southeast of Namakan Narrows, on the most northern part of an island, 400 feet in diameter, in Sand Point Lake. The monument is about 800 feet south of reference monument 373.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 375 (Ontario, Rainy River District; J. J. McArthur, 1915).—One and one-half miles southeast of Namakan Narrows, on an island about 600 feet long, 200 feet from the Canadian mainland, in Sand Point Lake. The monument is on the south side of the island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 376 (Ontario, Rainy River District; J. J. McArthur, 1915).—Two miles southeast of Namakan Narrows, on an island in Sand Point Lake. The island is about 400 feet long and 1,000 feet northwest from the point of the Canadian mainland at the south side of the entrance to Red Horse Bay. The monument is close to the shore on the northwest end of the island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 377 (Ontario, Rainy River District; J. J. McArthur, 1915).—On an island in Sand Point Lake, 2½ miles southeast of Namakan Narrows. The island is about 800 feet long and about 1,000 feet from the Canadian mainland. The monument is on the west side of the island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 378 (Minnesota, St. Louis County; J. J. McArthur, 1915).—On an island in Sand Point Lake, 2½ miles southeast of Namakan Narrows. The island is about 800 feet long and one-third mile southeast of the most eastern point of the United States mainland opposite Red Horse Bay. The monument is near the summit of the island, toward the point at the middle of the west side.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 379 (Ontario, Rainy River District; J. J. McArthur, 1915).—On an island in Sand Point Lake, 4 miles south of Namakan Narrows. The island is a small rocky one just off the long sandy point on the Canadian mainland, about 600 feet from high-water mark on the mainland.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 380 (Minnesota, St. Louis County; J. J. McArthur, 1915).—On a point of the United States mainland of Sand Point Lake, 4 miles south of Namakan Narrows, north of the entrance to Grassy Bay. The monument is close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 381 (Ontario, Rainy River District; J. J. McArthur, 1915).—On the point of the Canadian mainland of Sand Point Lake, 4⅔ miles south of Namakan Narrows, at the north side of the entrance to Clearwater Lake, on the most western knob of the ridge. The monument is about 300 feet from the shore and 50 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 382 (Minnesota, St Louis County; J. J. McArthur, 1915).—On the United States mainland, 4½ miles south of Namakan Narrows; about halfway between the south end of the group of islands at the entrance to Grassy Bay and the narrows in Sand Point Lake, just above high-water mark and about 50 feet from the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 383 (Ontario, Rainy River District; J. J. McArthur, 1915).—On the Canadian mainland, 5 miles south of Namakan Narrows, on the point of the Canadian side of the narrows in Sand Point Lake close to the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 384 (Minnesota, St. Louis County; J. J. McArthur, 1915).—On the United States mainland, 5 miles south of Namakan Narrows; on the highest point of the more southern of the two knolls on the United States side of the narrows in Sand Point Lake.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 385 (Ontario, Rainy River District; J. J. McArthur, 1915).—On the Canadian side of the narrows at the south end of Sand Point Lake, about 5 miles north of Harding, Minn. The monument is near the edge of the cliff about 30 feet above the high-water mark and opposite the island at the entrance to the narrows.

Station mark: A manganese-bronze monument, 8 inches high, set in a drill hole in rock in place.

Reference Monument 386 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1916).—At the east end of the small island at the mouth of the narrows at the south end of Sand Point Lake, 5 miles north of Harding, Minn. The monument is near the shore and the high-water mark.

Station mark: A manganese-bronze monument, 8 inches high, set in a drill hole in rock in place.

Reference Monument 387 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On the nose of the ridge on the Canadian side of the narrowest part of the narrows between Sand Point Lake and Little Vermilion Lake, 4 miles northeast of Harding, Minn. The monument is about 70 feet above the high-water mark and about 300 feet from the end of the nose.

Station mark: A manganese-bronze monument, 8 inches high, set in a drill hole in rock in place.

Reference Monument 388 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—Four miles northeast of Harding, Minn., on the United States side of the narrows just north of the narrowest part, on a projecting outcrop of rock; close to the shore and the high-water mark.

Station mark: A manganese-bronze monument, 8 inches high, set in a drill hole in rock in place.

Reference Monument 389 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—Four miles northeast of Harding, Minn., on the east side of the narrowest part of the narrows between Sand Point and Little Vermilion Lakes, about 500 feet from the north end of the ridge, 200 feet from the shore and 50 or 60 feet above the high-water mark.

Station mark: A manganese-bronze monument, 8 inches high, set in a drill hole in rock in place.

Reference Monument 390 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—Four miles northeast of Harding, Minn., on the west side of the narrows between Sand Point and Little Vermilion Lakes, about 200 feet south of the narrowest part; close to the shore and just above the high-water mark.

Station mark: A manganese-bronze monument, 8 inches high, set in a drill hole in rock in place.

Reference Monument 391 (Ontario, Rainy River District; J. J. McArthur, 1915).—Four miles northeast of Harding, Minn., on the east side of the narrows between Sand Point and Little Vermilion Lakes, about 1,500 feet south of the narrowest part, and about 55 feet above the high-water mark.

Station mark: A manganese-bronze monument, 8 inches high, set in a drill hole in rock in place.

Reference Monument 392 (Minnesota, St. Louis County; J. J. McArthur, 1915).—Four miles northeast of Harding, Minn.; on the west side of the narrows between Sand Point and Little Vermilion Lakes about 1,500 feet south of the narrowest part, on a ridge about 1,000 feet north of the mouth of a creek; 400 feet from shore and 40 or 50 feet above high-water mark.

Station mark: A manganese-bronze monument, 8 inches high, set in a drill hole in rock in place.

Reference Monument 393 (Ontario, Rainy River District; J. J. McArthur, 1915).—Four miles northeast of Harding, Minn., on the east side of the narrows between Sand Point and Little Vermilion Lakes, one-half mile south of the narrowest part, on the north side of a depression in the hillside; about 100 feet from the shore line and 30 feet above the high-water mark.

Station mark: A manganese-bronze monument, 8 inches high, set in a drill hole in rock in place.

Reference Monument 394 (Minnesota, St. Louis County; J. J. McArthur, 1915).—Four miles northeast of Harding, Minn.; on the west side of the narrows between Sand Point and Little Vermilion Lakes, one-half mile

from the north end of the narrows; 700 feet south of the mouth of a creek, 100 feet from the shore line, and 20 or 30 feet above the high-water mark.

Station mark: A manganese-bronze monument, 8 inches high, set in a drill hole in rock in place.

Reference Monument 395 (Ontario, Rainy River District; J. J. McArthur, 1915).—Four miles northeast of Harding, Minn.; on the east side of the narrows between Sand Point and Little Vermilion Lakes, on a point where the channel makes a right-angle turn; close to the shore line on the west side of the point and a little above the high-water mark.

Station mark: A manganese-bronze monument, 8 inches high, set in a drill hole in rock in place.

Reference Monument 396 (Minnesota, St. Louis County; J. J. McArthur, 1915).—Four miles northeast of Harding, Minn.; on the west side of the narrows between Sand Point and Little Vermilion Lakes where the channel makes a right-angle turn; near the top and on the north end of a steep hill, 300 feet from the shore and about 100 feet above the high-water mark.

Station mark: A manganese-bronze monument, 8 inches high, set in a drill hole in rock in place.

Reference Monument 397 (Ontario, Rainy River District; J. J. McArthur, 1915).—Four miles northeast of Harding, Minn.; at the north side of the south entrance to the narrows between Sand Point and Little Vermilion Lakes, 500 feet west of the small island at the entrance to the narrows; close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 398 (Minnesota, St. Louis County; J. J. McArthur, 1915).—Four miles northeast of Harding, Minn.; at the south side of the south entrance to the narrows between Sand Point and Little Vermilion Lakes; at the northwest end of the knoll at the north end of the long point; 20 or 30 feet above water and about 100 feet from the shore.

Station mark: A manganese-bronze monument, 8 inches high, set in a drill hole in rock in place.

Reference Monument 399 (Ontario, Rainy River District; J. J. McArthur, 1915).—Four miles northeast of Harding, Minn.; on the west side of the large island in Little Vermilion Lake, at the entrance to the narrows between Sand Point and Little Vermilion Lakes, about 1,000 feet from the north end of the island; 30 or 40 feet above water and about 100 feet from the shore.

Station mark: A manganese-bronze monument, 8 inches high, set in a drill hole in rock in place.

Reference Monument 400 (Minnesota, St. Louis County; J. J. McArthur, 1915).—Four miles northeast of Harding, Minn.; on the mainland on the west side of Little Vermilion Lake; opposite the large island at the entrance to the narrows between Sand Point and Little Vermilion Lakes; on top of the knoll about 1,000 feet south of the north end of the point.

Station mark: A manganese-bronze monument, 8 inches high, set in a drill hole in rock in place.

Reference Monument 401 (Ontario, Rainy River District; J. J. McArthur, 1915).—Four miles northeast of Harding, Minn.; on the Canadian shore of Little Vermilion Lake, about 1 mile south of the narrows; at the northern end of a ridge and about 1,000 feet north of the mouth of a creek; 40 or 50 feet above the water and about 100 feet from the shore.

Station mark: A manganese-bronze monument, 8 inches high, set in a drill hole in rock in place.

Reference Monument 402 (Minnesota, St. Louis County; J. J. McArthur, 1915).—Four miles northeast of Harding, Minn.; on the United States shore of Little Vermilion Lake, about 1 mile south of the narrows; near the middle and at the top of a ridge about half a mile long; 60 or 70 feet above the water level and about 200 feet from the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 403 (Ontario, Rainy River District; J. J. McArthur, 1915).—Four and one-half miles east of Harding, Minn.; on the Canadian shore of Little Vermilion Lake, 2 miles south of the narrows; almost 400 feet from the point between the lake and the long narrow bay extending in a northerly direction; close to the shore and the high-water mark.

Station mark: A manganese-bronze monument, 8 inches high, set in a drill hole in rock in place.

Reference Monument 404 (Minnesota, St. Louis County; J. J. McArthur, 1915).—Four miles east of Harding, Minn., on the United States shore of Little Vermilion Lake, about 500 feet north of a prominent point about 2 miles south of the narrows; 30 or 40 feet above the high-water mark and about 100 feet from the shore.

Station mark: A manganese-bronze monument, 8 inches high, set in a drill hole in rock in place.

Reference Monument 405 (Ontario, Rainy River District; J. J. McArthur, 1915).—Five miles east of Harding, Minn.; on the Canadian shore of Little Vermilion Lake, about a mile from the south end of the lake and about a third of a mile southeast of an island that is near the middle of the lake; close to the shore and the high-water mark.

Station mark: A manganese-bronze monument, 8 inches high, set in a drill hole in rock in place.

Reference Monument 406 (Minnesota, St. Louis County; J. J. McArthur, 1915).—Four and one-half miles east of Harding, Minn.; on the United States side of Little Vermilion Lake about a mile from the south end of the lake, on a projecting slope about a third of a mile south of an island that is near the middle of the lake; 10 or 20 feet above the high-water mark and about 100 feet from the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 407 (Ontario, Rainy River District; J. J. McArthur, 1915).—Five and one-half miles east of Harding, Minn.; on the east shore at the south end of Little Vermilion Lake and at the mouth of Loon River, on a rock shoulder projecting from the side of the hill; about 130 feet above the high-water mark and 400 feet from the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 408 (Minnesota, St. Louis County; J. J. McArthur, 1915).—Five and one-half miles east of Harding, Minn.; on the west shore at the south end of Little Vermilion Lake and at the mouth of Loon River, on the highest part of the hill; about 100 feet above the high-water mark and 500 feet from the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 409 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—Five and one-half miles east of Harding, Minn.; on the right bank at the south end of the narrows between Little Vermilion Lake and Loon River; close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 410 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—Five and one-half miles east of Harding, Minn.; on the left bank at the south end of the narrows between Little Vermilion Lake and Loon River; close to the shore and about 5 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 411 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—Five and one-half miles east of Harding, Minn.; on the right bank of Loon River, about one-half mile upstream from the narrows between Little Vermilion Lake and Loon River, on top of a large detached rock about 15 feet high, 50 feet from the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 412 (Minnesota, St. Louis County; J. J. McArthur, 1915).—Five miles east of Harding, Minn.; near the top of the high hill about one-fourth mile southwest of the narrows between Little Vermilion Lake and Loon River; about 150 feet above the high-water mark and 1,000 feet from the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 413 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—Five and one-half miles east of Harding, Minn.; on the right bank of Loon River about three-fourths mile upstream from the narrows between Little Vermilion Lake and Loon River; about 30 feet from the shore and 10 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 414 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—Five and one-half miles east of Harding, Minn.; on the left bank of Loon River about three-fourths mile upstream from the narrows between Little Vermilion Lake and Loon River; about 100 feet south of a small dry gully; close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 415 (Ontario, Rainy River District; J. J. McArthur, 1915).—Five and one-half miles east of Harding, Minn.; near the edge of a high cliff on the right bank of Loon River, about a mile upstream from the narrows between Little Vermilion Lake and Loon River; about 180 feet above the high-water mark and 300 feet from the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 416 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—Five and one-half miles east of Harding, Minn.; on the left bank of Loon River, 800 feet southwest of the end of a long point projecting into the river from the United States shore, about a mile upstream from the narrows between Little Vermilion Lake and Loon River; close to shore and high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 417 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—Five and one-half miles southeast of Harding, Minn.; on the left bank of Loon River about a mile above the narrows, 400 feet south of the point on the Canadian side where the river takes a right-angle turn; close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 418 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—Five and one-half miles southeast of Harding, Minn.; on the left bank of Loon River, 1¼ miles upstream from the narrows between Little Vermilion Lake and Loon River; on the shoulder of a point about 800 feet long; close to the shore and about 10 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 419 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—Five and one-half miles southeast of Harding, Minn.; on the right bank of Loon River, about 1½ miles upstream from the narrows between Little Vermilion Lake and Loon River; 200 feet north of the mouth of a small creek; close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 420 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—Five and one-half miles southeast of Harding, Minn.; on the left bank of Loon River, about 1½ miles upstream from the narrows between Little Vermilion Lake and Loon River; 400 feet northwest from the mouth of a small creek on the Canadian side; about 40 feet from the shore and 15 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 421 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—Six miles southeast of Harding, Minn.; on the right bank of Loon River about 1¾ miles upstream from the narrows between Little Vermilion Lake and Loon River; 200 feet around the bend which is 1,000 feet south of the small creek on the Canadian side; 20 feet from the shore and 5 or 10 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 422 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—Six miles southeast of Harding, Minn.; on the left bank of Loon River about 1¾ miles upstream from the narrows between Little Vermilion Lake and Loon River, at the bend of the river, which is 1,000 feet south of the small creek on the Canadian side; 75 feet from the shore and about 15 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 423 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—Six miles southeast of Harding, Minn.; on the right bank of Loon River about 1⅞ miles upstream from the narrows between Little Vermilion Lake and Loon River; 300 feet north of a low point on the Canadian shore; close to the shore and high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 424 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—Six miles southeast of Harding, Minn.; on the left bank of Loon River about 2 miles upstream from the narrows between Little Vermilion Lake and Loon River; opposite a low point on the Canadian shore; about 40 feet from the shore and 10 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 425 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—Six miles southeast of Harding, Minn.; on the right bank of Loon River, 2 miles upstream from the narrows between Little Vermilion Lake and Loon River; opposite and 400 feet from the mouth of a large creek on the United States side; close to the shore line and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 426 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—Six miles southeast of Harding, Minn.; on the left bank of Loon River about 2 miles upstream from the narrows between Little Vermilion Lake and Loon River; on the high bank on the south side of the mouth of a large creek; close to the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 427 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—Six and one-half miles southeast of Harding, Minn.; on the right bank of Loon River about 2¼ miles upstream from the narrows between Little Vermilion Lake and Loon River; about midway between 2 creeks on the United States side of the river; and 1,200 feet south of the large creek on the United States side; close to the shore and about 10 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 428 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—Six and one-half miles southeast of Harding, Minn; on the left bank of Loon River, 2¼ miles upstream from the narrows between Little Vermilion Lake and Loon River, 200 feet south of a small creek on the United States side of the river, and 1,000 feet south of the large creek on the same side; about 40 feet from the shore and 10 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 429 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—Six and one-half miles southeast of Harding, Minn.; on the right bank of Loon River about 2½ miles upstream from the narrows between Little Vermilion Lake and Loon River; on the steep bank opposite a steep bluff on the United States side; 1,000 feet north of a right-angle bend of the river; about 10 feet above the high-water mark and close to the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 430 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—Six and one-half miles southeast of Harding, Minn.; on the left bank of Loon River about 2½ miles upstream from the narrows between Little Vermilion Lake and Loon River, below a steep bluff 800 feet north of a right-angle bend of the river; about 10 feet above the high-water mark and 40 feet from the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 431 (Ontario, Rainy River District; J. J. McArthur, 1915).—Six and one-half miles southeast of Harding, Minn.; on the right bank of Loon River about 2¾ miles upstream from the narrows between Little Vermilion Lake and Loon River, 300 feet north from where the river takes a right-angle bend; about 100 feet from the shore and 10 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 432 (Minnesota, St. Louis County; J. J. McArthur, 1915).—Six and one-half miles southeast of Harding, Minn.; on the left bank of Loon River 2¾ miles upstream from the narrows between Little Vermilion Lake and Loon River; 300 feet north from where the river takes a right-angle bend; about 10 feet above the high-water mark and close to the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 433 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—Six and one-half miles southeast of Harding, Minn.; on the right bank of Loon River about 2¾ miles upstream from the narrows between Little Vermilion Lake and Loon River; on the high bank at the point where the river takes a right-angle turn; about 30 feet from the shore and 20 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 434 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—Six and one-half miles southeast of Harding, Minn.; on the left bank of Loon River about 2¾ miles from the narrows between Little Vermilion Lake and Loon River; about 150 feet from the mouth of a creek at a right-angle turn of the river, and 50 feet upstream from the nearest part of the creek; about 10 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 435 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—Six and one-half miles southeast of Harding, Minn.; on the right bank of Loon River, 3 miles upstream from the narrows between Little Vermilion Lake and Loon River; 300 feet south of the right-angle bend of the river and 500 feet north of the creek on the United States side; about 90 feet from the shore and 10 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 436 (Minnesota, St. Louis County; J. J. McArthur, 1915, G. T. Prinsep, 1921).—Six and one-half miles southeast of Harding, Minn.; on the left bank of Loon River, about 3¼ miles upstream from the narrows between Little Vermilion Lake and Loon River; on the steep bank where the river takes an acute-angle bend 700 feet south of a creek on the United States side, 30 feet from the shore and about 15 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place; reset in 1921.

Reference Monument 437 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On the right bank of Loon River, 3½ miles upstream from the narrows between Little Vermilion Lake and Loon River; opposite a point on the left shore where the river takes an acute-angle bend and 800 feet north of the mouth of a creek on the left shore at the angle of a right-angle bend; about 30 feet from the shore and 10 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 438 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—On the left bank of Loon River, 3½ miles upstream from the narrows between Little Vermilion Lake and Loon River; about 100 feet upstream from the creek on the United States side at the angle of a right-angle bend of the river; 10 feet from the shore and 5 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 439 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On the right bank of Loon River, 3¾ miles upstream from the narrows between Little Vermilion Lake and Loon River; 200 feet east of a low point on the opposite shore where the river takes an acute-angle bend; close to the shore and a little above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 440 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—On the left bank of Loon River, 3⅞ miles upstream from the narrows between Little Vermilion Lake and Loon River; just opposite a large swampy point on the right side at a bend of the river; close to the shore and slightly below the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 441 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On the right bank of Loon River, 3⅞ miles above the narrows between Little Vermilion Lake and Loon River; 400 feet upstream from the low swampy point and at the east edge of the swamp; about 30 feet from the shore line and close to the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 442 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On the right bank of Loon River, 4 miles upstream from the narrows between Little Vermilion Lake and Loon River; about 1,000 feet above the swampy point on the Canadian shore; close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 443 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On the right bank of Loon River, 4½ miles upstream from the narrows between Little Vermilion Lake and Loon River, and three-fourths mile downstream from the small rapids; on a rock slope at a turn of the river just below a well-defined gully and creek on the Canadian side; about 15 feet from the shore and 5 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 444 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—On the left bank of Loon River, 4½ miles upstream from the narrows between Little Vermilion Lake and Loon River and three-fourths mile downstream from the small rapids; on a turn of the river at a small gully and creek on the United States side; about 100 feet upstream from the creek and close to the shore line and the high-water mark. The monument is about 300 feet south of reference monument 443.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 445 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On the right bank of Loon River, 4¾ miles upstream from the narrows between Little Vermilion Lake and Loon River and one-half mile downstream from the small rapids. The monument is beside the riffle and close to the high-water mark and the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 446 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—On the left bank of Loon River, 4¾ miles upstream from the narrows between Little Vermilion Lake and Loon River and one-half mile downstream from the small rapids. The monument is beside the riffle and close to the high-water mark and the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 447 (Ontario, Rainy River District; J. J. McArthur, 1915).—On the right bank of Loon River, 5 miles above the narrows between Little Vermilion Lake and Loon River and one-third mile downstream from the small rapids; 800 feet upstream from the riffle and close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 448 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—On the left bank of Loon River a little over 5 miles upstream from the narrows between Little Vermilion Lake and Loon River and 1,000 feet downstream from the small rapids. The monument is on the upper side of a small gorge at a bend of the river, about 50 feet from the mouth of a small creek; close to the shore and a little above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 449 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On the right bank of Loon River, about 5¼ miles upstream from the narrows between Little Vermilion Lake and Loon River; 500 feet downstream from the small rapids at the narrow neck of the river; close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 450 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—On the left bank of Loon River about 5¼ miles upstream from the narrows between Little Vermilion Lake and Loon River; 200 feet downstream from the small rapids at the narrow neck of the river; close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 451 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On the right bank of Loon River beside the small rapids about 5¼ miles upstream from the narrows between Little Vermilion Lake and Loon River and one-half mile downstream from the portage to Loon Lake; close to the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 452 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—On the left bank of Loon River beside the small rapids about 5¼ miles upstream from the narrows between Little Vermilion Lake and Loon River and one-half mile downstream from the portage to Loon Lake; close to the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 453 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On the right bank of Loon River, 300 feet upstream from the small rapids and one-half mile downstream from the portage to Loon Lake; at the shore line.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 454 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—On the left bank of Loon River, 300 feet upstream from the small rapids and one-half mile downstream from the portage to Loon Lake; at the shore line.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 455 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On the right bank of Loon River at a bend 500 feet upstream from the small rapids and about one-half mile below the portage to Loon Lake; close to the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 456 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—On the left bank of Loon River about 300 feet upstream from the mouth of a large creek on the same side of the river and close to a small inlet; on a slight rise of the bank, one-third mile below the portage to Loon River; close to the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 457 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On the right bank of Loon River, about one-half mile downstream from the portage to Loon Lake; 150 feet upstream from reference monument 455 and opposite a low marshy point on the opposite shore; at the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 458 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On the right bank of Loon River, opposite the mouth of a large creek on the United States side; one-third mile downstream from the portage to Loon River; about 150 feet from the shore and 10 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 459 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On the right bank of Loon River, 600 feet downstream from the portage to Loon Lake; about 100 feet from the shore and 5 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 460 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—On the left bank of Loon River 600 feet downstream from the portage to Loon Lake; close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 461 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On the right bank of Loon River at the foot of the rapids between Loon Lake and Loon River.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 462 (Minnesota, St. Louis County; J. J. McArthur, 1915).—On the left bank of Loon River at the foot of the rapids between Loon Lake and Loon River; close to the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 463 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On the right bank of the rapids between Loon Lake and Loon River, 300 feet above the foot of the rapids; close to the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 464 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—On the left bank of the rapids between Loon Lake and Loon River, 300 feet above the foot of the rapids; close to the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 465 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On the right bank of the rapids between Loon Lake and Loon River, 350 feet below the dam at the head of the rapids; close to the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 466 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—On the left bank of the rapids between Loon Lake and Loon River, 200 feet below the dam at the head of the rapids; close to the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 467 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On the north shore of Loon Lake at the head of the rapids in Loon River; about 10 feet east of the north end of the dam, close to the shore and a little below the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 468 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—At the east end of the portage between Loon Lake and Loon River, 50 feet from the shore of the lake and the same distance from the left bank of the rapids.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place

Reference Monument 469 (Ontario, Rainy River District; J. J. McArthur, 1915; 1921).—On the north shore of Loon Lake, nearly one-half mile from the east end of the portage to Loon River, on the west side of a small bay; close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 470 (Minnesota, St. Louis County; J. J. McArthur, 1915; 1921).—On the south side of the west arm of Loon Lake on a rock ledge about one-fourth mile east of the portage to Loon River; close to the shore and about 20 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 471 (Ontario, Rainy River District; J. J. McArthur, 1915).—On the north shore of the west arm of Loon Lake, about one-half mile from the portage to Loon River; on the west side of a small bay, 800 feet north of reference monument 469.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 472 (Minnesota, St. Louis County; J. J. McArthur, 1915).—On the south shore of the west arm of Loon Lake, about three-fourths mile from the portage to Loon River, at a place where the lake is only about 400 feet wide.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 473 (Ontario, Rainy River District; J. J. McArthur, 1915).—On the north side of the west arm of Loon Lake, nearly a mile from the portage to Loon River, on a knoll about 30 feet above the high-water mark and 100 feet from the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 474 (Minnesota, St. Louis County; J. J. McArthur, 1915).—On the south side of the west arm of Loon Lake, nearly a mile from the portage to Loon River and just east of a small bay; 10 or 20 feet above the high-water mark and about 100 feet from the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 475 (Ontario, Rainy River District; J. J. McArthur, 1915).—On the north shore of the west arm of Loon Lake, nearly 1½ miles from the portage to Loon River, 800 feet north of a prominent point on the opposite shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 476 (Minnesota, St. Louis County; J. J. McArthur, 1915).—On the south shore of the west arm of Loon Lake, about 1⅓ miles from the east end of the portage to Loon River and 500 feet west of the end of the prominent point on the same side of the lake.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 477 (Ontario, Rainy River District; J. J. McArthur, 1915).—On the top of the hill on the prominent point on the Canadian side of Loon Lake, where the channel takes a right-angle bend. The point is east of the large bay on the north side of the channel and is 2 miles south of the portage to Lac La Croix and 2½ miles east of the portage to Loon River.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 478 (Minnesota, St. Louis County; J. J. McArthur, 1915).—On a small island in Loon Lake, about 2¾ miles east of the portage to Loon River and 2¾ miles south of the portage to Lac La Croix; 400 feet east of a large island near the United States shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 479 (Minnesota, St. Louis County; J. J. McArthur, 1915).—On the east shore of the north arm of Loon Lake, 3 miles east of the portage to Loon River and 2⅓ miles south of the portage to Lac La Croix; about 2,000 feet east of reference monument 477.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 480 (Minnesota, St. Louis County; J. J. McArthur, 1915).—On a point of the east shore of the north arm of Loon Lake, about 3 miles northeast of the portage to Loon River and 1½ miles south of the portage to Lac La Croix; 1,200 feet east of the large island in the middle of the channel.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 481 (Ontario, Rainy River District; J. J. McArthur, 1915).—On the west side of the north arm of Loon Lake, about 3½ miles northeast of the portage to Loon River, and 1¾ miles south of the portage to Lac La Croix. The monument is about 100 feet from the shore and 20 feet above the high-water mark and about halfway up the side of the hill.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 482 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On a good-sized island in the north arm of Loon Lake, about 3 miles northeast of the portage to Loon River, and 1¼ miles south of the portage to Lac La Croix; on the western end of the top of the hill, 100 feet from the shore and 20 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 483 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On a point of the west shore of the north arm of Loon Lake, about 3 miles northeast of the portage to Loon River and 1¼ miles south of the portage to Lac La Croix, 800 feet southwest of the large island in the middle of the channel; on a small knoll close to the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 484 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On the east side of the north arm of Loon Lake, where the lake is about 800 feet wide; 3 miles northeast from the portage to Loon River and three-fourths mile south of the portage to Lac La Croix; 200 feet from the shore and 30 or 40 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 485 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the west side of the north arm of Loon Lake, where the lake is about 800 feet wide; 3 miles northeast of the portage to Loon River and three-fourths mile south of the portage to Lac La Croix; one-half mile northwest of reference monument 482; 100 feet from the shore and 10 or 20 feet above the high-water mark. Near the south end of a long ridge.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 486 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On the east side of the north arm of Loon Lake, on the side of the hill on the point one-fourth mile south of the portage to Lac La Croix; about 100 feet from the shore at the north shoulder of the point and 25 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 487 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the west side of the north arm of Loon Lake, about one-half mile south of the portage to Lac La Croix on a rock outcrop on the side of the hill; about 200 feet from the shore and 100 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 488 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On the east side of the north arm of Loon Lake, 600 feet south of the portage to Lac La Croix; on a rock outcrop on the side of the hill, about 100 feet from the shore and 35 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 489 (Ontario, Rainy River District; J. J. McArthur, 1916: 1921).—On the south shore of the most northern tip of the north arm of Loon Lake, about 100 feet from the rapids from Lac La Croix.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 490 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On the portage between Loon Lake and Lac La Croix, about 150 feet from the Loon Lake end of the portage and 50 feet from the left bank of the east stream; about 10 feet above the level of Loon Lake.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 491 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—Near the portage between Loon Lake and Lac La Croix, on the right bank of the west stream about 150 feet from the end of Loon Lake; about 10 feet above the level of Loon Lake.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 492 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On the portage between Loon Lake and Lac La Croix, on the left bank of the stream about 200 feet south of the end of Lac La Croix; near the same elevation as the water surface of Lac La Croix.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 493 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—Near the portage between Loon Lake and Lac La Croix, on the right bank of the west stream about 250 feet from Lac La Croix and 100 feet south of the junction with the east stream, just above a sharp drop of the stream; about 10 feet below the level of Lac La Croix.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 494 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On the portage between Loon Lake and Lac La Croix, on a knoll at the left side of the stream; 5 or 10 feet above the level of Lac La Croix.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 495 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—Near the portage between Loon Lake and Lac La Croix, on the right side of the stream; close to the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 496 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On the east side of Lac La Croix on the top of the cliff 200 feet north of the portage to Loon Lake; close to the edge of the cliff, 150 feet from shore and 100 feet above the level of the lake.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 497 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the west side of Lac La Croix, 600 feet west of the stream at the portage to Loon Lake, on the northern part of the top of a hill and 300 feet from a point on the shore where there is a bowlder about 15 feet high. The monument is 60 feet above the level of the lake.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 498 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the west shore of Lac La Croix, one-half mile north of the portage to Loon Lake; 500 feet from the end of a long point, opposite reference monument 500.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 499 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the west shore of Lac La Croix, 1 mile north of the portage to Loon Lake; on the shore line below the cliff.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 500 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On a cliff on the east side of Lac La Croix, one-half mile north of the portage to Loon Lake; about 100 feet above the level of the lake and 200 feet from the shore; opposite the long point on the west shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 501 (Ontario, Rainy River District; J. J. McArthur, 1916).—On an island in Lac La Croix about 1,000 feet in diameter, the most southern of the group; 2 miles north of the portage to Loon Lake, at the entrance to a large bay to the west; on a knoll at the southeast end of the island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 502 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On a small island in Lac La Croix, 2 miles north of the portage to Loon Lake, 800 feet from the United States mainland; nearly one-half mile southeast of reference monument 501.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 503 (Ontario, Rainy River District; J. J. McArthur, 1916).—On a small narrow island in Lac La Croix, 2½ miles north of the portage to Loon Lake, at the entrance to a large bay to the west. The monument is midway between the islands which are the sites of reference monuments 501 and 504.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 504 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On a large island in Lac La Croix, 2⅔ miles north of the portage to Loon Lake, at the entrance to a large bay to the west and one-third mile south of the peninsula at the east end of the bay. The monument is near the western extremity of the south end of the island and one-third mile north of reference monument 501; close to the shore and about 10 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 505 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On an island, about 1,000 feet long by 500 feet wide, in Lac La Croix, nearly 3 miles north of the portage to Loon Lake, one-half mile northwest of the most southern island of the group; at the entrance to a large bay to the west; on the most eastern part of the island; close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 506 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On an island in Lac La Croix about 300 feet long; 200 feet west of the large island which is the site of reference monument 504; one-third mile north of reference monument 504 and nearly 3 miles north of the portage to Loon Lake. The monument is on the west end of the island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 507 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On an island about 700 feet long, in Lac La Croix, 3 miles north of the portage to Loon Lake; near the middle of the entrance to the large bay to the west; one-third mile west of the north end of the large island, which is the site of reference monument 504; on a small knoll at the north end of the island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 508 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On a small rocky island in Lac La Croix, a little over 3 miles north of the portage to Loon Lake, 100 feet north of the large island which is the site of reference monument 504, and 1,500 feet south of the long point between the large bay to the west and the main channel of Lac La Croix.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 509 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the Canadian shore of Lac La Croix, on the point at the north side of the entrance to Wilkins Bay, the large bay to the west. The monument is 3½ miles north of the portage to Loon Lake, on top of the knoll at the southeastern end of the point; about 30 feet above the high-water mark and 150 feet from the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 510 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On a small island in Lac La Croix east of the point at the north side of the entrance to Wilkins Bay, the large bay to the west. The monument is 3½ miles north of the portage to Loon Lake.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 511 (Ontario, Rainy River District; J. J. McArthur, 1916).—On a prominent point on the west shore of Lac La Croix, 4½ miles north of the portage to Loon Lake, opposite the south side of the entrance to Snow Bay, the large bay to the east. The monument is close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 512 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On a small island in Lac La Croix, 4½ miles north of the portage to Loon Lake, 300 feet west of the point at the south side of the entrance to Snow Bay, the large bay to the east. The monument is on the highest part of the island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 513 (Ontario, Rainy River District; J. J. McArthur, 1916).—On a prominent point on the west shore of Lac La Croix, 5 miles north of the portage to Loon Lake; opposite the large island at the north side of Snow Bay, the large bay to the east; three-fourths mile southwest of the dome-shaped island at the west bend of the lake; close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 514 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On the large island in Lac La Croix, 5 miles north of the portage to Loon Lake, at the north side of the entrance to Snow Bay, the large bay to the east; on the west point of the island, 400 feet north of a small narrow island; one-half mile south of the dome-shaped island at the west bend of the lake; close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 515 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the most eastern of a small group of islands one-half mile northeast of the dome-shaped island at the west bend of Lac La Croix; 6 miles north of the portage to Loon Lake. The monument is at the east end of the island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 516 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On the south shore of Lac La Croix, one-third mile southeast of the dome-shaped island at the west bend of the lake, 6 miles north of the portage to Loon Lake. The monument is 1,000 feet from the west and 500 feet from the east point.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 517 (Ontario, Rainy River District; J. J. McArthur, 1916).—On a prominent point on the north shore of Lac La Croix, about 1¼ miles east of the west bend of the lake. There is a deep narrow bay to the northwest of the point and a much longer one to the east.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 518 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On a rugged cliff point on the south shore of Lac La Croix, three-fourths mile southwest of the dome-shaped island in the middle of the channel; 1 mile east of the west bend of the lake. The monument is at the west end of the point.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 519 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the north shore of Lac La Croix, one-third mile east of the dome-shaped island that is 2 miles east of the west bend of the lake. The monument is 300 feet west of a small bay.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 520 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On the most western island of a large group, 2½ miles east of the west bend of Lac La Croix and one-half mile southeast of a dome-shaped island in the middle of the channel. The monument is on the north side of the island, 400 feet west of a small adjacent island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 521 (Ontario, Rainy River District; J. J. McArthur, 1916).—On one of the islands at the east end of the large group, 2¾ miles east of the west bend of Lac La Croix; three-fourths mile southeast of a dome-shaped island in the middle of the channel. The monument is on a slight eminence at the west end of the island and is 1,500 feet east of reference monument 520.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 522 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On a small island between the two large islands of the large group, 2¾ miles east of the west bend of Lac La Croix, on which reference monuments 520 and 521 are situated. The monument is at the north end of the most western of three small islands and about 600 feet south of reference monument 521.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 523 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On a slight eminence on the west end of the island just east of the narrows between two islands; 150 feet east of the most western island of the large group in Lac La Croix, 3 miles east of the west bend of the lake. The channel to the west is shallow and about 75 feet wide and that to the north is deeper and about 200 feet wide; reference monument 524 is about 150 feet to the west.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 524 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On the east end of the most western island of a large group in Lac La Croix, 3 miles east of the west bend of the lake. The monument is on a slight eminence on the same island as reference monument 520 and is about 150 feet west of reference monument 523 on the adjacent island to the east.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 525 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the southwest side of the island just east of the narrows between two islands; 150 feet east of the most western island of the large group in Lac La Croix, 3 miles east of the west bend of the lake. The monument is on the same island as reference monument 523, 300 feet southeast from reference monument 523, and close to the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 526 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On Fortyone Island, a large island of the large group in Lac La Croix, 3 miles east of the west bend of the lake. The monument is on a rock outcrop near the northwest part of the island and is about 500 feet south of reference monument 525.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 527 (Ontario, Rainy River District; J. J. McArthur, 1916).—Near the southeast point of Fortyfive Island, one of the most western islands of the large group in Lac La Croix; 3¼ miles east of the west bend of the lake, 1⅛ miles southeast of the dome-shaped island in the middle of the channel; on the south side of and 200 feet from the end of the point. The monument is on the same island as reference monuments 521 and 531, and 500 feet southwest of the latter.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 528 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On Fortyone Island, a large island of the large group in Lac La Croix; 3¼ miles east of the west bend of the lake. The monument is about 200 feet east of a small bay in the north end of the island and is about midway between reference monuments 526 and 529 on the same island, and about 1,000 feet southwest of reference monument 527; close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 529 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On Fortyone Island, a large island of the large group in Lac La Croix; 3½ miles east of the west bend of the lake. The monument is 300 feet west of the end of the point north of a swampy bay and 200 feet southeast of a low island about 400 feet long in an east and west direction; close to the shore and the high-water mark. Reference monuments 526 and 528 are on the same island and reference monument 527 is about 1,000 feet to the northwest.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 530 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On one of the islands of the large group in Lac La Croix, 3½ miles east of the west bend of the lake. This island is due east of the island on which are situated reference monuments 521, 527, and 531, and the monument is 550 feet southeast of reference monument 531.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 531 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the east end of Fortyfive Island, one of the most western islands of a large group in Lac La Croix, 3½ miles east of the west bend of the lake, 1⅓ miles southeast of the dome-shaped island in the middle of the channel. Reference monuments 521 and 527 are on the same island, the latter 500 feet in a southwesterly direction.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 532 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On an eminence at the north end of a large island in the large group in Lac La Croix, 3¾ miles east of the west bend of the lake, one-half mile east of reference monument 531, and one-third mile south of reference monument 533.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 533 (Ontario, Rainy River District; J. J. McArthur, 1916).—On an island 200 feet from the north shore of Lac La Croix, 4 miles east of the west bend of the lake and 2 miles southwest of the entrance to Namakan River. The island is about 1,200 feet long, and the monument is on the side of the hill, about 100 feet from the shore at the southeast end of the island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 534 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On one of the small islands of the large group in Lac La Croix, 4 miles east of the west bend of the lake and 2 miles southwest of the entrance to Namakan River. This island is about 20 feet north of the middle of the island, about 1 mile long in an east and west direction, on which reference monuments 532 and 536 are situated. The monument is on the northeastern part of the island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 535 (Ontario, Rainy River District; J. J. McArthur, 1916).—On a small island in the large group in Lac La Croix, 4 miles east of the west bend of the lake and 2 miles southwest of the entrance to Namakan River. The island is circular in shape and about 100 feet in diameter and is 700 feet northeast of reference monument 532 and 1,300 feet southeast of reference monument 533.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 536 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On the north side of a large island in the large group in Lac La Croix, 4 miles east of the west bend of the lake and 2 miles southwest of the entrance to Namakan River. The monument is on the north shore of the point extending west from the eastern part of the island, about 300 feet from the west end of the point. Reference monument 532 is on the same island 2,000 feet west; reference monument 534 is about 1,000 feet west.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 537 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On a small island of the large group in Lac La Croix, 4 miles east of the west bend of the lake and 2 miles southwest of the entrance to Namakan River, 400 feet north of reference monument 534 and 1,500 feet east of reference monument 532.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 538 (Ontario, Rainy River District; J. J. McArthur, 1916).—On one of the islands of the large group in Lac La Croix, 4 miles east of the west bend of the lake and 2 miles southwest of the entrance to Namakan River, 400 feet northwest of reference monument 536; close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 539 (Ontario, Rainy River District; J. J. McArthur, 1916).—On one of the islands in the large group in Lac La Croix, 4½ miles east of the west bend of the lake and 1½ miles southwest of the entrance to Namakan River. The island is about 300 feet in diameter and is 1,000 feet southwest of the southwest point of the island on which reference monument 544 is situated. The monument is close to the shore on the southeast end of the island, 450 feet northwest of reference monument 540 and 500 feet south of reference monument 541.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 540 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On an island one-fourth mile long in the large group in Lac La Croix, 4½ miles east of the west bend of the lake and 1½ miles southwest of the entrance to Namakan River. The island is 1,000 feet northeast of the east end of the long island on which reference monuments 532 and 536 are situated. The monument is at the north end of the island and is 450 feet southeast of reference monument 539.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 541 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On one of the islands in the large group in Lac La Croix, 4½ miles east of the west bend of the lake and 1⅓ miles southwest of the entrance to Namakan River. The island is about 300 feet long and is 800 feet southwest of the southwest point of the

island on which reference monument 544 is situated. The monument is on the east end of the island, 500 feet north of reference monument 539 and 500 feet northwest of reference monument 542.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 542 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On one of the small islands of the large group in Lac La Croix, 4½ miles east of the west bend of the lake and 1⅓ miles southwest of the entrance to Namakan River. The island is about 100 feet in diameter and is 700 feet south of the southwest point of the island on which reference monument 544 is situated. The monument is on the highest part of the island, 500 feet north of reference monument 540 and 500 feet southeast of reference monument 541.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 543 (Ontario, Rainy River District; J. J. McArthur, 1916).—On a small island in the large group in Lac La Croix, 4½ miles east of the west bend of the lake and 1⅓ miles southwest of the entrance to Namakan River. The island is about 200 feet long and is 1,000 feet west of reference monument 544. The monument is near the center of the island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 544 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On one of the islands of the large group in Lac La Croix, 4½ miles east of the west bend of the lake and 1 mile southwest of the entrance to Namakan River. The island is about one-half mile long and just west of the large island two-thirds mile south of the entrance to Namakan River. The monument is on the northwest point of the island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 545 (Ontario, Rainy River District; J. J. McArthur, 1916).—On a small island three-fourths mile southwest of the entrance to Namakan River, one-third mile northeast of reference monument 544 and one-half mile west of reference monument 546.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 546 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On the most northern point of Twentyseven Island, the large island, about a mile long and three-fourths mile wide, one-half mile due south of the entrance to Namakan River. The monument is close to the shore.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 547 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the island about 1,000 feet long, 1,000 feet south of the entrance to Namakan River. The monument is at the head of the west bay on the south side of the island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 548 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the north shore of Lac La Croix, one-third mile east of the east side of the entrance to Namakan River. The monument is close to the shore about 300 feet east of the place where the high bank leaves the shore and runs in a northerly direction.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 549 (Ontario, Rainy River District; J. J. McArthur, 1916).—On Twentysix Island, an island in Lac La Croix, 1 mile southeast of the entrance to Namakan River and one-fourth mile east of the northeast point of Twentyseven Island, the large island one-half mile due south of the entrance to Namakan River. The monument is close to the shore about 100 feet south of the more southern of two small bays on the northeast side of the island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 550 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On Twentyseven Island, the large island in Lac La Croix, one-half mile due south of the entrance to Namakan River; on the east side of the island, about 200 feet north of the shoulder of the most southern of two points, two-thirds mile southwest of reference monument 549. Reference monument 546 is on the northwest point of the same island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 551 (Ontario, Rainy River District; J. J. McArthur, 1916).—On a small lone island in the big stretch of Lac La Croix, 3 miles east of the entrance to Namakan River and two-thirds mile southeast of a prominent bluff on Indian Island, the large island on the Canadian side.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 552 (Minnesota, St. Louis County; J. J. McArthur 1916).—On a large low island in Lac La Croix, 3 miles east of the entrance to Namakan River, the most western of the group, east of the big stretch of open water and due north of the channel west of Coleman Island. The monument is on the north point of the island, west of a large bay, and is three-fourths mile south of reference monument 551.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 553 (Ontario, Rainy River District; J. J. McArthur, 1916).—On Twentyfour Island, a large low island in Lac La Croix, the most northern of the group 3 miles east of the entrance to Namakan River and east of the big stretch of open water, one-half mile northeast of the island that reference monument 552 is situated on. The monument is on the shore, north of the bay at the southwest end of the island. Reference monuments 555 and 557 are on the same island, and reference monument 551 is two-thirds mile to the northwest

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 554 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On Twentyfive Island, the next island east of the island that reference monument 552 is situated on. The monument is on the point on which there is a small knoll, on the northwest corner of the island. Reference monument 552 is nearly one-half mile west and reference monument 553 about one-third mile northeast.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 555 (Ontario, Rainy River District; J. J. McArthur, 1916).—On Twentyfour Island, a large low island in Lac La Croix, the most northern of the group, 3 miles east of the entrance to Namakan River, just east of the big stretch of open water and one-half mile southwest of a swampy point of the north shore. The monument is on the southeast point of the island. Reference monument 553 is on the same island 1,000 feet to the northwest and reference monument 557 on the same island 2,300 feet to the northeast.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 556 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On a very small island in Lac La Croix, 1,000 feet south of reference monument 555 and 2,000 feet southwest of reference monument 558.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 557 (Ontario, Rainy River District; J. J. McArthur, 1916).—On Twentyfour Island, a large low island in Lac La Croix, the most northern of the group 3 miles east of the entrance to Namakan River, just east of the big stretch of open water and one-half mile southwest of a swampy point of the north shore. The monument is on the northeast point of the island. Reference monuments 553 and 555 are on the south end of the same island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 558 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On the large island north of Coleman Island, at the east bend of Lac La Croix, about 2 miles west of the mouth of Maligne River. The monument is on the long low point on the west side of the island. Reference monuments 560 and 562 are on the same island. Reference monument 555 is 2,000 feet west and reference monument 556 is 2,000 feet southwest.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 559 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On a small island 300 feet north of the large island north of Coleman Island, at the east bend of Lac La Croix and about 1,000 feet south of the low swampy point of the north shore. The monument is at the north end of the island and reference monument 560 is about 600 feet southeast.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 560 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On the point at the north end of the large island north of Coleman Island, at the east bend of Lac La Croix, one-fourth mile south of the low swampy point on the north shore; the monument is at the east end of the point.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place; replaced in 1921.

Reference Monument 561 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the north shore of Lac La Croix, two-thirds mile east of the low swampy point at the east bend of the lake and north of Coleman Island. The monument is close to the shore at the southwest base of the hill on the shoulder of the point. There is a small island one-fourth mile to the eastward, and the narrows at the mouth of Maligne River are about a mile to the eastward. Reference monument 560 is three-fourths mile southwest.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 562 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On the northeast point of the large island north of Coleman Island, at the east bend of Lac La Croix; on the same island as, and one-third mile southeast of, reference monument 560.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 563 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On a small L-shaped island in Lac La Croix one-half mile east of the north end of Coleman Island and three-fourths mile southeast of reference monument 562. The monument is close to the shore and 200 feet north of the southwest end of the island. Reference monument 564 is 1,000 feet to the west.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 564 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On an island in Lac La Croix just east of the most northern point of Coleman Island and two-thirds mile southeast of reference monument 562. The monument is on the most eastern point of the island. Reference monument 563 is 1,000 feet to the eastward.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 565 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On a small island in Lac La Croix one-half mile southeast of the north point of Coleman Island and about one-half mile south of reference monument 563. The monument is on top of the bank, on the north side of the island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 566 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On the east side of Coleman Island, one-half mile south of the north point of the island and 1,000 feet west of reference monument 565. The monument is close to the shore, on a small point 300 feet southwest of a group of small islands.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 567 (Ontario, Rainy River District; J. J. McArthur, 1916).—On a small island in Lac La Croix east of Coleman Island, 1,000 feet north of the peninsula that is a mile southeast of the north end of Coleman Island. There are two small islands about 200 feet apart, and the monument is on the west end of the east island. There is a long narrow precipitous island about 1,000 feet to the eastward.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 568 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On a very small rocky island in Lac La Croix close to the shore of the north side of the peninsula a mile southeast of the north end of Coleman Island. There is a low point about 500 feet to the eastward and reference monument 567 is about one-fourth mile to the northeastward.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 569 (Ontario, Rainy River District; J. J. McArthur, 1916).—On a very small island in Lac La Croix about a mile southeast of the north end of Coleman Island; just south of a small island about 200 feet long and 1,000 feet south of the middle part of a long narrow precipitous island. Reference monument 567 is about one-fourth mile to the northwestward.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 570 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On the northeast end of the peninsula, and a mile southeast of the north end of Coleman Island, in Lac La Croix. Reference monument 569 is about 1,000 feet to the northeastward and reference monument 567 is one-fourth mile to the northwestward.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 571 (Ontario, Rainy River District; J. J. McArthur, 1916).—On an island about one-half mile long in Lac La Croix, 500 feet east of the peninsula a mile southeast of the north end of Coleman Island. The monument is on a small cliff south of a bay. Reference monument 572 is 500 feet to the westward.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 572 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On a small point on the east side of the peninsula on the east side of, and a mile southeast of, the north end of Coleman Island in Lac La Croix. The monument is 500 feet northwest of a small island in the narrows. Reference monument 571 is 500 feet to the northeastward.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 573 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On a small island in Lac La Croix at the south end of the narrows off the peninsula on the east side of, and a mile southeast of the north end of Coleman Island. The island is near a bay at the southwest end of the large island and is about 500 feet east of a group of small islands.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 574 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On the east side of the peninsula a mile southeast of the north end of Coleman Island, in Lac La Croix; opposite a group of small islands at the south end of the narrows; close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 575 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the south end of the island about one-half mile long, east of the peninsula a mile southeast of the north end of Coleman Island; in Lac La Croix; 400 feet west of the point at the southeast end of the island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 576 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On a small island in Lac La Croix one-third mile southeast of the peninsula that is a mile southeast of the north end of Coleman Island. The monument is one-third mile southeast of reference monument 574 and one-third mile southwest of reference monument 575.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 577 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the most southern island of a group south of the prominent point on the east shore of Lac La Croix, 1½ miles southeast of the north end of Coleman Island and one-third mile southeast of a long narrow precipitous island. The monument is on the south side of the island. Reference monument 575 is one-half mile to the westward.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 578 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On a point of, and 2 miles southeast from, the north point of Coleman Island, in Lac La Croix; 1,500 feet south of reference monument 577. The monument is close to the shore and the high water mark, on the west side of the bay just west of the narrows.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 579 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On the large island in the narrows between the east shore of Lac La Croix and Coleman Island, 2½ miles southeast of the north end of Coleman Island. The monument is on the southwest slope of the island, about 200 feet from the shore and 20 or 30 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 580 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On a point of Coleman Island in Lac La Croix, on the south side and west end of the south narrows 2½ miles southeast of the north end of Coleman Island. The monument is on the east side of the bay that reference monument 578 is on the west side of, and is nearly one-half mile from reference monument 578. Reference monument 579 is about 650 feet to the north.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 581 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the north shore of Lac La Croix at the east end of the narrows nearly 3 miles southeast of the north end of Coleman Island. The monument is close to the shore at a right angle of the shore line, the sides of which go north and east from the monument. There is a long low point 600 feet east of the monument.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 582 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On the most eastern peninsula of Coleman Island, in Lac La Croix, at the east end of the south narrows nearly 3 miles southeast of the north end of Coleman Island, about 600 feet from the southeast point of the big island in the narrows. Reference monument 581 is about one-third mile to the northeast.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 583 (Ontario, Rainy River District; J. J. McArthur, 1916).—On an island about 200 feet long, in Lac La Croix, one-half mile southeast of the narrows that are 2½ miles southeast of the north end of Lac La Croix. There are two larger islands about 1,000 feet distant, one to the east and the other to the northeast.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 584 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On a point of Coleman Island in Lac La Croix about one-third mile south of the narrows that are 2½ miles southeast of the north end of Coleman Island. The shore here forms a rough right angle, the sides of which go north and west from the monument. Reference monument 583 is about 1,500 feet to the eastward.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 585 (Ontario, Rainy River District; J. J. McArthur, 1916).—On an island about 700 feet in diameter, in Lac La Croix, two-thirds mile south of the narrows that are 2½ miles southeast of the north end of Coleman Island. The monument is on the west side of the island, which is the most western of a group. Reference monument 584 is about one-third mile to the northward.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 586 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On a small rocky island in Lac La Croix, about one-half mile south of the narrows that are 2½ miles southeast of the north end of Coleman Island. The monument is about 800 feet from the shore of Coleman Island. Reference monument 585 is one-third mile southeast.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 587 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On a small island in Lac La Croix 300 feet from the east shore of the lake and about a mile due east of the narrows at the south end of Coleman Island. Reference monument 586 is 1¼ miles due north.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 588 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On the east side of Coleman Island, in Lac La Croix, just south of the south point of the bay that is 1 mile northeast from the narrows at the south end of Coleman Island. Reference monument 586 is two-thirds mile to the northeast and reference monument 587 is three-fourths mile to the southeast.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 589 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On an island in Lac La Croix one-half mile east of the narrows at the south end of Coleman Island. The monument is on the extreme east end of the island, and there is another island about 400 feet northeast from it. Reference monument 587 is nearly one-half mile distant in an easterly direction.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 590 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On a point of the west shore of Lac La Croix in the narrows about a mile south of the south end of Coleman Island, and 3 miles north of the mouth of Bottle River. Reference monument 587 is about one-half mile northeast.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 591 (Ontario, Rainy River District; J. J. McArthur, 1916).—On a point of the east shore of Lac La Croix in the narrows about a mile south of the south end of Coleman Island, and 3 miles north of the mouth of Bottle River. Reference Monument 590 is about 800 feet distant on the opposite point.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 592 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On the most eastern point of a large hilly island in Lac La Croix, one-half mile south of the narrows south of Coleman Island, and nearly 3 miles north of the mouth of Bottle River. There is another point 1,000 feet south of the monument. Reference monument 591 is about one-half mile due north.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 593 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the east shore of Lac La Croix, one-half mile south of the narrows south of Coleman Island, and nearly 3 miles north of the mouth of Bottle River. About 1,000 feet to the north is a cliff at the shore line on which are some Indian paintings. Between the cliff and the monument is a deep bay. Reference monument 592 is about one-third mile to the westward.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 594 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On a very small island in Lac La Croix, 1½ miles south of the narrows south of Coleman Island, and about 2 miles north of the mouth of Bottle River. There are other islands about 1,000 feet to the south, west, and north. Reference monument 592 is a mile due north.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 595 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the east shore of Lac La Croix, at a right angle of the shore line, where the shore goes north and east from the monument, 1⅓ miles south of the narrows south of Coleman Island, and 2 miles north of the mouth of Bottle River. There is a prominent point on the same shore 1,000 feet to the north and a small island about the same distance to the south. Reference monument 594 is about one-half mile to the southwest.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 596 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On an island in Lac La Croix a little over 2 miles south of the narrows south of Coleman Island, and about a mile north of the mouth of Bottle River. The island is about 500 feet long and is between two much larger islands to the east and west. A peninsula on the north side of the channel is about 1,000 feet to the northeast. The monument is on the northeast end of the island, and there is a small island 300 feet to the west.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 597 (Ontario, Rainy River District; J. J. McArthur, 1916).—On a very small island in Lac La Croix, 1¾ miles south of the narrows south of Coleman Island, and 1½ miles north of the mouth of Bottle River, which is at the southeast end of the lake. There are two small islands about 1,000 feet north and a large one about the same distance south. Reference monument 596 is about one-third mile to the southeast.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 598 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On the northeast end of an island in Lac La Croix. The island is about three-fourths mile long; it is about 2½ miles south of the narrows south of Coleman Island, and a mile northwest of the mouth of Bottle River which is at the southeast end of the lake; the peninsula on which reference monument 599 is situated is about 1,000 feet north. Reference monument 596 is about 1,000 feet distant in a westerly direction.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 599 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the southeast end of the peninsula on the Canadian shore, about 2½ miles southeast of the narrows that are south of Coleman Island, and a mile northwest of the mouth of Bottle River, which is at the southeast end of the lake. There is a small island about 1,000 feet to the southeast, and reference monument 598 is 1,000 feet southwest.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 600 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On a small rocky island to the west of the mouth of Bottle River, at the southeast end of Lac La Croix, 100 feet from the south shore and 400 feet from the southwest point of the large island at the mouth of Bottle River. The monument is on the east end of the island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 601 (Ontario, Rainy River District; J. J. McArthur 1916; 1921).—On the southwest point of the large island at the mouth of Bottle River at the southeast end of Lac La Croix; about 400 feet east of reference monument 600.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 602 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On the west shore of Bottle River, 200 feet from the southeast end of the large island at the mouth of the river. The monument is close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 603 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On the southeast end of the large island at the mouth of Bottle River, on a small rise just above the high-water mark and close to the shore. Reference monument 602 is about 270 feet to the south.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 604 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On the west shore of Bottle River, 350 feet south of the southeast end of the large island at the mouth of the river; about 20 feet from the shore. Reference monument 602 is about 140 feet to the northeast.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 605 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the shore at the southeast end of Lac La Croix just east of the mouth of Bottle River, and 300 feet from the southeast end of the large island at the mouth of Bottle River; 30 feet from the shore line and close to the high-water mark. Reference monument 602 is about 340 feet to the westward.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 606 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On the left bank of Bottle River, 400 feet from the mouth of the river; close to the high-water mark and at the edge of the stony bed of the river. Reference monument 604 is about 200 feet to the north.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 607 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On the right bank of Bottle River, 300 feet from the mouth of the river; about 30 feet east of the stony bed of the river and close to the high-water mark to the south. Reference monument 604 is about 150 feet to the northeast.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 608 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On the left bank of Bottle River, 600 feet from the mouth of the river, on a rock outcrop on the shore of the pool between two parts of the river where the bottom is very stony and comparatively dry. Reference monument 606 is about 240 feet to the northwest.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 609 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On the right bank of Bottle River, 400 feet from the mouth of the river, just above the high-water mark at the edge of the stony bed of the river. The high-water mark turns here from a westerly to a northerly direction. Reference monument 606 is about 100 feet to the westward.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 610 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On the left bank of Bottle River, 100 feet south of the stony bed of the river between the two expansions of the river; about 50 feet from the shore and 15 feet above the high-water mark. Reference monument 608 is about 650 feet to the northwest.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 611 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On the right side of Bottle River, 200 feet north of the angle of the shore line in the most southern expansion of the river; 15 or 20 feet above the high-water mark. Reference monument 610 is about 400 feet to the southeast and reference monument 608 about 430 feet to the westward.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 612 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On the left bank of Bottle River at the north end of the stony bed of the river between the two expansions of the river. Reference monument 610 is about 770 feet to the southwest.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 613 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On the right bank of Bottle River, at the north end of the narrow stony part between the two expansions of the river. Reference monument 612 is about 170 feet east and reference monument 605 about 420 feet northwest.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 614 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On the left bank of Bottle River, 300 feet south of the north end of the northern expansion of the river, at the south end of the low ridge above the rocky shore. Reference monument 612 is one-fourth mile to the southwest.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 615 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On the right bank of Bottle River at a right-angle turn of the high-water mark one-fourth mile south of the head of the river and 500 feet northwest of the northern expansion of the river. Reference monument 614 is 800 feet to the southeast.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 616 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On the left side of Bottle River, on a knoll at a bend of the river 900 feet south of the head of the river. The monument is about 100 feet from the shore and 20 feet above the level of the river. Reference monument 615 is about 300 feet due south.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 617 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On the right side of Bottle River, on a small cliff at a bend of the river about 1,000 feet south of the head of the river. The monument is about 100 feet from the shore and 20 feet above the level of the river. Reference monument 616 is about 300 feet to the eastward.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 618 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On the left bank of Bottle River on a ridge at the head of the river 300 feet southwest of the cliff on the south shore of Iron Lake and about 10 feet above the level of the lake. Reference monument 616 is about 800 feet south.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 619 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the right side of Bottle River, 400 feet southwest of the head of the river, on the hillside 100 feet from and 30 feet above the river. Reference monument 618 is about 400 feet east.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 620 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On the south shore of the northwest arm of Iron Lake, at the foot and just east of the cliff near the entrance to Bottle River. The monument is near high-water level and about 800 feet southeast of Bottle Portage. Reference monument 618 is about 350 feet southwest.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 621 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On the right bank of Bottle River, 200 feet from the head of the river, a little below the level of Iron Lake. Reference monument 618 is about 200 feet east.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 622 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the north shore of the northwest arm of Iron Lake, on top of the cliff opposite the entrance to Bottle River, about 100 feet from

and 35 feet above the lake; about 500 feet east of Bottle Portage. Reference monument 620 is about 500 feet south.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 623 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the north shore of the northwest arm of Iron Lake and one-half mile east of Bottle Portage and Bottle River. The monument is on top of a very large boulder. Reference monument 622 is about one-half mile due west.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 624 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On the south shore of the northwest arm of Iron Lake, 400 feet east of the end of the point one-half mile east of Bottle Portage; close to the shore and the high-water mark. Reference monument 623 is 700 feet north.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 625 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On the north shore of the northwest arm of Iron Lake, on the point two-thirds mile east of Bottle Portage and 600 feet west of the shallow rocky narrows between the northwest arm and the main body of the lake. The rock on which the monument is situated is cut off from the shore at high water. Reference monument 624 is 600 feet to the westward.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 626 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On the south shore of the northwest arm of Iron Lake, on the northwest slope of the hill two-thirds mile east of Bottle Portage and 500 feet west of the shallow rocky narrows between the northwest arm and the main body of the lake; about 50 feet from the shore and 25 feet above the high-water mark. Reference monument 625 is 250 feet north.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 627 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On the east side of the shallow rocky narrows between the northwest arm and the main body of Iron Lake, about three-fourths mile east of Bottle Portage; close to the shore and the high-water mark. Reference monument 625 is 700 feet to the westward.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 628 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On the west side of the shallow rocky narrows between the northwest arm and the main body of Iron Lake, about three-fourths mile east of Bottle Portage, close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 629 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On the north shore of Iron Lake, 1,000 feet south of the shallow rocky narrows that connect the northwest arm with the main body of the lake; about 50 feet from the shore and 10 feet above the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 630 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On a knob on the hillside 1,000 feet south of the shallow rocky narrows that connect the northwest arm with the main body of Iron Lake; 600 feet northwest of the prominent point where the lake widens out.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 631 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the north shore of the bay in Iron Lake, one-half mile southeast of the shallow rocky narrows that connect the northwest arm with the main body of the lake; 500 feet east and a little north of the east end of the island on which reference monument 632 is situated. The monument is close to the shore and the high-water mark.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 632 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On an island in Iron Lake nearly one-half mile southeast of the shallow rocky narrows that connect the northwest arm with the main body of the lake. The monument is on the rise at the northwest end of the island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 633 (Ontario, Rainy River District; J. J. McArthur, 1916).—On a point of the south shore of the bay on the east side of Iron Lake one-half mile southeast of the shallow rocky narrows that connect the northwest arm with the main body of the lake. Reference monument 632 is about 1,000 feet west and a little north.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 634 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On the shore of Iron Lake, one-half mile west of the prominent point that is one-third mile south of the shallow rocky narrows that connect the northwest arm with the main body of the lake. Reference monument 635 is 2,000 feet southeast.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 635 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On an island in Iron Lake about three-fourths mile south of the shallow rocky narrows that connect the northwest arm with the main body of the lake, and 300 feet west of a cliff on the point on the northeast shore. The monument is on a knoll on the west end of the island. Reference monument 632 is about 2,000 feet to the northeast.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 636 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On an island about 1,000 feet in diameter in Iron Lake, about a mile south of the shallow rocky narrows that connect the northwest arm with the main body of the lake; just west of the channel north of Four Island, the mile-long island, and a little over a mile west of Rebecca Falls. The monument is on the southeast point of the island. Reference monument 635 is about one-fourth mile northeast.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 637 (Ontario, Rainy River District; J. J. McArthur, 1916).—On a small island in Iron Lake, a mile south of the shallow rocky narrows that connect the northwest arm with the main body of the lake, and 500 feet west of the west end of Four Island, the mile-long island southwest of Rebecca Falls. Reference monument 635 is nearly one-half mile north and reference monument 636 is about 1,000 feet northwest.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 638 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On an island about 700 feet long in Iron Lake, 1⅓ miles south of the shallow rocky narrows that connect the northwest arm with the main body of the lake, and about 1,000 feet from the west shore of the lake. Reference monument 637 is about 2,000 feet northeast.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 639 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On a small island in Iron Lake 1⅓ miles south of the shallow rocky narrows that connect the northwest arm with the main body of the lake. The island is close to a larger one which extends about 2,000 feet south, and is connected to it at extreme low water. The monument is 1,500 feet south of the west end of Four Island, the mile-long island southwest of Rebecca Falls. Reference monument 640 is about 200 feet south and reference monument 637 is 1,500 feet northwest.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 640 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On an island in Iron Lake 1⅓ miles south of the shallow rocky narrows that connect the northwest arm with the main body of the lake. The island extends 2,000 feet in a southerly direction and is about 1,500 feet south of the west end of Four Island, the mile-long island southwest of Rebecca Falls. Reference monument 639 is about 200 feet north.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 641 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On a small island in Iron Lake, 1¾ miles southeast of the shallow rocky narrows that connect the northwest arm with the main body of the lake, and 400 feet south of the most southern point of Four Island, the mile-long island southwest of Rebecca Falls. The monument is 2 miles west of Curtain Falls. Reference monument 640 is about one-half mile northwest.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 642 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On the north side of Three Island in Iron Lake, nearly a mile south of Rebecca Falls and 1½ miles west of Curtain Falls. The island is about two-thirds mile long in an east and west direction, and the monument is about 200 feet east of the point at the northwest corner of the island. Reference monument 641 is about 2,000 feet southwest.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 643 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the southeast side of Four Island, the mile-long island in Iron Lake southwest of Rebecca Falls; on the southwest point of a small bay and about halfway between the northeast and south points of the island. The monument is about 1⅓ miles west of Curtain Falls and 750 feet north of reference monument 642.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 644 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On the north side of Three Island in Iron Lake nearly a mile south of Rebecca Falls and a mile west of Curtain Falls. The island is about two-thirds mile long in an east and west direction and the monument is 1,500 feet from the east end of the island. Reference monument 642 is about 1,700 feet west on the same island.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 645 (Ontario, Rainy River District; J. J. McArthur, 1916).—On the north shore of Iron Lake, 1 mile west of Curtain Falls. The monument is about 100 feet from the shore on the east point of

the bay that is about 1,000 feet east of Four Island, the mile-long island southwest of Rebecca Falls. Reference monument 644 is about one-fourth mile southwest.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 646 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On a small island in Iron Lake just off the long point on the south side of the mouth of Curtain River, about three-fourths mile west of Curtain Falls. Reference monument 645 is about one-third mile northwest.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 647 (Ontario, Rainy River District; J. J. McArthur, 1916).—On an island about 300 feet long in Iron Lake, 400 feet east of the point on which reference monument 645 is located. It is at the mouth of Curtain River, three-fourths mile due west of Curtain Falls. Reference monument 646 is about 800 feet southeast.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 648 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On the south side of Curtain River, one-half mile west of Curtain Falls at the point where the river widens into Iron Lake. There is a rocky point 300 feet to the eastward and a bay about 1,000 feet deep on the north shore and to the eastward. Reference monument 647 is about one-fourth mile west.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 649 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On the north side of Curtain River, one-half mile west of Curtain Falls, about 400 feet west of the entrance to a bay that is about 1,000 feet deep. Reference monument 648 is about 350 feet to the south.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 650 (Minnesota, St. Louis County; J. J. McArthur, 1916; 1921).—On the south side of Curtain River, on top of the hill at the west end of the portage between Curtain River and Crooked Lake, one-third mile west of Curtain Falls. The monument is about 100 feet from the shore and about 30 feet above the high-water mark. There is an island about 200 feet in diameter about 200 feet northwest. Reference monument 648 is about 1,000 feet to the westward.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 651 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On a bowlder about 15 feet high, close to the point north of the rapids; just east of the island, 200 feet in diameter, in Curtain River, one-third mile west of Curtain Falls and south of the bay on the north shore. Reference monument 650 is about 300 feet southwest.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 652 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On the south side of Curtain River, about 1,000 feet west of Curtain Falls, on a shelf on the hillside just above the trail; about 100 feet from the shore and 30 feet above the high-water mark. Reference monument 650 is about 800 feet to the westward.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 653 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On the north side of Curtain River, about 1,000 feet west of Curtain Falls; near the east end of the portage from the smooth stretch of the river to the still water south of the bay; about 75 feet from the shore and 20 feet above the high-water mark. Reference monument 651 is about 700 feet west, near the west end of the portage.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 654 (Minnesota, St. Louis County; J. J. McArthur, 1916).—On the south side of Curtain River, on a little knob on the northeast end of the ridge which parallels the river, 300 feet west of Curtain Falls; about 200 feet from the shore and 80 feet above the high-water mark. Reference monument 652 is about 550 feet to the westward.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 655 (Ontario, Rainy River District; J. J. McArthur, 1916; 1921).—On the north shore of Curtain River, about 250 feet northwest of Curtain Falls, on a knoll between the main ridge and the river; 125 feet from the shore and 25 feet above the high-water mark. Reference monument 653 is about 850 feet to the westward.

Station mark: A manganese-bronze post, 8 inches high, set in a drill hole in rock in place.

Reference Monument 656 (Minnesota, St. Louis County; W. B. Fairfield, 1914; 1921).—At the west end of Crooked Lake. The station is on the south shore at the east end of the Curtain Falls Portage. It is on a smooth granite ledge about 5 meters from the stream and about 1 meter north of the portage trail.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 657 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1921).—At the west end of Crooked Lake about 100 meters northeast of the head of Curtain Falls. The station is on top of a rocky point about 15 meters back from the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 658 (Minnesota, St. Louis County; W. B. Fairfield, 1914; 1916).—On the west shore of Crooked Lake, about 400 meters east of the head of Curtain Falls. The station is on the first point of any size in the shore east of the falls. It is on a granite ledge about 4 meters from the water and 3 meters above the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 659 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the west shore of Crooked Lake, about 250 meters east of Curtain Falls. The station is on a granite point about 4 meters above the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 660 (Minnesota, St. Louis County; W. B. Fairfield, 1914; 1916).—On the west end of Crooked Lake, about 850 meters east of Curtain Falls. The station is on a small bare granite islet. It is on the highest point, which is about 1½ meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 661 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the north shore of Crooked Lake, about seven-eighths mile east of Curtain Falls. The station is on the high granite point just south of the mouth of Sarah River, the stream through which Roland Lake discharges into Crooked Lake. It is on a shoulder of the point about 100 meters back from the shore line on the west and about 30 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 662 (Minnesota, St. Louis County; W. B. Fairfield, 1914; 1916).—On the west shore of Crooked Lake, about 1¼ miles southeast of Curtain Falls. The station is on the north point of the fourth headland above Curtain Falls. It is on a granite ledge about 6 meters back from the extreme point.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 663 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On Crooked Lake, about 1¼ miles southeast of Curtain Falls. The station is on the southwest point of the large island in the middle of the large open northwest part of the lake. This point of the island is almost an island itself, being connected to the main island by only a low reef of rocks. The station is in the solid ledge about 3 meters back from the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 664 (Minnesota, St. Louis County; W. B. Fairfield, 1914; 1916).—On Crooked Lake, about 2¼ miles southeast of Curtain Falls. The station is on the northeast point of the large island lying in this part of the lake. It is on a large flat fixed rock about 12 meters from the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 665 (Minnesota, St. Louis County; W. B. Fairfield, 1914; 1921).—On Crooked Lake, about 2½ miles southeast of Curtain Falls. The station is on a small round island in the bend of the lake and about midway between the large islands in the eastern channel and the large island at the south side of the northwest open body of the lake. It is on a granite point on the east end of the island, about 3 meters back from the water and about 2 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 666 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On Crooked Lake, about 2¼ miles southeast of Curtain Falls. There are three small islands lying in a north and south row just off the Canadian shore. The length of the row is about 600 meters. The station is on the middle one of this row of islands. There is a large and very irregularly shaped island about 350 meters southwest of the station. The island on which the station is situated lies not more than 50 meters offshore from a rugged and sharp point of the mainland. The station is on the west point of the island, on a large flat-topped rock, partially in the water, whose dimensions are about 3 by 3 meters in cross section and 3 meters high.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 667 (Minnesota, St. Louis County; E. R. Martin, 1916; 1921).—On the western part of Crooked Lake, on the west end of the very large island that lies in the turn of the lake 3 miles southeast of Curtain Falls. The station is about 50 meters from the north shore and about 250 meters from the west shore of the island. It is on top of a narrow rock ledge about 15 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

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Reference Monument 668 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On Crooked Lake, about 3¼ miles southeast of Curtain Falls. The station is on a small island lying about 50 meters south of the Canadian shore and about 380 meters north of the east end of a very large long island. There is another small island, about the size of the island the station is on, halfway between the station and the large island. The shore of the mainland north of the station is very regular and has an east and west direction for more than a half mile in either direction. The station is on a large lone bowlder on the highest part of the island.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 669 (Minnesota, St. Louis County; W. B. Fairfield, 1914; 1916).—On Crooked Lake, about 4 miles southeast along the boundary channel from Curtain Falls. The station is on a small rock islet just north and east of the narrow entrance to the second large southern bay of the lake counting from the west. The rock islet is about 6 meters in diameter and has a rounded top about 3 meters above the water. The station is on the highest point.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 670 (Minnesota, St. Louis County; W. B. Fairfield, 1914; 1916).—On Crooked Lake, about 4¼ miles southeast along the boundary channel from Curtain Falls. The station is on a large island lying just north and east of the entrance to the second (from the west) large southern bay of the lake. It is on the smooth granite ledge on the highest point of the island, being about midway east and west, and near the south side of the island.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 671 (Minnesota, St. Louis County; W. B. Fairfield, 1914; 1921).—On Crooked Lake, about 4¼ m les southeast along the boundary channel from Curtain Falls. The station is on a large island lying just north and east of the entrance to the second (from the west) large southern bay of the lake. It is on the high granite knoll on the east end of the island.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 672 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1921).—On Crooked Lake, about 4¾ miles east along the boundary channel from Curtain Falls. The station is on a large L-shaped island lying about 500 meters south of a narrow wedge-shaped bay that indents the north shore of this part of the lake. It is on the south ledge of the east part of the island, on the high, level top, about 9 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 673 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On Crooked Lake, about 5 miles east along the boundary channel from Curtain Falls. The station is on a small island about 600 meters west of the largest island in this part of the lake, and about 120 meters east of the next large island to the west of the largest one before mentioned. It is on the high part of the south end of the little island.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 674 (Ontario, Rainy River District; E. R. Martin, 1915; 1916).—On Crooked Lake, about 5½ miles east of Curtain Falls. The station is on the northwest point of a large island lying between a large northern bay and a large southern bay of the lake. It is on a ledge about 1.5 meters above the water and near the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 675 (Minnesota, St. Louis County; W. B. Fairfield 1914; 1916).—On the south shore of Crooked Lake, about 4¾ miles east along the boundary channel from Curtain Fal s. The station is on the high headland of the most northern point of the shore just west of the largest island in this part of the lake. It is on the bare rock on the summit of the headland about 6 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 676 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1921).—On Crooked Lake, about 5 miles along the boundary channel east of Curtain Falls. The station is on the southwestern point of the largest island in this part of the lake. The narrow boundary channel passes to the south and west of the island.

Station mark: A standard 8-inch manganese-bronze reference post set in a round rock.

Reference Monument 677 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—Near the middle of Crooked Lake, about 5 miles east of Curtain Falls. The station is on the most southern projecting point of a large island lying at the east entrance to a rather narrow east and west passage or channel of the lake. It is about 1.5 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the bare rock of the point.

Reference Monument 678 (Minnesota, St. Louis County; W. B. Fairfield, 1914; 1916).—On the south shore of Crooked Lake, about 5 miles east of Curtain Falls and near the center of the main body of the lake. The

station is on a low projecting point on the west side of the entrance to the second large southern bay of the lake counting from the east. There is a large island just north of the point and the boundary channel passes between the station point and a like projecting point on the island. Reference monument 677 is on the point on the island.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 679 (Minnesota, St. Louis County; W. B. Fairfield, 1914; 1921).—On Crooked Lake, about 6 miles east by south from Curtain Falls. The station is on the northwest point of an island about 250 by 500 meters lying north of the middle one of the large southern bays of the lake. It is on top of the rock point about 3 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 680 (Ontario, Rainy River District; W. B. Fairfield, 1915; 1921).—Near the middle of Crooked Lake. The station is on the northern and smaller of the two large islands that lie in the center of the lake and north of the wide entrance to the second from the east of the four large southern bays of the lake. It is on a large rock off the west point of the island, about 2 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 681 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the north side of Crooked Lake, about 6 miles by air line, or about 7 miles by the lake channel, east of Curtain Falls. The station is on one of the very large northern peninsulas which extend in a large irregular mass in a southeast direction from a low narrow isthmus. It is on the highest hill on the southern part of this peninsula. There is a small lake in a hollow of the hills just north of the station, and a long narrow lagoon heads at the foot of the steep hill just south of the station and connects with the lake about 1 mile to the east. There is only a slight barrier between the head of the lagoon and the open water of the lake. The station is on the bare summit of the hil[1] about 45 meters above the lake level and about 300 meters north from the open water of the main channel of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 682 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On Crooked Lake, about 2⅛ miles west of the east entrance to the large irregular main body of the lake. The station is on the extreme southern tip of the large high timbered island that lies at the west end of the main east and west channel of the lake. This is the third island in the channel as approached from the east, the boundary passing around its south end.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 683 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On Crooked Lake, about 6 miles by air line southeast of Curtain Falls. The station is on a small green island near the middle of the third large southern bay from Curtain Falls. It is on the bare ledge on the northeast part of the island, about 3 meters back from the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 684 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the south shore of Crooked Lake, about 7 miles southeast of Curtain Falls. The station is on the bold headland at the east side of the entrance to the third great southern bay from Curtain Falls. It is on top of the high steep bluff about 20 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 685 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On Crooked Lake, about 1 mile west of the east entrance to the lower or main body of the lake. The station is on a small rocky islet in the main channel of the lake, about 350 meters west of the long peninsula extending from the south, about 400 meters east of the large L-shaped island lying in the channel, and about 150 meters north of the smaller southern peninsula. It is on the highest point of the bare rock, less than a meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 686 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the north shore of Crooked Lake. The station is on the north side of the main channel through the lake, about 1 mile west of the narrows and rapids at the east entrance to the lower level of the lake. It is on the end of a finger-like projection of the shore line that terminates in a prominent knoll. There are deep indentations of the shore line on both sides of the point. The double point at the north end of the long narrow peninsula that reaches up from the south lies just across the channel to the east from the station. The station is on the granite ledge on the summit of the knoll.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 687 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the eastern part of the large irregular main body of Crooked Lake, about seven-eighths mile west of the east entrance thereto. The station is on the double point of the long narrow peninsula that forms the western side of the most eastern

of the large southern bays of the main body of the lake. It is on the southwest tip of the western prong of the double point, on the summit of a knoll, about 10 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 688 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—Near the middle of the eastern part of Crooked Lake. The station is on the point on the west side of the entrance to the large northeast arm of the lake. The point ends in a knob and bluff about 12 meters high. The station is on the bluff overlooking the water, and is on the south side of the granite ledge.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 689 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the eastern part of the large irregular main body of Crooked Lake, about seven-eighths mile west of the eastern entrance thereto. The station is on the double point of the long narrow peninsula that forms the western side of the most eastern of the large southern bays of the main body of the lake. It is on the north tip of the western prong of the double point, on the summit of the cliffs about 12 meters above the water, and on the western one of two large bowlders lying on top of the ledge.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 690 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the east shore of Crooked Lake. The station is on the rounded point on the east side of the entrance to the large northeast arm of the lake. It is about 550 meters north and across the main channel of the lake from the double point of the long narrow peninsula that forms the west side of the most eastern of the large southern bays of the lake. It is on a ledge on a bowlder-strewn beach, about 2 meters from the shore line and a little above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 691 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the south shore of Crooked Lake, about three-fourths mile west of the large island with rapids both north and south of it that separates the upper level of the lake from the lower level. The station is on the end of the long narrow point that extends up from the the south and ends in two knolls around which the international boundary makes a U-shaped turn. It is on the eastern one of the two knolls, in thick woods about 100 meters west of the shore, 150 meters south of the tip of the point, and 15 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 692 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the eastern part of the main body of Crooked Lake, about 1,100 meters west of the east entrance. The station is on a small rock islet lying about 100 meters offshore from the east side of the neck of the long peninusla which is on the west side of the entrance to the most eastern large southern bay of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 693 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the shore line of Crooked Lake, about 700 meters along the north shore west from the south end of the narrows that pass around the north and west sides of the large island lying in the east entrance to the large irregular main body of the lower level of the lake. The station is near the turn of the shore to the north, on a large flat rock partly in the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 694 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the west shore of a large bay of Crooked Lake and on the east shore of the long fingerlike peninsula, which is about three-fourths mile west of the east entrance to the large irregular main body of the lake. The station is on a granite ledge on a prominent point of the shore line about one-half mile south of the north end of the peninsula. It is about 2 meters from the shore line and about 1 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 695 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On Crooked Lake, near the east entrance to the large irregular main body of the lake. The station is on the north end of a small rock islet lying about 250 meters off the south end of the narrows around the north and west sides of the large island in the entrance. It is on the highest point of the rock.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 696 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the north shore of Crooked Lake, near its eastern end. About 1¼ miles west of where the lake finally turns to the west into its large irregular east and west part. There is a narrow right-angle passage around the north and west sides of a large island. There are rapids in this passage, and the international boundary follows it. The station is on the point about 100 meters west of the south end of this passage, on a prominent bare rock about 3 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 697 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the north shore of Crooked Lake, about 6½ miles northwest of Lower Basswood Falls. The station is on the southeast point of a peninsula on the east side of a very large open expanse of the lake. A large island lies just east of the peninsula, and the narrow boundary channel passes around the north and west sides of the island, separating it from the peninsula.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 698 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the eastern part of Crooked Lake, on the west shore of the island at the east entrance to the lower or large irregular part of the lake. The station is on the west point of the island on the east side of the southern end of the channel that passes around the north and west sides of the island. The point on the mainland opposite is used as a camping ground. The station is on the rock ledge near the shore and a little above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 699 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the north shore of the eastern part of Crooked Lake. The station is on the west shore of the narrow and rapid channel that passes around the north and west sides of the large island lying in the east entrance to the large irregular main part of the lake. It is on a little round knob just south of the northwest angle of the channel, about 4½ meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 700 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1921).—On the north shore of Crooked Lake, near its east end. The station is on the south shore of the narrow and rapid channel that passes around the north and west sides of the large island lying in the east entrance to the large irregular main body of the lake. It is just at the foot of the small rapids in the channel, and near the west end of the east and west course of the channel. It is on a fixed rock at the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 701 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1921).—On the north shore of Crooked Lake, near its east end. The station is on the north shore of the narrow and rapid channel that passes around the north and west sides of the large island lying in the east entrance to the large irregular lower part of the lake. It is opposite the middle point of the island, on a rock shelf, about 2 meters from the shore, and about 2 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 702 (Minnesota, Lake County; W. B. Fairfield, 1914; 1921).—On Crooked Lake, on the north shore of the large island that lies in the east entrance to the large irregular main body of the lake. The station is on the point, near the middle of the north shore, that juts out into the narrowest place in the channel north of the island. It is on the shore line about 30 meters above the rapids.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 703 (Minnesota, Lake County; W. B. Fairfield, 1914; 1921).—On Crooked Lake, on the northeast point of the large island that lies in the east entrance to the large irregular main body of the lake. The station is on the highest point of a little projecting point of rock that is probably an island at high water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 704 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the eastern part of Crooked Lake. The station is on the south point of a large island lying in a bight of the north shore just after turning west from the long narrow north-and-south eastern reach of the lake toward the entrance to the large irregular main body of the lake. It is on top of the granite ledge about 15 meters back from the shore line and about 7 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 705 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the south shore of the eastern part of Crooked Lake, on the north end of the long peninsula that lies on the west side of the northern extremity of the long north-and-south eastern portion of the lake. The lake turns to the west around the end of this peninsula. The entrance to the large irregular body of the lower lake is about three-fourths mile to the west. The station is on a solid granite ledge on the summit of the hill on the northwest point of the peninsula.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 706 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the north shore of Crooked Lake, at the bend of the lake where the long narrow north-and-south stretch of the lake turns to the west toward the main body of the lake. The station is on the point at the west side of the entrance to the large bay that here extends to the north. The rock point extends out beyond the timber line about 20 meters The station is on the highest part of the ledge about 12 meters from the extreme point.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 707 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the eastern part of Crooked Lake, in the turn of the lake where the long narrow north-and-south reach of the lake turns westward toward the main body of the lake. The station is on the high bare summit of the large island that lies in the turn of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 708 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the eastern part of Crooked Lake, in the turn of the lake where the long narrow north-and-south stretch of the lake turns to the west toward the main body of the lake. The station is on the south point of the island that lies in the mouth of the bay that extends to the north. It is about 12 meters back from the extreme point and about 4.5 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 709 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the east shore of Crooked Lake, about 5⅝ miles north of Lower Basswood Falls. The station is on the point east of and opposite the largest island in the north end of the long narrow north-and-south part of the lake. It is on a granite ledge among the dead trees on the highest part of the bluff, about 50 meters east of the shore line and about 250 meters south of the north end or tip of the point.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 710 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the eastern part of Crooked Lake, about 5⅝ miles north of Lower Basswood Falls. The station is on the highest point on the north end of the largest island in the north end of the long narrow north-and-south part of the lake. It is on the highest part of the smooth bare granite ledge of the summit.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 711 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1921).—On the east side of Crooked Lake, about 5½ miles north of Lower Basswood Falls. The station is on the bluff at the south end of the narrows opposite the south end of the largest island in the north end of the long narrow north-and-south reach of the eastern part of the lake. It is about 100 meters back from the shore line on the smooth granite ledge on the summit of the bluff.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 712 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the west shore of Crooked Lake, about 5¼ miles north of Lower Basswood Falls. The station is on the summit of the knob on the point that is 200 meters due west of the south end of the largest island lying in the north end of the long narrow north-and-south reach of the eastern part of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the solid granite ledge.

Reference Monument 713 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the west shore of Crooked Lake, about 5 miles north of Lower Basswood Falls. The station is on a point lying between a little swamp and the open water of the lake about one-half mile south of the largest island lying in the north end of the long narrow north-and-south reach of the eastern part of the lake. It is about 80 meters north of the tip of the point, about 50 meters from the shore line on the east, about 50 meters from the swamp on the west, and on the highest part of the solid bare granite point about 12 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 714 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On Crooked Lake, about 4¾ miles north of Lower Basswood Falls. The station is on the most northern of several bare granite islets lying near the Canadian shore, about 500 meters north of the narrows at the south end of the second and last long narrow north reach of the eastern part of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 715 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the west side of Crooked Lake, about 4¾ miles north of Lower Basswood Falls. The station is on the first point north of the narrows just north of where the lake turns from the west to the north into the second and last long narrow north reach. It is on the highest part of the bare granite bluff about 100 meters north of the south end of the point and about 40 meters west from the shore line of the east side of the point.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 716 (Minnesota, Lake County; W. B. Fairfield, 1914; 1921).—On the west side of Crooked Lake, about 4½ miles north of Lower Basswood Falls. The station is on the summit of the hill on the west side of the very narrow passage near the south end of the second long narrow north reach of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the solid rock ledge.

Reference Monument 717 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1921).—On the east shore of Crooked Lake, about 4½ miles north of Lower Basswood Falls. The station is on the high rock bluff overlooking the very narrow passage near the south end of the second and last long narrow north reach of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 718 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the west shore of Crooked Lake, about 4¼ miles north of Lower Basswood Falls. The station is on the low granite point 300 meters directly west across the lake from the long peninsula around which the lake turns into the second and last narrow north reach. It is on the solid ledge about 4 meters from the water and about 1.5 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 719 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the north shore of Crooked Lake about 4¼ miles north of Lower Basswood Falls. The station is on the narrow tip of the long peninsula around which the lake turns into the second and last narrow north reach. It is about 4 meters from the water and about 2 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 720 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the north shore of Crooked Lake, about 4¼ miles north of Lower Basswood Falls. The station is on the rocky point on the east side of the peninsula around which the lake turns from the west to the north into the second northern reach of the lake. It is on the sloping granite ledge about 7.5 meters back from the water's edge and about 4.5 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 721 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the south shore of Crooked Lake, about 4 miles north of Lower Basswood Falls. The station is on a rocky point about five-eighths mile west of the large open expanse of the lake that is at the north end of the narrow crooked eastern part of the lake. It is opposite the long peninsula around which the lake turns into another narrow north reach. It is on the smooth granite ledge about 7.5 meters back from the shore line and about 1.5 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 722 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the south shore of Crooked Lake, about 4¼ miles north of Lower Basswood Falls. The station is on a low granite point about 400 meters west of where the lake makes a turn to the west. It is on the granite ledge about 4.5 meters from the water's edge and about 1.5 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 723 (Minnesota, Lake County: W. B. Fairfield, 1914; 1916).—On the south shore of Crooked Lake, about 4⅛ miles north of Lower Basswood Falls. The station is on the point around which the lake turns through a narrow passage from the broad north-and-south expanse toward the west, in which direction it continues for about three-fourths mile. The station is on a large fixed rock back of the line of bowlders along the shore, and about 4.5 meters from the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 724 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the north shore of Crooked Lake, about 4¼ miles north of Lower Basswood Falls. The station is on the point at the narrows where the lake makes the first turn of any great length toward the west. It is directly opposite reference monument 723. It is on a smooth surface of exposed rock a little above the lake level and about 6 meters back from the edge of the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 725 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On Crooked Lake, about 4 miles north of Lower Basswood Falls. The station is on the highest point of a small, bare, rocky islet in the wide expanse of the lake about 600 meters north of the narrows which are at the south entrance to the wide part. The islet is about 100 meters from the east shore.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 726 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On Crooked Lake, about 3¾ miles north of Lower Basswood Falls. The station is on the west end of an island lying just north and east of the narrows where the lake widens into an open expanse about 1 mile long and one-half mile wide. It is on a sheer rock bluff about 3.5 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 727 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the west shore of Crooked Lake, about 3⅝ miles north of Lower Basswood Falls. The station is on the long low shelving point at the north end of the narrows north of which the lake widens into an open expanse about 1 mile long and one-half mile wide. There is a small wooded island just north of the point. The station is on the highest part of the ledge about 12 meters from the trees.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 728 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1921).—On the east shore of Crooked Lake, about 3½ miles north of Lower Basswood Falls. The station is on the high rock bluff point near the north end of the narrows, north of which the lake widens into an open expanse about 1 mile long and one-half mile wide. It is on the level top of the highest part of the bluff just east of a wide cleft in the ledge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 729 (Minnesota, Lake County; W. B. Fairfield, 1914; 1921).—On the west shore of Crooked Lake, about 3½ miles north of Lower Basswood Falls. The station is on the high rocky knoll at the northern end of the narrows north of which the lake widens into an open expanse about one mile long and one-half mile wide.

Station mark: A standard 8-inch manganese-bronze reference post set in the smooth granite top of the knoll.

Reference Monument 730 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1921).—On the east shore of Crooked Lake, about 3½ miles north of Lower Basswood Falls. The station is on the high rock bluff at the south entrance to the narrows, which are about 600 meters long and north of which the lake widens into an open expanse about a mile long and one-half mile wide. It is on a large fixed bowlder on top of the bluff.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 731 (Minnesota, Lake County; W. B. Fairfield, 1914; 1921).—On the west shore of Crooked Lake, about 3⅛ miles north of Lower Basswood Falls. The station is on the bluff near the middle of the west shore of a pond-like expansion of the lake between two narrows. There are slight rapids in the narrow channel three-eighths mile north of the station and also in the narrow channel three-eighths mile south of the station. The station is on the smooth rock top of the eastern part of the bluff. There is a higher point on the bluff about 30 meters northwest of the station.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 732 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1921).—On the east shore of Crooked Lake, about 2⅞ miles north of Lower Basswood Falls. The station is on a point at a very narrow place in the lake about 100 meters northeast of a small wooded island. It is on a large fixed rock on top of the point.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 733 (Minnesota, Lake County; E. R. Martin, 1915; 1921).—On the west shore of the long narrow north-and-south reach of Crooked Lake, about 3 miles north of Lower Basswood Falls. The station is on a projecting point of the shore about 100 meters north of a small island and near the south end of a wide place in the channel. It is on a bowlder about 9 meters from the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 734 (Minnesota, Lake County; W. B. Fairfield, 1914; 1921).—On the west shore of Crooked Lake, about 2¾ miles north of Lower Basswood Falls. The station is on the summit of a hill about 120 meters west of a very narrow and rapid channel of the lake about 200 meters south of a small island. It is on a large fixed rock among the trees.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 735 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1921).—On the east shore of Crooked Lake, about 2¾ miles north of Lower Basswood Falls. The station is on a rocky point at a very narrow channel of the lake. It is on the highest part of the point on a large fixed rock in the woods. There is a small island in the lake about 200 meters north of the station.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 736 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the east shore of Crooked Lake, about 2½ miles north of Lower Basswood Falls. The station is on the first rocky point north of where the lake turns to the north just west of the entrance to Moose Bay. It is on a fixed rock about 2.5 meters east of a much larger fixed rock which is partly in the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 737 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the west shore of Crooked Lake, about 2½ miles north of Lower Basswood Falls. The station is on a point about 300 meters north of where the lake turns from a westerly course to a northerly course. It is on the ledge about 4.5 meters from the water's edge and about 2.5 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 738 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the west shore of Crooked Lake, about 2¼ miles north of Lower Basswood Falls. The station is near the point of the shore where the lake turns to the north just west of the entrance to Moose Bay. It is on a sloping granite ledge about 2.5 meters from the water's edge and about 2 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 739 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1921).—On the east shore of Crooked Lake, about 2¼ miles north of Lower Basswood Falls. The station is on the point around which the lake turns from the west to the north just west of the entrance to Moose Bay. It is on a large fixed rock about 4.5 meters back from the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 740 (Minnesota, Lake County; W. B. Fairfield, 1914; 1921).—On the west shore of Crooked Lake, about 2¼ miles north of Lower Basswood Falls. The station is in the bend of the bight where the lake makes a turn from the west to the north just west of the entrance to Moose Bay. It is on a sloping ledge at the foot of a steep hillside, about 2.5 meters above the lake level, and about 2.5 meters back from the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 741 (Minnesota, Lake County; W. B. Fairfield, 1914; 1921).—On Crooked Lake, about 2¼ miles north of Lower Basswood Falls. The station is on the east side of the island lying nearest to the United States shore off the entrance to Moose Bay. It is on the highest part of the bare granite rock.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 742 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1921).—On Crooked Lake, about 2¼ miles north of Lower Basswood Falls. The station is on the south end of the high, wooded, rocky island that lies nearest the Canadian shore in the entrance to Moose Bay. It is on a smooth granite ledge about 4.5 meters back from the shoreline and about 3 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 743 (Minnesota, Lake County; E. R. Martin, 1915; 1916).—On the west shore of the long narrow north-and-south reach of Crooked Lake, about 2 miles north of Lower Basswood Falls. The station is on a point of the shore about 400 meters south of the entrance to Moose Bay. It is on a rock at the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a ledge.

Reference Monument 744 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the east shore of Crooked Lake, about 2 miles north of Lower Basswood Falls. The station is at the south end of a high bluff just north of the narrows and where the lake begins to widen and turn toward the west. It is about 1.5 meters from the water's edge and about 0.6 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 745 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the east shore of Crooked Lake, about 1¾ miles north of Lower Basswood Falls. The station is on a rocky bluff point in the second narrow place north of the falls. It is on top of the rock ledge, on a level shoulder about 6 meters from the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 746 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the west shore of Crooked Lake, 1¾ miles north of Lower Basswood Falls. The station is at the foot of the sloping rocky bank in the second narrows north of the falls. It is about 2 meters back from the water's edge and about 1 meter above the lake level. Reference monument 745 is directly across the lake from the station.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 747 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the west shore of Crooked Lake, about 1⅜ miles north of Lower Basswood Falls. The station is near the north end of the smooth cliff known as Indian Rock, which has drawings on its face. It is at the foot of the cliff on top of a rock about 3 by 4.5 meters in cross section and 3 meters high. This is the most northern large rock lying at the foot of the cliffs.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 748 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the east shore of Crooked Lake, about 1⅜ miles north of Lower Basswood Falls. The station is on the highest part of a rocky point just north of the first narrows in the lake, and is opposite the north end of the smooth cliff known as Indian Rock, which has Indian drawings on its face.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 749 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the east shore of Crooked Lake, about 1¼ miles north of Lower Basswood Falls. The station is on the rocky point at the north end of a narrow place in the lake. It is on a low sloping ledge at the foot of the cliff, about 2.5 meters from the water's edge and about 0.6 meter above the lake level. Just opposite the station is a smooth vertical cliff rising about 20 meters from the water and known as Indian Rock, upon which are drawings of birds and animals ascribed to the Indians of some past generation.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 750 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the west shore of Crooked Lake, about 1¼ miles north of Lower Basswood Falls. The station is on the south end of the smooth cliff that rises about 20 meters from the water and is known as Indian Rock from the drawings of birds and animals on it, which are ascribed to the Indians. The station is on a sloping shoulder of the cliff about 3 meters from the edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 751 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the west side of Crooked Lake, about 1 mile north of Lower Basswood Falls. The station is on the high rocky point near the northern end of the peninsula at the entrance to the narrows of the lake. It is on a small ledge about 3 meters above the water and about 3 meters back from the water's edge. The bluff rises steeply back of the station.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 752 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the east shore of Crooked Lake, about 1 mile north of Lower Basswood Falls. The station is on the north end of a rocky bluff, after entering the narrow part of the lake from the south. It is on a shoulder of the rock about 4.5 meters above the lake level. The bluff rises sharply back of the station.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 753 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the west shore of Crooked Lake, about 1,400 meters north of Lower Basswood Falls. The station is on the southeast point of a prominent peninsula just south of a narrow place in the lake. It is on a ledge, about 2.5 meters from the water's edge and about 0.6 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 754 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the east shore of Crooked Lake, about three-fourth mile below Lower Basswood Falls. The station is on a granite ledge on a prominent point of the shore that is much used as a camp ground. It is about 3 meters from the water's edge and about 2.5 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 755 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On a prominent point on the west shore near the south end of Crooked Lake. The station is about three-fourth mile north of Lower Basswood Falls. It is on a solid ledge among the trees about 12 meters back from the shore line and about 5 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 756 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the east shore near the south end of Crooked Lake. The station is on the northern part of a cleft rocky point about 950 meters north of Lower Basswood Falls. It is on a rough ledge about 2 meters from the water's edge and 0.5 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 757 (Ontario, Rainy River District; W. B. Fairfield, 1914; 1916).—On the east shore near the south end of Crooked Lake. The station is on the sloping granite ledge on the rocky point about 600 meters north of Lower Basswood Falls. It is opposite the wooded island on which reference monument 758 is situated. There is a little bay and another prominent point just north of the station. The station is about 3 meters from the water's edge and about 2 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 758 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—In the south end of Crooked Lake, on a prominent wooded island about 650 meters north of Lower Basswood Falls. The station is on the rocky point on the eastern end of the island, about 3 meters from the shore line, and about 2.5 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 759 (Minnesota, Lake County; W. B. Fairfield, 1914; 1916).—On the west shore near the south end of Crooked Lake. The station is on the timbered point about 500 meters north of Lower Basswood Falls. It is on a fixed rock about 3 meters from the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 760 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1916).—At the head of Crooked Lake, on a small rocky island lying off the east shore about 300 meters below Lower Basswood Falls. The station is on the northwest part of the island, about 0.3 meter above high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 761 (Minnesota, Lake County; W. B. Fairfield, 1914; 1921).—On the south end of Crooked Lake. The station is on the east point of an island about 200 meters west of Lower Basswood Falls.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 762 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1921).—At the head of Crooked Lake, on the point just north of Lower Basswood Falls. The station is back in the woods, about 100 meters north of the falls and about the same distance east of the shore line of the lake. It is about 15 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 763 (Minnesota, Lake County; W. B. Fairfield, 1913; 1921).—At the head of Crooked Lake, on the north end of the largest of the islands at Lower Basswood Falls. The station is on the highest point of the bare rock, about 4 meters above high-water mark and just north of the portage trail.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 764 (Ontario, Rainy River District; E. R. Martin, 1915; 1916).—On the north shore of Basswood River, about 400 meters upstream from Lower Basswood Falls. The station is on a large detached rock, surrounded by timber, back about 9 meters from the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 765 (Minnesota, Lake County; W. B. Fairfield, 1913; 1916).—On the south side of Basswood River, about 600 meters east of Lower Basswood Falls. The station is on the summit of the high rocky peninsula that is connected by a marshy isthmus to the mainland on the south. Reference to the maps of 1826 indicates that the peninsula was an island at that time.

Station mark: A standard 8-inch manganese-bronze reference post set in the solid granite ledge of the summit.

Reference Monument 766 (Minnesota, Lake County; E. R. Martin, 1915; 1921).—On the south shore of Basswood River, on the point where the river widens out, about 1,000 meters above Lower Basswood Falls.

Station mark: A standard 8-inch manganese-bronze reference post set in a rock near the shore line.

Reference Monument 767 (Ontario, Rainy River District; E. R. Martin, 1914; 1921).—On the north shore of Basswood River, at the place where the river widens out about 1,000 meters above Lower Basswood Falls. The station is on a sloping rock ledge about 10 meters from the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge

Reference Monument 768 (Ontario, Rainy River District; E. R. Martin, 1915; 1921).—On the north shore of Basswood River, about 1,500 meters above Lower Basswood Falls on the point outside of Wheelbarrow Portage around North Falls. The station is on a flat rock just above the falls.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 769 (Minnesota, Lake County; E. R. Martin, 1915; 1921).—On the south shore of Basswood River, about 1,300 meters above Lower Basswood Falls. The station is on the point at the first narrow place, about 150 meters below Wheelbarrow Falls. It is on a ledge about 5 meters from the river.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 770 (Minnesota, Lake County; E. R. Martin, 1915; 1921).—On Basswood River about 1,500 meters above Lower Basswood Falls. The station is on the west shore of the island, around which the river splits into two narrow channels in one of which is Wheelbarrow Falls. It is on a flat rock just above the falls of the main channel.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 771 (Minnesota, Lake County; E. R. Martin, 1915; 1921).—On the north shore of the large island in Basswood River, about 1,800 meters above Lower Basswood Falls. The station is about 200 meters upstream from Wheelbarrow Falls, on a ledge about 3.6 meters from the shore and about 3 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 772 (Ontario, Rainy River District; E. R. Martin, 1915; 1921).—On the north shore of Basswood River, about 1,800 meters above Lower Basswood Falls and about 200 meters above Wheelbarrow Falls. The station is on a sloping ledge near the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 773 (Minnesota, Lake County; E. R. Martin, 1915; 1921).—In Basswood River, on the northeast point of the large island that splits the river at Wheelbarrow Falls and about 2,200 meters above Lower Basswood Falls. The station is about 25 meters back from the extreme point and about 4.5 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in a rock.

Reference Monument 774 (Ontario, Rainy River District; E. R. Martin, 1915; 1921).—On the north shore of Basswood River, about 1½ miles above Lower Basswood Falls. The station is on the point on the east side of a small bay that extends north from the wide expanse of the river at this place. It is on a large flat rock about 15 meters back from the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 775 (Minnesota, Lake County; E. R. Martin, 1915; 1921).—On the south shore of Basswood River, about 2,000 meters east of Lower Basswood Falls. The station is on the point about 250 meters east of the rapids in the narrow channel passing south of the large island at Wheelbarrow Falls. It is on a flat rock a little above the water level.

Station Mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 776 (Ontario, Rainy River District; E. R. Martin, 1915; 1921).—On the north shore of Basswood River, about 2,100 meters east of Lower Basswood Falls. The station is on the brow of a steep hill at a place where the river, which has been flowing northeast for about 700 meters, suddenly widens out into a broad bay. It is about 50 meters back from the shore line, about 15 meters above the river, on a flat rock about 1.2 meters above the ground level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 777 (Minnesota, Lake County; E. R. Martin, 1915; 1916).—On the west bank of Basswood River, about 2 miles upstream from Lower Basswood Falls and on the most western bend of a north-and-south stretch of the river. The station is on top of a cliff or bluff about 30 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a flat rock just above the ground surface.

Reference Monument 778 (Minnesota, Lake County; E. R. Martin, 1915; 1916).—On the southwest bank of Basswood River, about 2¼ miles upstream from Lower Basswood Falls. The station is on the point near the west limit of a large triangular expansion of the river. It is about 40 meters back from a little low projecting point of the shore line upon which are a few pine trees, about 250 meters southeast and upstream from the turn of the river, and 12 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in a sloping ledge.

Reference Monument 779 (Ontario, Rainy River District; E. R. Martin, 1915; 1916).—On the north bank of Basswood River, about 2½ miles upstream from Lower Basswood Falls. The station is on the east side of a little bay on the north side of a large triangular expansion of the river. It is on a flat rock overlooking the bay. A larger and higher rock shows near the station.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 780 (Ontario, Rainy River District; E. R. Martin, 1915; 1916).—On the north side of Basswood River, about midway between Basswood and Lower Basswood Falls. The station is on a flat, brushy, table-land, about 100 meters north of the river at the lower rapids and about 20 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a flat rock outcrop.

Reference Monument 781 (Minnesota, Lake County; E. R. Martin, 1915; 1916).—On the south side of Basswood River, about midway between Basswood and Lower Basswood Falls. The station is on a high rock ledge about 90 meters south of the river, about 250 meters upriver from the boat landing at the end of the Horse Portage road, between the portage road and the river, and about 30 meters above the water in the river.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 782 (Ontario, Rainy River District; E. R. Martin, 1915; 1921).—On the north side of Basswood River, about midway between Basswood Falls and Lower Basswood Falls. The station is on top of a brushy hill between the river and a small lake, about 150 meters north of the river and about 30 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in a flat-topped bowlder about 8 feet square.

Reference Monument 783 (Minnesota, Lake County; E. R. Martin, 1915; 1921).—On the south side of Basswood River, about midway between Basswood Falls and Lower Basswood Falls. The station is on top of a rocky hill between two rapids in the river and also between the river and the portage road. The hill is the second one from the west lying between the river and the road.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 784 (Ontario, Rainy River District; E. R. Martin, 1915; 1921).—On the north side of Basswood River, about 1½ miles downstream from Basswood Falls. The station is on the rocky summit of a hill that projects southward from the range of hills into a loop or bend of the river. It is about 100 meters from the river at its nearest point on the east of the station and about 30 meters above the level of the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 785 (Minnesota, Lake County; E. R. Martin, 1915; 1921).—On the south bank of Basswood River, about 1½ miles downstream from Basswood Falls. The station is on the bank between the river and the portage road at a point where the road comes down close to the river.

Station mark: A standard 8-inch manganese-bronze reference post set in a large bowlder.

Reference Monument 786 (Minnesota, Lake County; E. R. Martin, 1915; 1921).—On the south side of Basswood River, on the neck of the peninsula about 1,000 meters west of Basswood Falls. The station is on a flat ledge, about 50 meters north of the portage road, about 100 meters east of the river bank, and about 10 meters above the level of the water in the river.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 787 (Minnesota, Lake County; E. R. Martin, 1915; 1916).—On the south side of Basswood River, about 1,000 meters west of Basswood Falls. The station is on the west slope of the peninsula that lies in the loop of the river. It is about 250 meters north of the portage road where it crosses the neck, about 100 meters east of the river bank and about 18 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in a sloping ledge.

Reference Monument 788 (Minnesota, Lake County; W. B. Fairfield, 1913; 1921).—On the south side of Basswood River, on the high granite hill that lies in the big loop of the river about three-fourths mile below Basswood Lake. The station is on the summit, on the northwest side of the hill, on the highest point of rock overlooking the river.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 789 (Ontario, Rainy River District; E. R. Martin, 1915; 1921).—On the north side of Basswood River, about 1¼ miles downstream from Basswood Falls. The station is on a rock cliff at a bend where the river turns to the south. It is about 30 meters from the river and about 25 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 790 (Minnesota, Lake County; E. R. Martin, 1915; 1916).—On the south side of Basswood River, about 1 mile downstream from Basswood Falls. The station is on the slope of the hill about 200 meters below rapids, about 80 meters back from the shore line, and about 27 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A drill hole in the rock, marking station "Fly," is 10.8 meters distant, in azimuth 249° 47′ from the monument.

Reference Monument 791 (Ontario, Rainy River District; E. R. Martin, 1915; 1916).—On the north side of Basswood River, about 1 mile downstream from Basswood Falls. The station is on a rock bluff about equally distant from two rapids in the stream. It is about 35 meters from the river and about 24 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 792 (Ontario, Rainy River District; E. R. Martin, 1915; 1921).—On the north side of Basswood River, about three-fourths mile downstream from Basswood Falls. The station is on the rock bluff on the point just above the rapids where the river turns to the west.

Station mark: A standard 8-inch manganese-bronze reference post in the rock.

Reference Monument 793 (Ontario, Rainy River District; E. R. Martin, 1915; 1921).—On the north shore of Basswood River, about three-fourths mile downstream from Basswood Falls. The station is at the head of a small bay just above the falls at the turn of the river toward the west. It is on a flat rock nearly level with the ground about 50 meters back from the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 794 (Minnesota, Lake County; E. R. Martin, 1915; 1921).—On the point around which Basswood River turns from the north to the west, about 1,000 meters north of the head of Basswood Falls. The station is on the flat ledge on top of the point about 90 meters south of the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 795 (Ontario, Rainy River District; E. R. Martin, 1915; 1921).—On the east side of Basswood River, about 800 meters north of the head of Basswood Falls. The station is on the top of a rocky knob about 40 meters southeast of the foot of the rapids in the narrows and about 15 meters above the river level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 796 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1916).—On the north shore of Basswood River, about 400 meters north by east of the first rapids after leaving Basswood Lake. The station is on the north shore of the pond or slack water below the first rapids and is east of the north end of the first large island below the first rapids. It is about 60 meters west of a bluff point, on one of the large flat rocks of which the shore line here is composed. It is about 4 meters back from the water's edge and about 0.4 meter above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 797 (Minnesota, Lake County; W. B. Fairfield, 1913; 1921).—On the south side of Basswood River, about 700 meters below Basswood Lake. The station is on the high bluff west of the second large island in the river. The river strikes the face of the bluff in a broad expanse and turns at right angles

to the north along the face of the bluff and runs into a narrow passage and rapids about 300 meters north of the station. The station is on the first high bare spot on the bluff, about 8 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 798 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1921).—On Basswood River, about 175 meters below Basswood Lake. The station is on the second small rocky island below Basswood Falls. It is on the southwest and highest part of the island, about 4 meters back from the edge of the cliff or ledge.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 799 (Minnesota, Lake County; W. B. Fairfield, 1913; 1921).—On the west side of Basswood Lake and south of the head of Basswood River. The station is on the high granite hill just south of the second falls or rapids below Basswood Lake and west of the first falls. It is on the highest part of the granite top, about 150 meters back from the shore.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 800 (Minnesota, Lake County; W. B. Fairfield, 1913; 1921).—On the west side of Basswood Lake and south of the head of Basswood River. The station is on the first rocky shoulder of the ridge that rises and extends to the west from Basswood Falls. It is on the highest part of the shoulder, on a large fixed rock, about 75 meters from the shore, and about 8 meters above the lake. It is a little west of the highest point on the lower portage trail.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 801 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1921).—On the west end of Basswood Lake. The station is on the island lying at the falls at the head of Basswood River. It is on the summit of the western part of the island, on the smooth granite ledge about 75 meters back from the shore.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 802 (Minnesota, Lake County; W. B. Fairfield, 1913; 1916).—On the west shore of Basswood Lake, on the point at the west side of the narrow entrance to the bay leading to Basswood Falls. The station is on the top of the rock point, about 6 meters back from the water and 9 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 803 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1916).—On the shore of Basswood Lake, on the point of the east side of the narrow entrance to the bay leading to Basswood Falls and about five-eighths mile southeast of the falls. The station is on the lake side of the point, about 100 meters north of the tip of the point. It is on the highest part of the first granite knoll up from the shore, about 6 meters from and 4 meters above the lake.

Station mark: A standard 8-inch magnanese-bronze reference post set in the granite ledge.

Reference Monument 804 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1916).—On Basswood Lake about 1⅜ miles due east of Basswood Falls. The station is on an island which is one of the group of islands lying west of the narrows passing around the north side of United States Point. The island is in the western tier of the group and is the second one of any size from the Canadian shore, from which it is about 400 meters distant. The station is on the solid rock, on the west end and on the highest part of the island.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 805 (Minnesota, Lake County; W. B. Fairfield, 1913; 1916).—In the big angle of Basswood Lake, on the point on the south shore of the lake around which the lake makes the big turn from west to southwest. This point is about 2 miles east by south, across the lake from Basswood Falls. A large island lying just north of the point is separated from it by a narrow and deep channel. The point itself is cut off from the mainland by a low, swampy pass, but little above the lake level. The station is on the summit of the high rocky hill which rises in a series of ledges from the water's edge on the west side of the point.

Station mark: A standard 8-inch manganese-bronze reference post set in the solid rock of the summit.

Reference Monument 806 (Minnesota, Lake County; W. B. Fairfield, 1913; 1916).—In the angle of Basswood Lake, on United States Point. The station is about 1⅛ miles distant and on the third high hill from the east end of the point. It is on the bare ledge on the highest part of the hill.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 807 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1916).—On the north shore of Basswood Lake, on the point of the shore at the west end, and on the north side of the narrow passage that lies along the north shore of United States Point. The station is about 60 meters west of the extreme tip of the point, on a rock ledge about 3 meters above the water, and about 6 meters back from the edge of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 808 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1916).—On the north shore of Basswood Lake, on the point of the shore opposite and northwest of the east end of United States Point.

The station is on the south side of the point, about 130 meters west of the extreme east end of the point. It is on the granite ledge that rises from the water, about 3 meters back from the shore, and about 1 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 809 (Minnesota, Lake County; W. B. Fairfield, 1913; 1916).—In the angle of Basswood Lake, on United States Point. The station is on the summit of the high rocky hill about one-half mile west of the tip of the point.

Station mark: A standard 8-inch manganese-bronze reference post set in the solid rock of the summit.

Reference Monument 810 (Minnesota, Lake County; W. B. Fairfield, 1913; 1916).—On the shore of Basswood Lake, on the south prong of the east end of United States Point. The station is about 100 meters southwest of the tip of this prong, on a rock ledge that rises from the water to a height of about 1.2 meters. It is about 2.4 meters back from the water's edge, on the highest part of the ledge.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 811 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1916).—On Basswood Lake, on a small island 700 meters north of the east end of United States Point. The island is about 15 meters in diameter. It is almost of solid rock with its highest point about 4.5 meters above the lake level. Two other small, though somewhat larger islands lie about 100 meters south of the island on which the station is located. The station is on the highest point of the island on solid rock.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 812 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1916).—On Basswood Lake on the west end of a long, narrow island lying off the point of the east shore, directly east of and opposite United States Point. The station is on the second step of the solid ledge that forms the end of the island. It is on the highest point of the ledge, about 1.5 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 813 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1916).—On Basswood Lake, on the point of the shore southeast of and opposite the extreme end of United States Point. The station is on the ledge of rock that rises from the water and extends back into the timber. It is about 2 meters from the water's edge and about 1 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 814 (Minnesota, Lake County; W. B. Fairfield, 1913; 1916).—On the west shore of the north-and-south stretch of Basswood Lake and the south shore of United States Point. The station is on the point of the headland that projects out into the lake 1 mile southwest of the extreme end of United States Point. It is on the granite ledge about 6 meters back from the water's edge and about 3.5 meters above the lake level. A group of rocks and small islets lying about 200 meters off the point help to identify it as approached from the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 815 (Minnesota, Lake County; W. B. Fairfield, 1913; 1921).—On Basswood Lake, on the smaller and northeastern one of two small islands that lie about 400 meters off the Minnesota shore due west of the south end of Canadian Point. The station is on the east end of the island, on a fixed rock, about 4 meters from the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 816 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1921).—On Basswood Lake, on a small island, in the north-and-south stretch of the lake, lying 125 meters off the most western point of Canadian Point. The station is on the western side of the island, on the highest part of a granite ledge, about 8 meters east of a large Norway pine tree overhanging the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 817 (Ontario, Rainy River District; E. R. Martin, 1915; 1921).—On Basswood Lake, on the small low double island that lies just north of where the lake makes the great bend from west to north. This small island lies 100 meters off the west shore of the large island lying just south of Canadian Point. The station is on the west end of the eastern part of the island.

Station mark: A standard 8-inch manganese-bronze reference post set in rock. A drill hole within a triangle cut in the rock, marking triangulation station "Goat," bears north 39° 02′ west, 1.8 meters from the monument.

Reference Monument 818 (Minnesota, Lake County; W. B. Fairfield, 1913; 1921).—On Basswood Lake, on the large island that lies just to the west of the large bend of the lake from west to north. The island is L-shaped and is divided into east and west parts by a low pass across it. It lies about one-half mile north of the

entrance to Wind Bay. The station is near the middle of the eastern part of the island, on the summit of a sharp rocky knoll nearly bare of timber. The rest of the island is heavily timbered.

Station mark: A standard 8-inch manganese-bronze reference post set in the solid ledge.

Reference Monument 819 (Minnesota, Lake County; W. B. Fairfield, 1913; 1921).—On Basswood Lake, on the southernmost of the group of three small islands lying just south of the very large island around which the lake makes the large bend from west to north. The station is on the west end of the island in an old Indian camp ground among the large Norway pines. It is on a large fixed rock projecting about 0.5 meter above the ground.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 820 (Minnesota, Lake County; W. B. Fairfield, 1913; 1916).—On the south shore of Basswood Lake. The station is on the western one of the three points of the shore line south of the two large islands lying in the entrance to Merriam Bay. It is on a granite ledge of the rocky point, about 15 meters back from the shore line, and 6 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 821 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1916).—On Basswood Lake, on the largest of the group of small islands lying just south of the western one of the two large islands in the entrance to Merriam Bay. The station is on the most southern point of the island, on a ledge, about 4 meters back from the water's edge and 3 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 822 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1916).—On the eastern part of Basswood Lake. The station is in the southwest part of Bayley Bay, on a small lone island 450 meters east of the big peninsula forming the west side of the bay. It is on the solid granite ledge on the highest part of the eastern end of the island.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 823 (Minnesota, Lake County; W. B. Fairfield, 1913; 1916).—On a small island in Basswood Lake, near the east end of the lake, south of Bayley Bay, and near the south shore of the lake. Another somewhat larger island lies about 50 meters to the southwest. The station is on the east end of the island, on a large fixed rock.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 824 (Minnesota, Lake County; W. B. Fairfield, 1913; 1916).—On the south shore near the east end of Basswood Lake, on the bare rocky hill rising from the shore opposite the large wooded island that lies west of the first sharp turn of the lake below Prairie Portage. The station is on the solid ledge on the north brow of the summit.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 825 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1916).—On the eastern part of Basswood Lake. The station is on the west end of the large island that lies just west of the first sharp turn of the lake below Prairie Portage. It is on a large fixed rock, just clear of the timber, on the extreme west tip of the island.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 826 (Ontario, Rainy River District; W. B. Fairfield, 1915; 1916).—On the north shore near the east end of Basswood Lake. The station is on the point on the north side of the narrows entering Bayley Bay and the main part of the lake. It is on a rock about level with the ground.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 827 (Minnesota, Lake County; W. B. Fairfield, 1913; 1916).—Near the east end of Basswood Lake, about 1¼ miles northwest of Prairie Portage. The station is on the summit of the high rocky knoll on the point around which the lake bends from north to west. It is on the solid granite ledge on the eastern and highest point of the summit.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 828 (Ontario, Rainy River District; W. B. Fairfield, 1915; 1916).—On the north shore of Basswood Lake, about 1 mile northwest of Prairie Portage. The station is on the point in the elbow of the crooked channel leading into Bayley Bay and the open lake. It is on a large rock near the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 829 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1916).—Near the east end of Basswood Lake. The station is on the point on the east side of the narrows 1 mile north across the bay from Prairie Portage. It is on the most western part of the point, on a large fixed rock, about 3 meters back from the shore line and about 0.5 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 830 (Minnesota, Lake County; W. B. Fairfield, 1913; 1916).—Near the east end of Basswood Lake. The station is on a small rocky knoll on the west side of the narrows about 1 mile northwest across the bay from Prairie Portage. It is just opposite and east of the point of the peninsula that is across the narrows.

Station mark: A standard 8-inch manganese-bronze reference post set in the solid granite ledge on the summit of the knoll.

Reference Monument 831 (Minnesota, Lake County; W. B. Fairfield, 1915; 1921).—On the south shore at the east end of Basswood Lake. The station is on the projecting point of the shore about 200 meters north of the rapids. It is on a rock near the bunk house of the lumber company at Prairie Portage.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 832 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1916).—At the east end of Basswood Lake. The station is on the high rocky ridge between Basswood and Sucker Lakes, about 300 meters east of the dam at Prairie Portage.

Station mark: A standard 8-inch manganese-bronze reference post set in the solid ledge of the summit.

Reference Monument 833 (Minnesota, Lake County; W. B. Fairfield, 1915; 1921).—At the east end of Basswood Lake, below the dam at Prairie Portage. The station is on a smooth outcrop about 135 meters below the dam and just west of the trail to the camp.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 834 (Minnesota, Lake County; W. B. Fairfield, 1913; 1921).—At the east end of Basswood Lake. The station is about 20 meters southwest of the dam at the outlet of Sucker Lake, on a rounded ledge south of the trail.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 835 (Ontario, Rainy River District; W. B. Fairfield, 1915; 1921).—On the north side of the stream between Sucker and Basswood Lakes, about 40 meters below the Prairie Portage Dam. The station is on a flat rock a little above the surrounding surface.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 836 (Minnesota, Lake County; W. B. Fairfield, 1915; 1921).—On a small island in Sucker Lake, about 500 meters southeast of Prairie Portage Dam and about 250 meters southwest of the mouth of Birch Lake. There is a slightly larger island about 100 meters west of this island.

Station mark: A standard 8-inch manganese-bronze reference post set in rock.

Reference Monument 837 (Minnesota, Lake County; W. B. Fairfield, 1915; 1921).—On a small wooded island on the south side of the channel between Birch and Sucker Lakes. The station is on solid rock on the highest point and near the center of the island.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 838 (Ontario, Rainy River District; W. B. Fairfield, 1915; 1921).—On the north side of the outlet of Birch Lake. The station is about 75 meters back from the shore on the timbered ridge which is parallel to the stream.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 839 (Minnesota, Lake County; W. B. Fairfield, 1915; 1921).—At the outlet of Birch Lake. The station is on the ridge on the point of the mainland on the south side of the outlet of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 840 (Minnesota, Lake County; W. B. Fairfield, 1913; 1921).—On the long narrow tongue of land south of the narrows between Birch and Sucker Lakes. The station is 320 meters east of the extreme west end of the tongue, near the north brow of the hill, about 50 meters south of the shore line, and about 24 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 841 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1921).—On the point of the north shore, at the head of the narrows leading from Birch Lake into Sucker Lake. The station is on the steep hillside of the point, on the first bench, about 12 meters above the lake and about 12 meters back from the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 842 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1916).—At the west end of Birch Lake, on the large island lying in the entrance to the narrows between Birch and Sucker Lakes. The passage between the island and the mainland is shallow and marshy. The station is near the center and on the summit of the island.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 843 (Minnesota, Lake County; W. B. Fairfield, 1913; 1916).—At the west end of Birch Lake, on the little round island just east of the approach to the narrows leading into Sucker Lake. This island is attached to the south shore by a narrow neck of land at low water. The station is on the north side of the island, about 4 meters back from the waters' edge and about 3 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 844 (Minnesota, Lake County; W. B. Fairfield, 1913; 1916).—On the south shore of Birch Lake, on the north point of the little round peninsula that forms the south side of the narrows 1½ miles east of the west end of the lake. The station is on a rocky point, 12 meters back from the water and 6 meters above it.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 845 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1916).—On the north side of Birch Lake, about 1⅝ miles west of Carp Portage. The station is on the highest point of a peninsula extending into Birch Lake from the narrow divide between Birch Lake and a small lake to the north. It is about 600 meters northeast of the western point of the peninsula and is about 45 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 846 (Minnesota, Lake County; W. B. Fairfield, 1913; 1916).—On the south shore of Birch Lake, about 1,700 meters west of Carp Portage. The station is on a rock at the water's edge, on a low point of the shore 450 meters west of the little island in the narrows.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 847 (Minnesota, Lake County; W. B. Fairfield, 1913; 1916).—In Birch Lake about 1,350 meters west of Carp Portage. The station is on the most eastern island in the lake, in the narrows between two peninsulas. It is near the highest point of the island, on smooth hard rock just at the surface of the ground.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 848 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1916).—On the north side of Birch Lake, about 1,350 meters west of Carp Portage. The station is on the summit of a hill on the narrow divide between Birch Lake and the small lake to the north. It is almost due north of the small island in the narrows of Birch Lake. It is about 6 meters west of a small rock knob. Its elevation above the lake is about 25 meters.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 849 (Minnesota, Lake County; E. R. Martin, 1916).—On the south shore near the east end of Birch Lake. The station is on the point about one-half mile below Carp Portage. It is about 1.5 meters back from the water and about 1 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 850 (Minnesota, Lake County; W. B. Fairfield, 1913; 1921).—On the south side of the stream between Birch and Carp Lakes. The station is about 30 meters above the Birch Lake pier at the mouth of the stream. It is between the stream and the portage trail on a rock ledge about 4 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 851 (Ontario, Rainy River District; E. R. Martin, 1916; 1921).—At the head of Birch Lake, about 180 meters below the Carp Portage Dam and about 100 meters from where the sluiceway joins the main lake. The station is on a ledge about 30 meters back from the water and about 10 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 852 (Minnesota, Lake County; E. R. Martin, 1916).—On the south side of the sluiceway at Carp Portage between Carp and Birch Lakes. The station is on a rock knoll about 15 meters from the sluiceway and about 10 meters above it. It is north of the portage trail about 100 meters from Birch Lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 853 (Minnesota, Lake County; E. R. Martin, 1916).—At the head of Birch Lake on the south side of the stream from Carp Lake. The station is on a rock outcrop about 60 meters below the dam, about 25 meters from the sluiceway, and about 10 meters above the water. The portage trail passes to the north of the station.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 854 (Minnesota, Lake County; W. B. Fairfield, 1913; 1921).—At the outlet of Carp Lake. The station is on a smooth ledge 9 meters from the sluiceway of the Carp Lake Dam, and beside the trail leading from the dam to Birch Lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 855 (Ontario, Rainy River District; E. R. Martin, 1916; 1921).—On the north side and at the head of the narrows between Carp and Birch Lakes. The station is on outcropping rock on a little knoll just above and overlooking the dam. It is about 10 meters from the water's edge and about 8 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 856 (Ontario, Rainy River District; E. R. Martin, 1916; 1921).—On the north shore of the point at the entrance to the stream flowing out of Carp Lake. The station is on an outcrop of rock about 10 meters from the point, about 11 meters from the water and less than a meter above the lake level. It is about 125 meters above the Carp Portage Dam.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 857 (Minnesota, Lake County; E. R. Martin, 1916; 1921).—On the south shore at the foot of Carp Lake. The station is on the point about 150 meters above the dam at Carp Portage. It is on an outcrop of rock about 15 meters south of the tip of the point and about 10 meters from the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 858 (Minnesota, Lake County; W. B. Fairfield, 1913; 1916).—On the west shore of Carp Lake. The station is on the long peninsula that cuts off the most southern bay of the lake. It is about 700 meters east of Carp Portage and about 600 meters west of the mouth of Knife River. It is on the summit of the ridge, near the middle of the peninsula, and about 15 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 859 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1916).—On the north shore of Carp Lake, north 68° east, 750 meters from Carp Portage, and about 700 meters northwest of the mouth of Knife River. The station is on the southwestern point of the peninsula that cuts off the boundary bay from the rest of the lake. It is on the south side of the low point, a few meters from the water's edge, and about 1 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 860 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1916).—On Carp Lake, on a very small island about 180 meters northwest of the outlet of Melon Lake. The station is about 3 meters above the level of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 861 (Minnesota, Lake County; W. B. Fairfield, 1913; 1916).—On the south side of Carp Lake, about 550 meters southwest of the outlet of Melon Lake. The station is on the brow of a very steep hill, about 30 meters above the lake level and about 80 meters back from the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 862 (Minnesota, Lake County; W. B. Fairfield, 1913; 1921).—On Carp Lake, about 90 meters south and 90 meters east of the outlet of Melon Lake. The station is on the most southeastern bare ledge on the knoll. It is about 45 meters west of the southwest shore of Melon Lake and about 22 meters south of the wagon trail.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 863 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1921).—On the shore of Carp Lake, about 30 meters north of the lower end of the rapids at the outlet of Melon Lake. The station is about 8 meters above the water, on the summit of the bare rock knoll.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 864 (Ontario, Rainy River District; E. R. Martin, 1916).—At the head of Carp Lake. The station is on the hill about 125 meters northeast of the "lift" between Melon and Carp Lakes. It is on a high rock cliff about 20 meters above the level of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 865 (Minnesota, Lake County; W. B. Fairfield, 1913; 1916).—On the south shore of Melon Lake near the east end. The station is about 100 meters south of the rapids at the head of the lake. It is on a rough, upturned ledge, about 6 meters above the lake and about 6 meters back from the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 866 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1921).—On the north side of Seed Lake, about 75 meters north of the second rapids above Carp Lake and at the head of Melon Lake. The station is on the highest point of rock on the hill and is about 50 meters back from and 18 meters above the level of the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 867 (Minnesota, Lake County; E. R. Martin, 1916; 1921).—On the east shore of Melon Lake, about 400 meters above Carp Lake. The station is on the point about 50 meters below the "lift" between Seed Lake and Melon Lake. It is on a ledge about 8 meters from the water and 3 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 868 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1921).—On the north side of Seed Lake. The station is about 225 meters northeast of the dam at the outlet of the lake, on the top of the hill 50 meters back from the water's edge and about 20 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 869 (Minnesota, Lake County; W. B. Fairfield, 1913; 1921).—On the south side of Seed Lake, about 220 meters upstream from the dam at the outlet of the lake. The station is on the brow of a steep hill, about 30 meters back from the water's edge, and 18 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 870 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1916).—On the north shore of Seed Lake. The station is about 1,200 meters west of Knife Lake, and about 500 meters northeast of the rapids at the foot of Seed Lake. It is just west of a rock knob on the summit of the hill, about 30 meters back from the shore line, and about 15 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 871 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1921).—On the east side of Seed Lake near the center of the small round peninsula at the entrance to the lake. The station is about 30 meters west of the lower end of Big Knife Portage at the highest point of the peninsula. It is about 6 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in a rock.

Reference Monument 872 (Minnesota, Lake County; W. B. Fairfield, 1913; 1921).—On the south shore of Seed Lake, about 110 meters west of the dam at the entrance to the lake, and just south and opposite the lower end of Big Knife Portage. The station is on a rock on a cleared soil-covered spot halfway between the lake and the adjacent steep hillside. It is about 7 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 873 (Minnesota, Lake County; W. B. Fairfield, 1913; 1921).—On the south bank of Portage Lake about 650 meters downstream from Knife Lake. The station is on the bench 20 meters back from the river and 1 meter north of a trail at the foot of the hill. It is on a white granite rock about 0.3 by 0.9 meter in size.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 874 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1921).—On the north side of Portage Lake near its western end about 700 meters below Knife Lake. The station is on the north side of the Big Knife Portage trail about 190 meters east of its lower end, about 12 meters back from the shore, and about 3 meters above the level of the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a rock.

Reference Monument 875 (Ontario, Rainy River District; E. R. Martin, 1916; 1921).—On the north shore of Portage Lake and about 600 meters below Knife Lake. The station is on the west side of a little bay about 180 meters above the "lift" between Portage Lake and Seed Lake. It is about 15 meters from the water and about 1.5 meters above it.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 876 (Ontario, Rainy River District; W. B. Fairfield, 1913; 1921).—On the north shore of Portage Lake about 400 meters below Knife Lake. The station is on the knoll that is about 200 meters downstream from the lower or second dam in the first rapids of the river. The portage trail runs to the north of the knoll. The station is on the highest rock point of the knoll, about 8 meters back from the shore and about 4 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 877 (Minnesota, Lake County; W. B. Fairfield, 1913; 1921).—On the south shore of Portage Lake, about 320 meters below Knife Lake. The station is on a rock knoll about 6 meters east of the lake shore and about 3 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 878 (Minnesota, Lake County; E. R. Martin, 1916; 1921).—On the south bank of the stream between Knife and Portage Lakes about 250 meters below Knife Lake. The station is on a ledge about 10 meters from the river and about 4.5 meters above the first "lift" below the Knife Lake Dam.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 879 (Ontario, Rainy River District; E. R. Martin, 1916).—On the north side of Portage Lake about 300 meters below the dam at the outlet of Knife Lake. The station is on a ledge about 10 meters north of the portage wagon road and about 50 meters above where the road first comes down to the river below the dam.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 880 (Ontario, Rainy River District; E. R. Martin, 1916; 1921).—On the north side of the stream between Knife and Portage Lakes about 240 meters below the dam at the outlet of Knife Lake. The station is on a ledge on the slope about 40 meters north of the wagon road and nearly opposite the "lift" at the east end of Portage Lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 881 (Minnesota, Lake County; E. R. Martin, 1916).—On the south side of the stream between Knife and Portage Lakes about 40 meters back from the river and about 200 meters below the Knife Lake Dam. The station is on a ledge a little upstream and about 60 meters distant from the "lift" at the east end of Portage Lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 882 (Minnesota, Lake County; W. B. Fairfield, 1912; 1921).—At the extreme west end of Knife Lake, on the highest part of the rocky point on the south side of the outlet of the lake and just below the dam. The station is on the bare, solid ledge on the summit of the hill overlooking the dam.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 883 (Ontario, Rainy River District; E. R. Martin, 1916; 1921).—At the west end of Knife Lake, on the north side of the stream between Knife Lake and Portage Lake. The station is about 45 meters north of the shore at a point about 75 meters below the Knife Lake Dam and just north of the first rapids. It is on a ledge of rock about 15 meters above the river.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 884 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1921).—At the west end of Knife Lake, about 100 meters north of the dam across the outlet of the lake. The station is on a granite knoll on the summit of the ridge.

Station mark: A standard 8-inch manganese-bronze reference post set in a ledge.

Reference Monument 885 (Minnesota, Lake County; E. R. Martin, 1916; 1921).—At the west end of Knife Lake. The station is on a cliff about 60 meters southeast of the dam at the outlet of the lake and about 40 meters from the lake shore at the nearest point.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 886 (Minnesota, Lake County; W. B. Fairfield, 1912; 1916).—On Knife Lake, about 1,400 meters east of the extreme west end of the lake. The station is on the west end of the large island that lies just south of the west end of the very large anvil-shaped island that chokes the channel of the lake. It is about 10 meters east of the point of the island, and about 2 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 887 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1916).—On the north shore of Knife Lake about three-fourths mile above Knife Dam near the outlet of the lake. The station is on the shore line about 375 meters northwest of the west end of the long anvil-shaped island in this part of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 888 (Ontario, Rainy River District; E. R. Martin, 1916).—In the western part of Knife Lake, on the south side of the small island lying at the west side of the outside entrance to Back Bay. The station is about 100 meters west of the extreme eastern end of the island, on a large, solid rock on the hillside, about 16 meters back from the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A cross within a triangle marking triangulation station "Edna" is south 21° 42′ east, 10.9 meters from the station.

Reference Monument 889 (Minnesota, Lake County; W. B. Fairfield, 1912; 1916).—On Knife Lake, about 1½ miles east of Big Knife Portage. The station is on the easternmost point of the large anvil-shaped island that chokes the channel of the lake. The station is on a large fixed rock about 4 meters back from the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 890 (Minnesota, Lake County; W. B. Fairfield, 1912; 1916).—On Knife Lake, about 2 miles east of Big Knife Portage. The station is on a small, lone island that lies about 100 meters off the south shore of the lake and 700 meters east of the large anvil-shaped island that chokes the channel of the lake. It is

on the highest part, about midway of the island east and west, about 8 meters south of the north shore and about 3 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the granite ledge.

Reference Monument 891 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1916).—On the north shore of Knife Lake and on the south shore of the large irregular-shaped peninsula that incloses Back Bay. The station is about 250 meters east of the southwestern point of the peninsula and is directly opposite a small island lying off the south shore of the lake. It is on a large fixed rock about 3 meters from the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 892 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1916).—On the north shore of Knife Lake, on the eastern point of the irregular-shaped peninsula that incloses Back Bay. The point is grassy and is used as a camping ground, and from it one can look eastward between two small islands straight up the long southern arm of the lake. The station is on the highest point of the ledge that rises from the shore, 6 meters back from the water's edge, and 3 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 893 (Minnesota, Lake County; W. B. Fairfield, 1912; 1916).—On Knife Lake, on the west end of the large island lying off the south shore west of the entrance to the long southern arm of the lake, and opposite the peninsula which incloses Back Bay. The station is about 100 meters northeast of the most western point of the island, on a ledge outcrop, about 8 meters from the water's edge, and about 6 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 894 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1916).—On the north shore of Knife Lake, on the prominent granite point opposite the entrance to the most western of three large southern bays or arms of the lake. The station is on the rise of the granite ledge, about 6 meters from the water's edge, and about 3 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 895 (Minnesota, Lake County; W. B. Fairfield, 1912; 1916).—On the south shore of Knife Lake, on a point of the shore about 400 meters northeast of the point at the eastern side of the entrance to the most western of the three large southern bays or arms of the lake. The station is on top of a ledge, about 15 meters back from the shore line, and 6 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 896 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1916).—On the north shore of Knife Lake, on a little point of the shore line north of the point of the south shore that is at the east side of the entrance to the western one of the large southern bays or arms. The station is on the solid granite ledge of the point, about 2 meters back from the edge of the water, and about 2 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 897 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1916).—On the north shore of Knife Lake, on the small rocky peninsula opposite the west side of the entrance to the middle one of the three large bays or arms of the south side of the main body of the lake. The station is on the highest point of the peninsula, on a solid granite ledge.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 898 (Minnesota, Lake County; W. B. Fairfield, 1912; 1916).—On the south shore of Knife Lake, on the point on the west side of the entrance to the middle one of the three large bays or arms on the south side of the main body of the lake. The station is on the granite ledge of the point, close to the water's edge. The ledge appears white from a distance.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 899 (Minnesota, Lake County; W. B. Fairfield, 1912; 1916).—On the south shore of Knife Lake, on the rocky point 350 meters southwest of the narrows separating the eastern part known as Little Knife Lake from the main body of the lake. The station is on the rounded part of a ledge, about 2 meters from the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 900 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1916).—On Knife Lake, on a small rocky island that lies about 700 meters northwest of the narrows that separates the eastern part known as Little Knife Lake, from the main body of the lake. The station is on the cliff on the southwest part of the island, 3 meters back from the edge of the cliff.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 901 (Ontario, Rainy River District; E. R. Martin, 1916; 1921).—On the north shore of Knife Lake at the narrows between the two parts of the lake. The station is just above the narrows, on a rock point that becomes an island at high water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 902 (Minnesota, Lake County; E. R. Martin, 1916; 1921).—On the south shore of Knife Lake about 200 meters above the narrows separating the two main arms of the lake. The station is opposite the low rock point upon which reference monument 901 is situated. It is on a rock outcrop near the shore.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 903 (Minnesota, Lake County; W. B. Fairfield, 1912; 1916).—On the south side of Knife Lake, on a point of the shore about 340 meters east of the narrows that separate the eastern part, sometimes called Little Knife Lake, from the main body of the lake. The station is on the west edge of a granite ledge, about 3 meters from the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 904 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1916).—On the north side of Knife Lake, on the long narrow point that forms the north side of the narrows separating the eastern part of the lake, known as Little Knife Lake, from the main body of the lake. The station is on a rocky knoll on the summit of the ridge, 230 meters east of the tip of the point.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 905 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1916).—On the north shore of Knife Lake, near the west end of the eastern part of the lake, sometimes called Little Knife Lake. The station is on a little rocky point about 750 meters northeast of the narrows that divides the eastern portion from the rest of the lake. The station is on the granite ledge that rises from the water's edge; about 2.4 meters back from the shore line, and 0.9 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 906 (Minnesota, Lake County; W. B. Fairfield, 1912; 1916).—On the south shore of Knife Lake, near the western end of the eastern part of the lake, sometimes called Little Knife Lake. The station is on the bold bluff on the rocky point 650 meters northeast of the narrows that separates the eastern part of the lake from the main body. It is on top of the bluff, on the solid granite ledge, 6 meters back from the shore line, and 4.3 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 907 (Minnesota, Lake County; W. B. Fairfield, 1912; 1916).—On the south shore of Knife Lake, on a point of the shore line about 1,750 meters southwest of Little Knife Portage and about 420 meters northeast of the point where the lake widens out into a large bay on the south shore. The station is on the smooth granite ledge about 2 meters from the water's edge and about 0.5 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 908 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1916).—On the north shore of Knife Lake, on the rounded point between two rather large bays near the middle of the eastern section of the lake, sometimes called Little Knife Lake. The station is on the highest part of the smooth rounding ledge, about 6 meters back from the water's edge, and 4.5 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 909 (Minnesota, Lake County; W. B. Fairfield, 1912; 1921).—On the east end of Knife Lake. The station is on the point on the east side of the narrow entrance from Cypress Lake. It is on a rock on the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 910 (Minnesota, Lake County; W. B. Fairfield, 1912; 1917).—On the extreme east end of Knife Lake, and just west of the southwest end of the eastern portage from Cypress Lake. The station is on the smooth level top of the low rock cliff, about 2.5 meters back from the edge of the cliff and 6 meters above the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 911 (Ontario, Rainy River District; E. R. Martin, 1916).—On the west shore of the connecting stream between Cypress and Knife Lakes. The station is on the elbow of the shore of the little pond just above the narrows leading into Knife Lake. There is a projecting point of the shore opposite. The station is about 50 meters back from the shore and about 15 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in a ledge.

Reference Monument 912 (Minnesota, Lake County; E. R. Martin, 1916; 1921).—On the east shore of the connecting stream between Cypress and Knife Lakes, about 200 meters upstream from the outlet into Knife

Lake. The station is on the high rock point in the bend of the stream above the last pond or bay. It is about 40 meters back from the shore and about 10 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in rock.

Reference Monument 913 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1921).—On the extreme west end of Cypress Lake, on the western and smaller of the two islands about 450 meters north of Little Knife Portage. The station is on a rocky bluff, about 4.5 meters south of the shore line, and about 6 meters above the level of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 914 (Minnesota, Lake County; W. B. Fairfield, 1912; 1916).—On the south shore of the most western narrows in Cypress Lake. The station is on the top of the rocky knoll, about 15 meters above the water, about 18 meters from the narrows, and about 20 meters from the bay shore.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 915 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1921).—On the north shore of the extreme western end of Cypress Lake, about 130 meters north of the smaller and more western of the two islands lying north of the entrance to the boundary stream flowing into Knife Lake. The station is on a rock shelf, about 2.5 meters back from the shore and about 3 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 916 (Minnesota, Lake County; W. B. Fairfield, 1912; 1916).—On the south shore at the west end of Cypress Lake. The station is on the point 300 meters north of the eastern portage to Knife Lake and about 300 meters east of the most western narrows in Cypress Lake. It is on an outcrop of ledge, about 4 meters from the extreme point, and about 2 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 917 (Ontario, Rainy River District; E. R. Martin, 1916; 1917).—On the north shore of the narrows in the west end of Cypress Lake. The station is on a high cliff, 22 meters above the water, and 8 meters back from the shore.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A drill hole within a triangle cut in the rock, marking triangulation station "Chafe," is north 76° east, 2.7 meters from the station.

Reference Monument 918 (Minnesota, Lake County; W. B. Fairfield, 1912; 1917).—On the south shore of Cypress Lake, on the point directly south of the large island about 1 mile northeast of Little Knife Portage. The station is on a bare ledge, about 6 meters back from the shore, and 15 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge. A drill hole within a triangle cut in the ledge, marking triangulation station "Duet," bears north 73° 41′ west, 5.1 meters from the monument.

Reference Monument 919 (Ontario, Rainy River District; E. R. Martin, 1917).—On the north shore of the west end of Cypress Lake, about 200 meters east of the most western narrows in the lake. The station is about 9 meters back from the shore and about 12 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A drill hole within a triangle cut in the rock, marking triangulation station "Cere," is north 60° 24′ east, 4.8 meters from the station.

Reference Monument 920 (Minnesota, Lake County; W. B. Fairfield, 1912; 1917).—On the south side of Cypress Lake, on the north point of the high, timbered ridge that rises from the lake where it makes the turn to the south before entering the last straight stretch to Knife Lake. The station is about 400 meters a little south of east of the small island in the lake. It is on a shoulder of the ridge, a little below the highest point, and about 100 meters back from the lake shore.

Station mark: A standard 8-inch manganese-bronze reference post set in a solid granite ledge.

Reference Monument 921 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1917).—On the north shore of Cypress Lake, on the point 600 meters east of the western narrows of the lake, and across the lake nearly north from the eastern portage into Knife Lake. The station is on top of the cliff, about 30 meters back from the water's edge, and about 3 meters back from the edge of the cliff.

Station mark: A standard 8-inch manganese-bronze reference post set in the solid ledge.

Reference Monument 922 (Minnesota, Lake County; W. B. Fairfield, 1912; 1917).—On the south shore of Cypress Lake, near the middle of the lake, a little above a bay of the north shore, and about 200 meters northeast of the southwestern end of a long tangent of the shore line. The station is on a rock about 1 by 2 meters in size, 1 meter above the lake level, and 1 meter back from the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 923 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1917).—On Cypress Lake, about 1 mile northeast of Little Knife Portage. The station is on the south side of a large island. It is about

6 meters back from the shore, 30 meters from the west end of the island, about 12 meters above the water, and on the highest point on this part of the island.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 924 (Minnesota, Lake County; W. B. Fairfield, 1912; 1917).—On the south shore of Cypress Lake, about midway between the ends of the lake. The station is on a narrow point of land about 1 meter high, about 400 meters west of a very prominent cliff, the face of which is at right angles to the shore line and toward the station. It is on a rock about 5 meters from the tip of the point and about 1.5 meters southeast of the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 925 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1917).—On Cypress Lake, about 1½ miles east of Little Knife Portage. The station is on the small island that lies at the beginning of the southern bend of the lake. It is 8 meters north of the point of the island, 3 meters east of the west shore, and 2 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 926 (Minnesota, Lake County; W. B. Fairfield, 1912; 1917).—On the south shore of Cypress Lake, about 1,100 meters west of the first narrows west of Swamp Portage. The station is on the solid ledge at the edge of the timber on the highest part of a bare and high rock cliff about 150 meters east of the very conspicuous cliff whose face is transverse to the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 927 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1917).—On the north shore of Cypress Lake, about 1¾ miles northeast of Little Knife Portage, and about 500 meters northeast of a small island. The station is on a rough flat rock about 1.3 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 928 (Minnesota, Lake County; W. B. Fairfield, 1912; 1921).—On the south shore of Cypress Lake, at the east end of the first narrows west of Swamp Portage. The station is on the highest point of the rocky west end of a small island that lies just offshore.

Station mark: A standard 8-inch manganese-bronze reference post set in the solid rock.

Reference Monument 929 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1917).—On the north shore of Cypress Lake, near the middle of the lake, and about 1,600 meters west of the eastern narrows of the lake. The station is on the top of the high cliff opposite a small narrow tongue of land that makes out from the south shore of the lake. It is on a solid ledge about 6 meters back from the edge of the cliff and just at the edge of the timber.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 930 (Minnesota, Lake County; W. B. Fairfield, 1912; 1917).—On the south shore of Cypress Lake, about 600 meters east of the first narrows west of Swamp Portage. The station is on a rocky, timbered point of the shore line that extends some 200 meters into the lake, and forms the northern side of a bay. It is on the solid rock ledge, about 4.5 meters back from the point of the shore line and 3 meters above the level of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 931 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1917).—On the north shore of Cypress Lake, about 1,100 meters west of the first narrows west of Swamp Portage. The station is on top of the high rock cliff at the east end of the line of cliffs along this part of the north shore. The station is almost in line with the face of the very prominent cliff which is at right angles to, and just back from the south shore of the lake. It is on a solid ledge back from and above the face of the cliff.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 932 (Minnesota, Lake County; W. B. Fairfield, 1912; 1917).—On the south shore of Cypress Lake, about 1,200 meters west of the east end of the lake. The station is on a prominent point of the shore line, on the highest part of a rounded granite ledge.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 933 (Ontario, Rainy River District; E. R. Martin, 1917; 1921).—On the north shore of Cypress Lake, opposite the first narrows below and west of Swamp Portage. The station is on a rock cliff about 15 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 934 (Minnesota, Lake County; W. B. Fairfield, 1912; 1917).—On the south side of Cypress Lake, about 800 meters from the east end of the lake. The station is on the summit of the high rocky

hill that is opposite the entrance to the first large bay on the north shore of the lake. The station is about 100 meters from the shore to the westward, and 150 meters from the shore to the northward.

Station mark: A standard 8-inch manganese-bronze reference post set in the solid granite ledge of the summit.

Reference Monument 935 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1917).—On the north side of Cypress Lake, about 1,200 meters west of the east end of the lake. The station is about 180 meters west of the shore of the bay to the east of it, and about 100 meters due north of the shore of a little cove on the outside shore line. It is on the first bench of the rugged cliffs about 36 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the solid granite ledge.

Reference Monument 936 (Minnesota, Lake County; W. B. Fairfield, 1912; 1917).—On the south shore and at the east end of Cypress Lake. The station is on the high rocky hill about 250 meters west across the little bay from Swamp Portage. It is about 90 meters back from the shore line on the solid granite ledge of the summit of the hill.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 937 (Ontario, Rainy River District; E. R. Martin, 1917).—On the eastern part of Cypress Lake about one-half mile west of Swamp Portage. The station is on the highest part of a small island lying in the most eastern bay of the north shore of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 938 (Minnesota, Lake County; W. B. Fairfield, 1912; 1921).—Near the west end of Swamp Portage between Swamp Lake and Cypress Lake. The station is on a smooth granite ledge about 40 meters from Cypress Lake and about 2 meters south of the portage trail.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge. A 5-foot bronze post marking boundary monument 1 is 3.7 meters east of the reference monument.

Reference Monument 939 (Ontario, Rainy River District; E. R. Martin, 1917; 1921).—Near the east end of Cypress Lake about 300 meters west of Swamp Portage. The station is about 50 meters back from the north shore line of the narrows, on a ledge that slopes toward the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 940 (Minnesota, Lake County; W. B. Fairfield, 1912; 1921).—At the extreme west end of Swamp Lake, about 50 meters southeast of the east end of the Swamp Portage trail. The station is on a little rock knoll, about 3.5 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 941 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1921).—On the north shore of the west end of Swamp Lake, about 150 meters east of the extreme west end of the lake, and directly opposite the small island at the end of the lake. The station is about 5 meters back from the shore and 9 meters above the level of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in outcropping rock.

Reference Monument 942 (Minnesota, Lake County; W. B. Fairfield, 1912; 1917).—On the south shore of Swamp Lake, about 300 meters east of the extreme west end of the lake. The station is on a cliff, 3 meters from the top and 1.5 meters from the edge of the cliff. It is about 12 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 943 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1917).—On the north shore of Swamp Lake, about 340 meters east of Swamp Portage, on a little point at the east end of the narrow western part of the lake. The station is about 5 meters from the shore line and 3 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in rock.

Reference Monument 944 (Minnesota, near boundary line between Cook and Lake Counties; W. B. Fairfield, 1912; 1917).—On the top of the knoll about 70 meters south of the short portage on the east side of Swamp Lake. The station is on the solid ledge about 18 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 945 (Ontario, Rainy River District; E. R. Martin, 1917; 1921).—On the east side of Swamp Lake, 22 meters north of the outlet of the lake into Saganaga Lake. The station is on the top of a knoll 10 meters east of the lake shore.

Station mark: A standard 8-inch manganese-bronze reference post set in rock. A bronze disk marking triangulation station "Cartoon" is south 16° 45′ west, 21 meters from the station.

Reference Monument 946 (Minnesota, Cook County; W. B. Fairfield, 1912; 1921).—Near the west end of Saganaga Lake, on the point south of the narrows next east of and 450 meters from the mouth of Swamp Lake.

The station is on the higher and more southern of the two bare rock hills on the point. It is about 70 meters south of the sharp interior angle of the shore line, and about 15 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 947 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1921).—Near the west end of Saganaga Lake, on the point on the north side of the narrows next east of and 330 meters from the mouth of Swamp Lake. The station is on the rock point about 2.5 meters from and 2.5 meters above the lake shore

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 948 (Minnesota, Cook County; W. B. Fairfield, 1912; 1921).—At the extreme western end of Saganaga Lake, on the north point of the island that lies just southwest of the second narrows west of the main body of the lake. The station is on a bare sloping ledge point, about 9 meters back from the shore line, and 3 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 949 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1917).—At the extreme western end of Saganaga Lake, at the west end of the second narrows west of the main body of the lake. The station is on the summit of the rounded knoll on the point lying between the narrows and the bay to the west. It is on a rock, about 10 meters above the level of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 950 (Minnesota, Cook County; W. B. Fairfield, 1912; 1921).—At the extreme western end of Saganaga Lake, on the south side of the second narrows west of the main body of the lake, and about 250 meters west of the east end of the narrows. The station is on a knoll, about 15 meters above the water level and directly overlooking the shore to the west. It is on a conglomerate rock whose surface is about level with the ground.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 951 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1917).—At the extreme west end of Saganaga Lake on the north shore of the second narrows west of the main body of the lake. The station is on a prominent knoll about midway between the ends of the narrows and just back from a small bay. It is on a rough-topped rock.

Station mark: A standard 8-inch manganese-bronze reference post set in rock.

Reference Monument 952 (Minnesota, Cook County; W. B. Fairfield, 1912; 1921).—At the extreme west end of Saganaga Lake, at the east end of the second narrows west of the main body of the lake. The station is on the neck of land that forms the Minnesota side of the entrance to the narrows. The station is about 45 meters south of the north end of the neck, about 60 meters west of the east side, and 9 meters east of the west side of the neck. It is about 15 meters above the level of the lake, on outcropping rock, with several large loose bowlders near it.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 953 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1921).—At the extreme west end of Saganaga Lake, at the east end of the second narrows west of the main body of the lake. The station is on the long neck of land that forms the Canadian side of the entrance to the narrows. It is about 70 meters north of the point of the neck, 50 meters from the shore on the east, and 10 meters from the shore on the west side of the neck. It is about 8 meters above the water level on a small triangular rock.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 954 (Minnesota, Cook County, W. B. Fairfield, 1912; 1917).—On the south shore near the west end of Saganaga Lake. The station is on the point 500 meters northeast and across a bay from the second narrows west of the entrance to Cache Bay. It is on the rock point 12 meters above the water and 4 meters back from the shore.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 955 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1917).—On the north shore near the west end of Saganaga Lake. The station is on the point 450 meters northeast of the second narrows west of the entrance to Cache Bay. The station is on outcropping limestone and sandstone nearly flush with the ground. It is about 4 meters back from a point of the cobblestone shore and about 2 meters above the level of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 956 (Minnesota, Cook County; W. B. Fairfield, 1912; 1917).—On the south shore near the west end of Saganaga Lake, on the prominent point about 650 meters southwest of the first narrows west of the entrance to Cache Bay. The station is on a granite ledge about 8 meters back from the shore line and about 4 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 957 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1917).—On the north shore of Saganaga Lake near the west end of the lake. The station is on the peninsula 570 meters west of the first narrows west of the entrance to Cache Bay. It is 12 meters back from the south shore of the peninsula and about 12 meters above the lake level, on the summit of the eastern one of two high points.

Station mark: A standard 8-inch manganese-bronze reference post set in outcropping sandstone.

Reference Monument 958 (Minnesota, Cook County; W. B. Fairfield, 1912; 1917).—In the west end of Saganaga Lake, on a small island in the bay 400 meters southwest of the first narrows west of the entrance to Cache Bay. The island is about 150 meters offshore and another small island lies between it and the shore. The station is on a granite ledge at high-water mark on the northeast end of the island.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 959 (Ontario, Rainy River District; W. B. Fairfield, 1912; 1921).—On the north shore of Saganaga Lake near the west end of the lake. The station is on the north point at the first narrows west of Cache Bay. It is on the top of the bluff, on the solid ledge, 14 meters above the level of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 960 (Minnesota, Cook County; W. B. Fairfield, 1912; 1921).—On the south shore of Saganaga Lake near the western end of the lake. The station is on the south point at the first narrows west of the entrance to Cache Bay. It is on top of the bluff about 50 meters back from the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in a solid granite ledge.

Reference Monument 961 (Ontario, Rainy River District; W. B. Fairfield 1912; 1917).—On the north shore of Saganaga Lake, about 2,300 meters east of the mouth of Cache Bay. The station is on the summit of a high, bare, rocky knoll, about 50 meters back from the lake shore.

Station mark: A standard 8-inch manganese-bronze reference post set in the solid rock.

Reference Monument 962 (Minnesota, Cook County; W. B. Fairfield, 1912; 1917).—On the south shore of Saganaga Lake near the west end of the lake, on the prominent rocky point about three-fourths mile west of Rocky Point, and about 1 mile due east of the entrance to Cache Bay. The station is on the solid granite ledge about 3 meters back from the shore line and about 2 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 963 (Ontario, Thunder Bay District; E. R. Martin, 1917).—In Saganaga Lake about 5 miles east of the west end of the lake. The station is on the west end of a small island which is the most northwestern of a large group of islands lying southeast of the large open body of the west part of the lake. It is on the rock ledge about 2.5 meters above high water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 964 (Minnesota, Cook County; E. R. Martin, 1917).—On Saganaga Lake about 5 miles east of the west end of the lake. The station is on the northwest end of a small island just south of the most northwestern island of the large group lying southeast of the open water of the western part of the lake. It is on a ledge near the shore line, and is about 3 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 965 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—On Saganaga Lake about 5 miles east of the west end of the lake. The station is on the southwest point of a small island lying north of the middle of a very large irregularly shaped island. It is on a ledge about 4.5 meters back from the shore line and about 7.5 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 966 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—On Saganaga Lake about 5 miles east of the west end of the lake. The station is on the very large irregularly shaped island lying just south of the international boundary line at the east side of the large open western part of the lake. It is on the western point of a small peninsula projecting from the northeast point of the island, on a rock ledge 6 meters back from the water and about 0.7 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 967 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1917).—On Saganaga Lake, on the north side of a small rocky wooded island that lies on the south side of the open water of the main body of the lake. The island is the third one from the west end of the fringe of islands that border the southern side of the open water of the lake. The station is on a rocky point that projects into the lake, 4.5 meters back from the water's edge, and 3 meters above the lake level. A very large rock lies just off the point in front of the station.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 968 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—On Saganaga Lake about 6 miles east of the west end of the lake. The station is on the north side of a large island facing the open

water of the lake. It is on a rock ledge about 6 meters above the water and about 4.5 meters back from the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 969 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1917).—On Saganaga Lake, on the extreme west end of the most western of the eastern group of islands in the main body of open water of the lake, and near the middle of the main body. The island is a breeding place for gulls. The station is on a solid granite ledge, about 8 meters from the tip of the point, and 3 meters above the level of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 970 (Minnesota, Cook County; W. B. Fairfield, 1912; 1917).—On Saganaga Lake, on the summit of the hill on the northern part of the large triangular island that lies just southwest of the narrow passage through which the international boundary running westward first passes out into the open water of the main body of the lake. The station is on the highest part of the solid granite ledge of the hilltop.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 971 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1917).—On Saganaga Lake, on the west end of a very rocky wooded island that lies in the open water of the lake about 1,000 meters north from where the international boundary passes out from among the islands into the open water of the lake. The station is on the smooth granite ledge on the point of the island.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 972 (Minnesota, Cook County; W. B. Fairfield, 1912; 1917).—On a small island in the eastern part of Saganaga Lake, about 3,400 meters north 73° west of the mouth of the stream flowing into the lake from Maraboeuf (Gneiss) Lake. The station is on the northeast end of a small narrow island whose greatest length is about 140 meters in a northeast and southwest direction. The island lies in the narrow passage from the mouth of the stream to the open lake in which the boundary lies, and is about 700 meters south along this passage from the open lake. The station is on the solid granite ledge, about 8 meters back from the water's edge, and 1.2 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 973 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1917).—On Saganaga Lake, on a small, but high, rocky island about 150 meters in diameter that lies on the east side of the passage through which the international boundary running westward first passes out into the open water of the main body of the lake. The island is the second one of any size on this side of the boundary, southeast of the open water. It lies just west of the most western point of the largest island in the lake. The station is on the west side of the island, on a rock bluff, near the edge of the bluff, and 12 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 974 (Minnesota, Cook County; W. B. Fairfield, 1912; 1917).—On a large island in the eastern part of Saganaga Lake, about 3,000 meters north 75° west of the mouth of the stream flowing into the lake from Maraboeuf (Gneiss) Lake. The station is on the northeast corner of the large split island that lies southwest of the largest island in the lake. It is on a moss-grown rock ridge measuring about 1 by 1.5 meters. It is 4 meters back from the shore line and about 4.5 meters above the lake level. A meander-corner witness tree marked "M.C." stands near the station.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 975 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1917).—On the southwesternmost point of the largest island in the northeastern part of Saganaga Lake. The station is on a small round bowlder in the middle of a rounded point, about 6 meters from the shore line and 1 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 976 (Minnesota, Cook County; W. B. Fairfield, 1912; 1917).—On an island in the eastern part of Saganaga Lake, about 2,200 meters north 75° west of the mouth of the stream flowing into the lake from Maraboeuf (Gneiss) Lake. The island is a lone island about 250 meters in diameter and lies about 300 meters off the southern point of the largest island in the lake. The station is on the northeastern part of the island, in the woods, about 40 meters from the shore and 6 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in rock.

Reference Monument 977 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1917).—On Saganaga Lake, about 2,300 meters north 66° west of the mouth of the stream flowing into the lake from Maraboeuf (Gneiss) Lake. The station is on a small island which lies about 40 meters off the south shore of the largest island in the lake, some 400 meters east of its west end. It is on a flat rectangular rock about 1 meter across either way, and is about 1 meter off the shore line near high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 978 (Minnesota, Cook County; W. B. Fairfield, 1912; 1917).—On Saganaga Lake, about 1,400 meters north 20° west from the mouth of the stream flowing into the lake from Maraboeuf (Gneiss) Lake. The station is on the northeast point of the first very large island that lies on the west side of the east channel leading from the mouth of the stream to the main body of the lake. The station is on a rock about 0.6 meter across, about 2 meters back from the shore line, and 2.5 meters above the level of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 979 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1917).—On the eastern shore of Saganaga Lake, about 1,800 meters north 25° west of the mouth of the stream flowing from Maraboeuf (Gneiss) Lake. The station is on the rounding point of the mainland just east of the entrance to a long narrow passage running north and south between the mainland and the largest island in the lake. It is on a flat-topped rock about 0.6 by 0.9 meter in area, near the shore line, and 0.3 meter below the high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 980 (Minnesota, Cook County; W. B. Fairfield, 1912; 1921).—At the head of Saganaga Lake, on the southeast point of a very large island, and 950 meters north 15° west from the mouth of the stream flowing from Maraboeuf (Gneiss) Lake. The station is on a knoll about 75 meters west of the extreme east end of the point.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 981 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1921).—Near the head of Saganaga Lake, on a rock about 3 by 5 meters that rises from the water to an elevation somewhat above high-water mark, and lies just offshore to the west of a small wooded island. The rock is 1,500 meters north 15° west of the mouth of the stream flowing from Maraboeuf (Gneiss) Lake, and is in the narrow passage to the east of the first large island in the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 982 (Minnesota, Cook County; W. B. Fairfield, 1912; 1921).—At the head of Saganaga Lake, on the elongated eastern end of an island which is about 100 meters across, lying in the entrance to the bay which is just west of the mouth of the stream flowing into the lake from Maraboeuf (Gneiss) Lake. The station is on the highest point of a rock, about 0.6 meter south of a crack in the rock about 0.3 meter wide. It is 2.5 meters north of the shore line and 2.5 meters above the level of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 983 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1917).—On the east shore of Saganaga Lake, about 1,000 meters north 5° east from the mouth of the stream flowing into the lake from Maraboeuf (Gneiss) Lake. The station is on the point of the mainland at the north side of the entrance to the large eastern arm of the lake and on the east side of the east channel leading to the main body of the lake. The station is about 18 meters east of a rounded granite ledge point about 4 meters high. It is on top of a moss-covered granite ledge, 3 meters back from the shore line, and 3.5 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 984 (Minnesota, Cook County; W. B. Fairfield, 1912; 1921).—On the west bank of Saganaga Falls, at the head of Saganaga Lake. The station is about 15 meters from the upper landing place and 30 meters from the lower landing place. It is on a surface outcrop of a white granite ledge, almost at the edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 985 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1921).—At the head of Saganaga Lake, on a very small rocky island, just east of the mouth of the stream flowing from Maraboeuf (Gneiss) Lake. The island is about 50 meters north of the point of the mainland. The station is on a pointed white granite rock, which is east of a larger and loose granite rock.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 986 (Minnesota, Cook County; W. B. Fairfield, 1912; 1917).—On the west bank of the connecting stream between Maraboeuf (Gneiss) and Saganaga Lakes. The station is about 150 meters upstream from the falls and about 120 meters west of the foot of the first narrows above the falls. It is near high water-mark and near the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A drill hole within a triangle cut in the rock, marking station "Ding," bears north 6° 02′ east, 14.4 meters from the monument.

Reference Monument 987 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1921).—On the east side of Saganaga Falls, at the head of Saganaga Lake. The station is on the highest part of a granite ledge, 30 meters east of the shore line and 12 meters above the level of the water at the head of the falls.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 988 (Minnesota, Cook County; W. B. Fairfield, 1912; 1917).—On the west bank of the stream connecting Maraboeuf (Gneiss) and Saganaga Lakes, on the point at the lower end of the first narrows upstream and 300 meters distant from Saganaga Falls.

Station mark: A standard 8-inch manganese-bronze reference post set in a rock. A drill hole within a triangle cut in a rock about 1 by 2.5 meters, marking triangulation station "Dike," bears north 83° 05′ east, 21.3 meters from the monument.

Reference Monument 989 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1917).—On the east shore of the connecting stream between Maraboeuf (Gneiss) and Saganaga Lakes. The station is just around the bend and 150 meters upstream from Saganaga Falls. It is on a rock 0.4 by 0.6 meter in size, 3.5 meters back from the shore line, and 0.6 meter above high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 990 (Minnesota, Cook County; W. B. Fairfield, 1912; 1921).—On the west shore of the stream connecting Maraboeuf (Gneiss) Lake and Saganaga Lake, on the point at the upstream end of the narrows above Saganaga Falls and about 400 meters from the falls. The station is on a granite ledge 8 meters back from the shore line and 9 meters above the level of the water. Back of the station the ledge rises 3 or 4 meters higher.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 991 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1917).—On the east side of the connecting stream between Maraboeuf (Gneiss) and Saganaga Lakes, about 300 meters upstream from Saganaga Falls and at the lower end of the first narrows above the falls.

Station mark: A standard 8-inch manganese-bronze reference post set in a rock outcrop.

Reference Monument 992 (Minnesota, Cook County; E. R. Martin, 1917).—On the west bank of the stream flowing out of Maraboeuf (Gneiss) Lake, 320 meters below Horsetail Rapids on a point covered with loose granite rocks, about 20 meters from the extreme end of the point.

Station mark: A standard 8-inch manganese-bronze reference post set in a rock outcrop. A drill hole within a triangle cut in the rock, marking triangulation station "Dense," is south 55° east, 20 meters distant from the monument.

Reference Monument 993 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1921).—On the east shore of the connecting stream between Maraboeuf (Gneiss) and Saganaga Lakes, 400 meters upstream from Saganaga Falls, just at the upstream end of a very narrow reach of the stream. The station is on a rough granite ledge 2.5 meters back from the water's edge and 3 meters above the level of the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 994 (Minnesota, Cook County; W. B. Fairfield, 1912; 1921).—On the west bank of the stream, 100 meters below Horsetail Rapids at the north end of Maraboeuf (Gneiss) Lake. The station is 2 meters back on the slanting top of a precipitous cliff which rises from a line 4 meters back from the shore. It is 15 meters above the water at the foot of the rapids.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 995 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1917).—On the east bank of the stream flowing out of Maraboeuf (Gneiss) Lake, 300 meters downstream from Horsetail Rapids. The station is on a granite rock 3 meters back from the shore line and about 3 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 996 (Minnesota, Cook County; W. B. Fairfield, 1912; 1917).—At the north end of Maraboeuf (Gneiss) Lake, on the west bank of Horsetail Rapids, about 200 meters downstream from the lake. The station is about 12 meters above the head of the rapids and about 9 meters back from the most western channel of the rapids.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 997 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1921).—On the east bank of the stream, 100 meters below Horsetail Rapids at the north end of Maraboeuf (Gneiss) Lake. The station is on top of the cliff, 2 meters east of the edge, 6 meters east of the shore, and 12 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 998 (Minnesota, Cook County; W. B. Fairfield, 1912; 1921).—At the north end of Maraboeuf (Gneiss) Lake, on the west bank, and 130 meters above the narrows of Horsetail Rapids. The station is on a sloping granite point fringed with jack pines, about 15 meters north of the shore line to the south, 15 meters west of the shore line to the east, and 6 meters above the level of the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 999 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1917).—At the north end of Maraboeuf (Gneiss) Lake, on the east bank of Horsetail Rapids, about 200 meters downstream from the lake

and at the lower end of the rapids. The station is about 9 meters back from the shore, 18 meters above the water at the foot of the rapids, and is on a cleared space on the highest point of the rocks.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1000 (Minnesota, Cook County; W. B. Fairfield, 1912; 1917).—On the west shore of Maraboeuf (Gneiss) Lake, about 3,000 meters south of Saganaga Lake. The station is on the point at the west side of the narrow entrance to a wide expanse of the lake. It is on a ledge near the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1001 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1921).—At the north end of Maraboeuf (Gneiss) Lake, on the east side, and 50 meters upstream from Horsetail Rapids. The station is just up the hill from the upstream end of the portage trail, on a granite rock, 10 meters back from the shore line and 9 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1002 (Minnesota, Cook County; W. B. Fairfield, 1912; 1917).—On the west shore of Maraboeuf (Gneiss) Lake, at the north end of the first narrow north-and-south reach of the lake as approached from the south. The station is on the granite point just south of the entrance to the deep inlet which, with the like inlet on the opposite side, terminates this first narrows. The station is about 4 meters back from the lake shore and 5 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1003 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1917).—On the east shore of Maraboeuf (Gneiss) Lake, on the middle point in the narrows north of the entrance to the northern, and larger, long eastern arm of the lake. The station is opposite a little half-circle bay of the west shore. It is on a rock about 3 meters back from and 3 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1004 (Minnesota, Cook County; W. B. Fairfield, 1912; 1917).—On the west shore of Maraboeuf (Gneiss) Lake, on the point just south of the south end of the long north reach of the lake, and also just south of the most southern long western arm of the lake. The station is on the east side of the point, about 100 meters south of the most northern shore of the point, about 40 meters west of the east shore of the point, and about 18 meters above the lake level. It is in an exposed flat surface of granite about 1.5 by 2.1 meters in extent.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1005 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1917).—On the east shore of Maraboeuf (Gneiss) Lake, at the north end of the first narrow north-and-south reach of the lake as approached from the south. The station is on the point 120 meters south of the first big bay on the east side of the lake. The island in the entrance to the bay is about 250 meters due north from the station. The station is on a granite ledge about 9 meters back from the shore and 6 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1006 (Minnesota, Cook County; W. B. Fairfield, 1912; 1917).—On the south shore of Maraboeuf (Gneiss) Lake, on the point at the east side of the entrance to the most southwestern bay in the lake. The station is on the second rock from the entrance to the bay, 1 meter from the water on the point, 2 meters from the water on the bay side, and 0.3 meter above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1007 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1917).—On the east shore of Maraboeuf (Gneiss) Lake, on the high prominent point at the south end of the long northern reach of the lake. The station is on the highest part of a cliff, 15 meters back from the shore line on either side of the point, 36 meters back from the tip of the point, and 20 meters above the level of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1008 (Minnesota, Cook County; W. B. Fairfield, 1912; 1921).—On the east shore of Maraboeuf (Gneiss) Lake, 350 meters south of the narrows connecting this lake with Round Lake. The station is on a granite rock about 6 meters back from the shore line and 15 meters above the level of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1009 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1917).—On a small island in the southern part of Maraboeuf Lake. The station is on the east point of the island about 100 meters off the north shore and about 700 meters west of the entrance to the lake. It is on the bare rock near the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1010 (Minnesota, Cook County; W. B. Fairfield, 1912; 1921).—On the shore of Maraboeuf (Gneiss) Lake, on the east side of the narrows connecting this lake with Round Lake. The station is on the top of a bare granite cliff, about 1 meter from the brink of the cliff and 18 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1011 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1917).—On the shore at the entrance to Maraboeuf (Gneiss) Lake. The station is 100 meters west of the narrows and 60 meters south of the shore line of the waterway between Round and Maraboeuf Lakes, known as the Devils Elbow. The station is on a cleared place on the granite hill about 15 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1012 (Minnesota, Cook County; W. B. Fairfield, 1912; 1917).—On the shore of the connecting stream ("Devils Elbow") between Maraboeuf (Gneiss) and Round Lakes, in the western bend of the elbow, opposite the southeast end of Devils Elbow Portage and 330 meters north of the narrows at the entrance to Maraboeuf Lake. The station is on a round nub of the granite ledge on a bare granite point, about 10 meters back from the extreme point and about 6 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1013 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1921).—Between Round and Maraboeuf Lakes, on the west bank of the narrows at the lower end of "Devils Elbow." The station is on the ledge near the water line.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1014 (Minnesota, Cook County; W. B. Fairfield, 1912; 1917).—On the shore of the connecting stream ("Devils Elbow") between Maraboeuf (Gneiss) and Round Lakes, on the prominent point facing east, in the first bend, 700 meters west of Round Lake. The station is on a conspicuous bare point of granite, 8 meters back from the tip of the point and 2 meters above the level of the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1015 (Ontario, Thunder Bay District; E. R. Martin, 1917).—On the north shore of the stream known as the Devils Elbow between Round and Maraboeuf (Gneiss) Lakes. The station is at the southeast end of Devils Elbow Portage.

Station mark: A standard 8-inch manganese-bronze reference post set in a ledge. Station "Cark," marked by a bronze disk set in the rock, bears south 68° 51′ east, 29.7 meters distant from the station.

Reference Monument 1016 (Minnesota, Cook County; W. B. Fairfield, 1912; 1917).—On the south shore of the connecting stream ("Devils Elbow") between Round and Maraboeuf (Gneiss) Lakes, on the point opposite the "Camp Ground" and 500 meters west of the outlet of Round Lake. The station is on the most southern of three granite nubs, about 50 meters east of the extreme tip of the point, 9 meters back from the shore, and 12 meters above the level of the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1017 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1917).—On the north bank of the connecting stream ("Devils Elbow") between Round and Maraboeuf (Gneiss) Lakes. The station is near the middle of the narrows in the northern part of the elbow. It is on the top of a white granite rock, 0.6 meter back from the shore and 0.3 meter above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1018 (Minnesota, Cook County; W. B. Fairfield, 1912; 1921).—On the south side of the narrows at the outlet to Round Lake, about 120 meters west of Round Lake. The station is on a rock on the shore line and about 0.3 meter above high-water mark. Two 30-centimeter cedar stumps stand just east of the rock.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1019 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1917).—On the north shore of the connecting stream ("Devils Elbow") between Round and Maraboeuf (Gneiss) Lakes, 600 meters northwest of the "Camp Grounds," 200 meters west of the angle where the shore line turns from north to west and opposite the north point of the south shore. The station is on a rounded granite rock about 0.5 meter in diameter, 9 meters back from the shore line, and 3.5 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1020 (Minnesota, Cook County; W. B. Fairfield, 1912; 1921).—At the outlet of Round Lake, just inside and on the south shore of the narrows. The station is on a rock step at the bottom of a rounding steep granite slope about 15 meters in height and near high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1021 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1917).—On the north shore of the connecting stream ("Devils Elbow") between Round and Maraboeuf (Gneiss) Lakes, on a point of the shore in the bend of the first northern reach of the stream after leaving Round Lake, about 350 meters north of the right-angle point at the "Camp Ground," which is 500 meters west of Round Lake. The station is on a point of rock 15 meters from the extreme point, 1.5 meters from the shore line, and 0.6 meter above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1022 (Minnesota, Cook County; W. B. Fairfield, 1912; 1921).—Near the west shore of Round Lake, on the small island on the south side of the outlet of the lake. The station is near the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1023 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1917).—On the north bank of the stream flowing from Round Lake to Maraboeuf Lake. The station is on the point where the shore line makes a right-angle turn 500 meters west of Round Lake. It is on a rock, on top of the rounding ledge, about 4.5 meters back from the water's edge and 2.5 meters above high-water mark. There is a camp ground on the point.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1024 (Minnesota, Cook County; W. B. Fairfield, 1912; 1917).—On the east point of the large island in the south end of Round Lake. The station is near the shore and about 1 meter above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1025 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—On the north shore of the narrows at the outlet of Round Lake, about 125 meters west of Round Lake. The station is on a granite outcrop a little above high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk set in the rock and marking station "Color" bears south 41° 31′ east, 2.4 meters from the station.

Reference Monument 1026 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—On the west shore of Granite River, just above the rapids and narrows which are at the mouth of the river. The station is about 45 meters south of the east end of the portage around the rapids into Round Lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A drill hole in the rock, marking triangulation station "Dream," is south 38° east, distant 14.6 meters.

Reference Monument 1027 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1921).—At the outlet of Round Lake, just inside and on the north shore of the narrows. The station is on a rock shelf on a 45° rock slope, 2 meters above the water and 2 meters back from the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1028 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—On the west side of Granite River, about 600 meters above Round Lake. The station is on the first rocky bluff point above the narrows, which are at the mouth of the stream. It is on top of the first rise about 10 meters above the river.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1029 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1921).—On the west side of Round Lake. The station is on the highest point of a small rock islet lying about 100 meters east of the outlet of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1030 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—On the west shore of Granite River, about 900 meters above Round Lake. The station is on a rock ledge on a low projecting point of the shore line and is about 5 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1031 (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1917).—On the west end of the large island in the center of Round Lake. The station is on a very prominent round white granite ledge, 9 meters east of the shore line and 4 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1032 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—On the west side of Granite River, about seven-eighths mile above Round Lake. The station is at the top of the slope of a high hill that is on a point that projects out into the river at the foot of the second rapids above the lake. The station is about 25 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1033 (Ontario, Thunder Bay District; E. R. Martin, 1917).—On the east shore of Round Lake, near the south end of the lake. The station is on the point about 250 meters north of the narrow entrance to the lake. It is about 3 meters back from the water's edge and about 2.4 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in rock.

Reference Monument 1034 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—On the south shore of Granite River, about 1,500 meters upstream from Round Lake. The station is on a sharp southern elbow

of the river between the second and third rapids above Round Lake. A small stream flows into the river about 50 meters upstream from the station. The station is on a rock outcrop near high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1035 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1921).—On the east shore of Granite River, about 100 meters above the rapids where the river empties into Round Lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1036 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—On the south side of Granite River, about 1 mile above Round Lake. The station is on a granite knoll around which the river makes a sharp loop, with narrows and rapids on the southwest side of the knoll. There is a portage across the neck south of the station. Just above the station the river widens into a broad pond.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1037 (Ontario, Thunder Bay District; E. R. Martin 1917; 1921).—On the east side of Granite River, about 300 meters above the rapids and narrows which are at the mouth of the river. The station is on a rocky bluff near the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A drill hole within a triangle cut in the rock, marking triangulation station "Cotter," bears north 38° 00′ west, distant 8.9 meters.

Reference Monument 1038 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the south side of Granite River, about 1¼ miles above Round Lake. The station is on the high hill on the point on the south side of the broad pond between Rock and Swamp Portages. There is a small rock island just off the point.

Station mark: A standard 8-inch manganese-bronze reference post set in rock.

Reference Monument 1039 (Ontario, Thunder Bay district; W. B. Fairfield, 1911; 1917).—On the east side of Granite River, about five-eighths mile above Round Lake and about 200 meters below the second rapids. The station is on the brow of a flat-topped hill which pitches off very steeply from the station to the river and is about 25 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1040 (Minnesota, Cook County; E. R. Martin, 1917).—On Granite River, about one-fourth mile downstream from the third rapids below Granite Lake. The station is on the larger of two small rocky islets lying off the entrance to the inlet that leads south to a portage.

Station mark: A standard 8-inch manganese-bronze reference post set in rock.

Reference Monument 1041 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—On the east shore of Granite River, about three-fourths mile above Round Lake. The station is on a rock ledge about half way to the top of the hill at the head of the little bay just above the second rapids above Round Lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1042 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—On the shore at the head of the third and largest pond in Granite River below Granite Lake. The station is about 100 meters south of the narrows at the head of the pond, on a rock and about 1 meter above the level of the pond or lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1043 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1921).—On the Canadian side of Granite River, near the head of the second rapids above Round Lake, on a high rocky hill around which the river makes a sharp southern loop. The station is on the summit, about 20 meters above the river.

Station mark: A standard 8–inch manganese-bronze reference post set in the rock.

Reference Monument 1044 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—On the south side of Granite River, about 1 mile below Granite Lake. The station is on the summit of a hill, 75 meters southwest of the pond below the second rapids below Granite Lake, and about 20 meters above the level of the pond.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1045 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1921).—On the north shore of Granite River, about 1 mile above Round Lake. The station is at the head of the fourth rapids above the lake on the rocky shore well above high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk set in the rock and marking triangulation station "Chap" bears north 89° east, 9.3 meters from the station.

Reference Monument 1046 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—On the west shore of Granite River, 20 meters downstream from the head of the second rapids below Granite Lake. The station is 25 meters at right angles to the shore line, on a slight hump, 10 meters above the level of the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1047 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—On the north shore of the largest pond or lake in Granite River, on the point 300 meters east of the west end and outlet of the

pond. The station is across the lake and about one-half mile distant from the north end of the Swamp Portage trail.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1048 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—On the west bank of Granite River, three-fourths mile below Granite Lake, at the first rapids. The station is about half way down the rapids and about 0.6 meter back from the main channel of the stream. It is on a rock about 1 by 1.3 meters in cross section that projects up above extreme high-water mark. Extreme high water would surround the rock and extend 9 or 10 meters back from it.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1049 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—On the north shore of Granite River, at the foot of the third rapids below Granite Lake. The station is on a bare rock at the shore line and about 4 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1050 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—On the west bank of Granite River, about 800 meters north of the entrance to Granite Lake. The station is 35 meters back from the shore line of the river, 25 meters above the level of the water, and about 2 meters below the highest part of the steep slope of the hillside.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1051 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—On the north shore of Granite River, about 1¼ miles below Granite Lake and about 60 meters above the third rapids below the lake. The station is on a large white rock about 20 meters from the shore.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1052 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—On the west bank of Granite River, on the east side of the point lying between the river and the small bay that leads to Swamp Portage. The station is about 150 meters north of the extreme south end of the point, on a granite head about 10 meters above the water and 9 meters west of the river shore.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1053 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—On the north shore of Granite River, in the big bend of the stream about 1⅛ miles north of Granite Lake. The station is about 75 meters downstream from the second rapids below Granite Lake.

Station mark: A standard 8-inch manganese-bronze reference post set in rock. A bronze disk marking triangulation station "Cutty" is about 18 meters west of the monument.

Reference Monument 1054 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the west bank of Granite River, 360 meters north-northwest of the entrance to Granite Lake, and just south of the cove leading to Swamp Portage. The station is on the summit of a little round granite knoll, 5 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1055 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1921).—On the north bank of Granite River, about 1 mile north of Granite Lake. The station is on the north shore of the pond between the first and second rapids below Granite Lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk set in a rock at the high-water shore line, marking station "Crumb," bears south 4° 30′ east, 6.3 meters from the monument.

Reference Monument 1056 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the ridge west of the outlet of Granite Lake, about 300 meters distant therefrom and about 250 meters in a northeasterly direction from the outlet of Pine Lake. The station is about 50 meters above the level of the lakes.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1057 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1921).—On the east bank of Granite River, on the high granite bluff at the first rapids below Granite Lake. The station is 80 meters due east of the rapids, 60 meters southeast of the shore of the pond below the rapids, and about 30 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1058 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—On the north side of the narrows, at the extreme north end of Pine Lake, and about 120 meters above the rapids that are downstream from Pine Lake. The station is on the slope of the steep hillside that rises from the shore.

Station mark: A standard 8-inch manganese-bronze reference post set in rock.

Reference Monument 1059 (Ontario, Thunder Bay District, W. B. Fairfield, 1911; 1921).—On the east side of Granite River, about 850 meters north of the entrance to Granite Lake, and about 220 meters east of the river. The station is on the summit of an isolated hill, about 40 meters above the level of the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1060 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the north shor of Pine Lake, about midway between the east and west shores, on the tip of a low V-shaped point projecting about 80 meters out into the lake. The station is about 2 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in a rock.

Reference Monument 1061 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—On the east side of Granite River, about 400 meters north of the entrance to Granite Lake. The station is on the first granite hill north of the low place between the lake and the river. It is about 130 meters east of the river and about 30 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1062 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the west shore of Pine Lake, on the rocky point directly opposite the mouth of the boundary stream, and about 540 meters northwest of the west end of the Pine Portage trail. The station is on a large rock close to the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1063 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1921).—On the point on the south side of the outlet of Granite Lake. The station is about 60 meters back from the water's edge and about 18 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1064 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—On the east side of Pine Lake, on the northwest point of Pine Island and south of the foot of the rapids at the mouth of Pine River. The station is on a white granite rock, about 50 meters from the extreme northwest tip of the island and about 3 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1065 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—Between Pine and Granite Lakes. The station is on the bluff about 75 meters back from the southeast shore of the small bay or pond that lies between the two lakes.

Station mark: A standard 8-inch manganese-bronze reference post set in rock.

Reference Monument 1066 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—On the south side of the boundary channel of Pine River, about 475 meters above Pine Lake and at the head of the second rapids above the lake. The station is on a rocky cliff about 15 meters back from the shore line and about 4 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock; replaced in 1921.

Reference Monument 1067 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1921).—On the south side of the connecting stream between Pine and Granite Lakes. The station is about 60 meters southeast of the point where Pine Lake discharges into the stream. It is on high ground, about 12 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a rock.

Reference Monument 1068 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—On the south side of the boundary channel of Pine River, about 225 meters above the second rapids above Pine Lake. The station is on a small knoll at the bend of the stream, about 30 meters back from the shore line and about 8 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1069 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—On the east shore of Pine Lake, about midway between the ends of the narrow part of the lake and southeast of the small rock island (No. 10) that lies in the narrows. The station is on the highest part of a high cliff, about 20 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the solid rock.

Reference Monument 1070 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—On the west side of Pine River, about 800 meters upstream along the boundary from Pine Lake. The station is on the slope about 30 meters back from the shore line of a little bay and about 4 meters above the water. There is a little marshy flat just to the east of it.

Station mark: A standard 8-inch manganese-bronze reference post set in a rock.

Reference Monument 1071 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1921).—On the east shore of Pine Lake, at the north end of the wide part of the lake, about 100 meters east of the small wooded

island (No. 9) that lies at the entrance to the narrow part of the lake. The station is on the smooth ledge on top of a cliff, about 3 meters from the edge of the cliff.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1072 (Minnesota, Cook County; E. R. Martin, 1917).—On the west side of Pine River, about 230 meters distant from and below the first sharp bend of the stream below the third rapids above Pine Lake. The station is on high ground in the thick jack pine grove, about 30 meters back from the shore line; and about 4 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1073 (Ontario, Thunder Bay District, 1911; 1917).—On the east shore of Pine Lake, about midway between the ends of the lake and about 130 meters north of the boundary stream. The station is near the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in rock. A drill hole within a triangle cut in a fixed rock about 1 meter from the water's edge, and marking station "City," bears north 15° 39′ west, 18.3 meters distant from the monument.

Reference Monument 1074 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—On the west side of Pine River, about 140 meters below the third rapids in the boundary stream above Pine Lake. The station is on a small rocky hill about 40 meters north of the shore of a small bay or pond of the stream. It is about 7 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1075 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1921).—On the east shore of Pine Lake, on the rocky point or ledge at the north side of the mouth of the boundary stream. The station is on top of a ledge, 12 meters from the water's edge and 3 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1076 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—On Pine Island, about 180 meters northeast of the east end of Pine Portage. The station is on the summit of a sharp knoll near the river's edge. The knoll is the first one along the shore from the end of the portage.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1077 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—On the north side of the boundary channel of Pine River, about 500 meters above Pine Lake and at the head of the second rapids above the lake. The station is about 10 meters back from the shore line and about 2 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1078 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the west side of a small pond in Pine River, on the prominent point of the shore line 160 meters south of the east end of the Pine Portage trail. The station is on the summit of the point, about 7 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a rock.

Reference Monument 1079 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—On the north side of the boundary channel of Pine River, about 225 meters above the second rapids above Pine Lake. The station is on a rocky knoll in the bend of the stream, about 45 meters north of the shore line and about 7 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1080 (Minnesota, Cook County; E. R. Martin, 1917).—On the south shore of Pine River, directly west of Blueberry Portage and just east of the head of the south channel around Pine Island. The station is on a rocky bluff about 7.5 meters above the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1081 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—On the north side of the boundary channel of Pine River, about 1,000 meters above Pine Lake. The station is on a large bare rock about 25 meters from the shore and about 3 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1082 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—On the west bank of Pine River, opposite and 75 meters west of the foot of Blueberry Falls and about 100 meters west-southwest of the west end of the Blueberry Portage trail. The station is on a rock shelf near the top of a high rock face, 15 meters above high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the solid rock.

Reference Monument 1083 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—On the Canadian side of Pine River, about three-fourths mile above Pine Lake. The station is on the low rocky cliff on the

east side of the large pond in the big bend of the river. It is about 480 meters below the third rapids above Pine Lake, about 20 meters from the water's edge, and about 5 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1084 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—On Pine River. The river here is divided into three channels, forming two large islands. Blueberry Portage crosses the more northern of these islands. The station is near the most northern point of the southern island and on the south shore of the middle channel of the river. It is on a rocky bluff about 9 meters back from the water's edge and about 4.5 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1085 (Ontario, Thunder Bay District; E. R. Martin, 1917).—On the south side of the boundary channel of Pine River at a point where the stream turns to the north about 250 meters below the third rapids above Pine Lake. The station is on the bluff about 50 meters back from the shore line and about 15 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1086 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—On the eastern shore of the more southern of two large islands formed by the division of Pine River into three channels. The station is on a bare rocky ledge at the fork of the middle and southern channels of the river about 120 meters southwest of the head of Blueberry Portage and on the north side of a small point of land projecting into the rapids. It is about 1.5 meters above and 1 meter back from the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1087 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—On the east side of Pine River, about 150 meters below the third rapids in the boundary stream above Pine Lake. The station is on a rocky knoll about 20 meters south of the shore line and about 6 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1088 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—On Pine River about 100 meters southeast of the east end of the Blueberry Portage trail. The station is on the west side of a knoll about 50 meters east of the head of the rapids and about 8 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in a rock.

Reference Monument 1089 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—On the east side of Pine River just above the third rapids of the boundary channel above Pine Lake. The station is on a bushy hill about 120 meters from the rapids, about 60 meters from the shore, and about 8 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in rock.

Reference Monument 1090 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—On the west shore of Pine River, at the first turn of the boundary channel above the east end of Blueberry Portage. The station is on a rocky cliff about 12 meters from the shore and about 7.5 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1091 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1921).—On the north side of Pine River, 65 meters north by east of the west end of the Blueberry Portage trail. The station is on the highest point of the south end of a granite hill. It is 15 meters above the end of the trail.

Station mark: A standard 8-inch manganese-bronze reference post set in the solid granite.

Reference Monument 1092 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the south side of Pine River, about 1,200 meters downstream from Little Rock Portage and about 200 meters due south of the east end of the Blueberry Portage trail. The station is on the highest point of a long granite ridge extending north and south, with water on both sides of it. It is about 7 meters above the level of the river.

Station mark: A standard 8-inch manganese-bronze reference post set in the granite ledge.

Reference Monument 1093 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—On the bank of Pine River, at the head of the rapids, about 75 meters south of the east end of Blueberry Portage. The station is on a rock shelf about 2.5 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1094 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—On the southern bank of Pine River, 850 meters below Little Rock Portage, 230 meters west of a large rock head (almost an island), and 100 meters upstream from a small rock island. The station is on a ledge on a projecting point of the shore; 40 meters back from the tip of the point; 30 meters from the downstream shore of the point; 15 meters from and 1.5 meters lower than the highest point of the ledge; and 4.5 meters above the level of the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1095 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1921).—On the bank of Pine River, at the east end of Blueberry Portage. The station is on the granite ridge 15 meters northeast of the cut in the rock through which the portage trail passes. It is 5 meters from and 2.5 meters above the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the granite ridge.

Reference Monument 1096 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—On the west bank of Pine River, about 410 meters below Little Rock Portage, on the first prominent high granite ledge. The station is about 3 meters below the highest part of the ledge, about 18 meters above the water, and about 48 meters from the shore line. It is on a shelf 2.5 meters wide, at the top of a 40° slope.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1097 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1921).—On the north bank of Pine River, about 900 meters below Little Rock Portage. The station is on a cobblestone-topped hill, about 23 meters above the water, and about 9 meters back from the top of the west slope of the hill.

Station mark: A standard 8-inch manganese-bronze reference post.

Reference Monument 1098 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—On the west bank of Pine River, about 400 meters below Magnetic Lake, and just above the falls at Little Rock Portage. The station is about 7.5 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1099 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1921).—On the east bank of Pine River, about 460 meters below Little Rock Portage and just northeast of a narrows in the stream. The station is on top of a prominent granite ledge about 2 meters wide at the station and running off in a ridge to the southeast. There is a shallow pit in the ledge just west of the station and another ledge knoll about 8 meters to the north of the station. The station is about 9 meters above the water, and 9 meters from the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1100 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the west bank of Pine River, about 250 meters below Magnetic Lake, and about 160 meters above the falls. The station is at the water's edge, on a ledge about 1.5 by 2.7 meters in top dimensions, and is about 0.3 meter above high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the stone.

Reference Monument 1101 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1921).—On the east side of Pine River, about 400 meters below Magnetic Lake and just below the falls at Little Rock Portage. The station is on the rock ledge, about 18 meters back from the shore line and about 9 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1102 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—At the north end and outlet of Magnetic Lake. The station is on the highest point of a black granite ledge south of the outlet and is 9 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1103 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—On the east bank of Pine River, about 250 meters below Magnetic Lake and about 160 meters above the falls. The station is on a pointed piece of granite outcrop, 4.5 meters from the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1104 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—On the west shore of the north arm of Magnetic Lake, about 1,800 meters north of the entrance from Gunflint Lake. The station is about 50 meters southwest of a small granite island. It is near the shore line, on a rock shelf, at the foot of a granite hill.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk, marking triangulation station "Dead," is set in the rock, north 68° 31′ east, 2.7 meters from the station.

Reference Monument 1105 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1921).—On the eastern bank of Pine River, just above the first rapids leaving Magnetic Lake. The station is on the most northern end of an outcrop of granite 2.5 meters by 11 meters in dimensions and varying from 1 to 2 meters above the high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1106 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On a granite island in Magnetic Lake, 1,440 meters north-northwest of the entrance from Gunflint Lake. The station is on the extreme northeast point of the island, about 2.5 meters from the shore line of the point and about midway between the sides of the point. It is on the solid rock 2 meters above high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1107 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—On the north shore of Magnetic Lake, about 200 meters east of the outlet into Pine River. The station is on the highest point of a prominent granite ledge 9 meters high and 14 meters across. It is 4.5 meters from the west side of the outcrop, and 12 meters back from the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1108 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the southern shore of Magnetic Lake, on the point 375 meters northwest of the connecting stream between Gunflint and Magnetic Lakes.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk set in a large rock close to the water's edge and marking station "Deal," bears south 54° 44′ east, 4.9 meters from the station.

Reference Monument 1109 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1921).—On the east shore of the north arm of Magnetic Lake, on a point about 300 meters south of the Pine River outlet. The station is on a granite ledge, 14 meters northeast of a broken ledge point, 3 meters east of the shore line, and 2 meters above high-water level.

Station mark: A standard 8-inch manganese bronze reference post set in the ledge.

Reference Monument 1110 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—At the west end of Gunflint Lake, on the point at the west side of the outlet into Magnetic Lake. The station is about 30 meters south of the old railroad bridge, on a rock near high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1111 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—On the east shore of the north arm of Magnetic Lake, about 1,380 meters north of the entrance from Gunflint Lake. The station is on the prominent point 200 meters east of a conspicuous granite island.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk set in a large bowlder near the shore line, marking triangulation station "Candy," bears north 88° 43′ west, 3.8 meters distant from the station.

Reference Monument 1112 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the south shore of Gunflint Lake, about 1 mile south of and opposite the outlet into Magnetic Lake. The station is near the middle of a concave shore line about 300 meters east of a small bay that lies behind a long point making out from the west parallel to the main shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in a rock.

Reference Monument 1113 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—On the point between Gunflint Lake and Magnetic Lake, about 130 meters northeast of the connecting stream between the two lakes. The station is on top of a cliff overlooking the shore and is back about 3 meters from the edge of the cliff on a smooth flat ledge.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1114 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the south shore of Gunflint Lake, about 2,200 meters southeast of the outlet into Magnetic Lake. The station is on the most western of three consecutive points of the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk set in a large fixed rock about 4 meters back from the water's edge, marking station "Dulce," bears north 59° 36′ west, 5.5 meters from the monument.

Reference Monument 1115 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1921).—At the west end of Gunflint Lake. The station is on the point at the east side of the outlet into Magnetic Lake. It is on a large rock about 30 meters south of the old railroad bridge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1116 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the south shore of Gunflint Lake, about midway between the ends of the lake, opposite and nearly south of the small wooded island (No. 8) that lies near the northern shore of the lake. The station is on a prominent point of the shore line, on a large rock, 4.5 meters from the water's edge and 0.7 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1117 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—On the north shore of Gunflint Lake, about 900 meters east of the outlet into Magnetic Lake. The station is on the southeastern point of a projecting headland or peninsula.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A drill hole within a triangle cut in a large rock near the shore line, marking station "Caddie," bears south 29° 46′ east, 14.2 meters distant from the station.

Reference Monument 1118 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the south shore of Gunflint Lake, about midway between the ends of the lake, on a rounded, timbered point directly opposite the most western of the three conspicuous white granite cliffs of the north shore. The station is on the extreme end of the point.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk set in a large bowlder near the shore line, marking triangulation station "Dough," bears north 13° 46′ east, 4.9 meters from the station.

Reference Monument 1119 (Ontario, Thunder Bay District; E. R. Martin, 1917).—On the north shore of Gunflint Lake, about 2¾ miles east of the west end of the lake. The station is on a prominent point that has a small bay lying to the north and back of it. The point ends in a rocky knoll at its eastern extremity. The station is on the gravel beach at the southwest side of the rocky knoll. It is on an outcropping slate ledge about 3 meters from the shore and about 1 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1120 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the southeast corner of Gunflint Lake, about 2,200 meters southwest of the inlet from Little Gunflint Lake. The station is on the north side of a small island.

Station mark: A standard 8-inch manganese-bronze reference post set in solid rock.

Reference Monument 1121 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—On the north side of Gunflint Lake, about midway between the ends of the lake. The station is on the middle one of the three rock cliffs on the shore. It is on the first bench about 2 meters back from the edge of the cliff and about 20 meters above the grade of the abandoned railway.

Station mark: A standard 8-inch manganese-bronze reference post set in the solid ledge.

Reference Monument 1122 (Minnesota, Cook County; E. R. Martin, 1917).—On the east end of Gunflint Lake, about 450 meters southwest of the mouth of the stream flowing from Little Gunflint Lake. The station is on the west end of the largest island lying off the point in this part of the lake. It is on a large flat rock about 1 meter above high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1123 (Ontario, Thunder Bay District; E. R. Martin, 1917).—On the north shore of Gunflint Lake, on the first prominent point west of and about 1 mile distant from the mouth of the stream flowing from Little Gunflint Lake.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1124 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—At the east end of Gunflint Lake, on the point just south of the stream flowing from Little Gunflint Lake. The station is just in front and north of the United States customhouse, on a granite rock about 0.5 meter across and nearly flush with the ground. It is about 3.5 meters above high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1125 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—On the north side of Gunflint Lake near the east end of the lake. The station is on the summit of a high, bare, rocky hill, about 800 meters northwest of the stream flowing from Little Gunflint Lake into Gunflint Lake and about 225 meters north of the lake shore.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge. A bronze disk set in the ledge bears south 58° east, 1.66 meters from the station, and marks triangulation station "Cutts."

Reference Monument 1126 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—On the south shore of Little Gunflint Lake, about 230 meters east of Gunflint Lake. The station is on a cleared point 11 meters back of and 2 meters above high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1127 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1921).—On the north side of Little Gunflint Lake, about 70 meters from the lake shore, and about 120 meters from the mouth of the stream flowing from the lake into Gunflint Lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A drill hole in a ledge of rock 6 meters northwest and a little above the level of the old railroad grade, marking triangulation station "Chat," bears north 29° 17′ west, 11.5 meters from the station.

Reference Monument 1128 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—On the south shore of Little Gunflint Lake, about 420 meters east of the outlet into Gunflint Lake and about 50 meters back from the marshy shore.

Station mark: A standard 8-inch manganese-bronze reference post set in a rock.

Reference Monument 1129 (Ontario, Thunder Bay District; 1917; 1921).—On the north side, at the west end of Little Gunflint Lake, about 180 meters northeast of the outlet into Gunflint Lake. The station is on a large bowlder about 60 meters north of the shore line and on the north side of the old railroad right of way.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1130 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—On the south shore of Little Gunflint Lake, 600 meters east of the outlet into Gunflint Lake.

Station mark: A standard 8-inch manganese-bronze reference post set in a rock.

Reference Monument 1131 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—On the north side of Little Gunflint Lake, about 390 meters from the outlet into Gunflint Lake. The station is on a low flat point about 50 meters back from the shore line. It is on a rock outcrop about 1 meter square.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1132 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the south shore of Little Gunflint Lake, about midway between the ends of the lake, and on the most prominent point on the south shore.

Station mark: A standard 8-inch manganese-bronze reference post set in a rock.

Reference Monument 1133 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1921).—On the north shore of Little Gunflint Lake, about 600 meters east of the outlet into Gunflint Lake. The station is at the eastern end of the narrow part of the lake and near the high-water mark on an outcropping ledge about 3.5 by 4 meters in area.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1134 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—On the southeast shore of Little Gunflint Lake, 340 meters south by west of the portage from Little North Lake. The station is just below high-water mark, about 1 meter from the shore line, on a bowlder 1 by 1.5 meters in cross section.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk, marking triangulation station "Dooley," bears north 14° east, 0.5 meter distant.

Reference Monument 1135 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—On the north shore of Little Gunflint Lake, about midway between the ends of the lake. The station is on the most prominent point of the north shore, 20 meters north from the extreme end of the point, and about midway between the east and west sides of the point. It is about 1.5 meters above high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1136 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—On the south shore of Little North Lake, 270 meters east of the boundary stream flowing into Little Gunflint Lake.

Station mark: A standard 8-inch manganese-bronze reference post set in a large bowlder.

Reference Monument 1137 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1921).—At the east end of Little Gunflint Lake. The station is about 7 meters north of the mouth of the stream flowing from Little North Lake.

Station mark: A standard 8-inch manganese-bronze reference post set in rock. A bronze disk, set in a bowlder marking station "Canute," is 3.26 meters east of the monument.

Reference Monument 1138 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the south shore of Little North Lake, about 430 meters east of the stream flowing into Little Gunflint Lake. The station is on a granite bowlder, 2 meters from the water's edge and 0.3 meter below high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1139 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1921).—At the extreme western end of Little North Lake. The station is on the north side of the head of the boundary stream flowing from Little North Lake into Little Gunflint Lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk, marking triangulation station "Cover," set in one of the largest of a mass of irregularly shaped rocks on the shore line, bears south 18° 17′ east, 6.1 meters from the station.

Reference Monument 1140 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the south shore of Little North Lake on the point of the shore line at the west end of the Little North Lake narrows. The station is on a rock outcrop on the extreme tip of the point.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk set in a flat-topped rock a little below high-water mark, marking triangulation station "Doke," bears north 40° east, 0.6 meter from the station.

Reference Monument 1141 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—On the north shore of Little North Lake, about 460 meters northeast of the boundary stream flowing into Little Gunflint Lake

The station is on a prominent point at the east base of an isolated knoll. It is on the slope of a bare granite ledge, about 2 meters above high-water mark and about 3 meters from the water line.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1142 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the south shore of Little North Lake, on the point at the west end of the narrows from North Lake. The station is 3.5 meters from the shore line and 2.5 meters above high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1143 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—On the north shore of Little North Lake, on the point on the north side of the narrows of Little North Lake, directly opposite the mouth of the narrows from North Lake. The station is on a prominent granite ledge 2.5 meters above the lake level and 6 meters back from the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1144 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the south shore of the narrows between North Lake and Little North Lake and about 100 meters east of the west end of the narrows. The station is on a black slate rock near the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A drill hole within a triangle cut in the rock, marking triangulation station "Dod," bears north 62° west, 1.2 meters distant from the station.

Reference Monument 1145 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—On the north shore of Little North Lake, directly opposite the mouth of the narrows from North Lake. The station is 8 meters above the lake level on a bare granite ledge that rises from the water's edge to a height of 10 meters. The old abandoned railroad grade is 33 meters north of the station.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1146 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the south shore of the narrows between North Lake and Little North Lake, about 170 meters west of the west end of the small island in the narrows.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk set in a rock a little below high-water mark, marking triangulation station "Doc," bears north 31° east, 1.3 meters distant from the station.

Reference Monument 1147 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—On the shore of Little North Lake, on the point on the west end of the narrows from North Lake. The station is about 15 meters northwest of the extreme point and near high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A drill hole within a triangle cut in a granite bowlder, marking triangulation station "Cita," bears south 70° west, 0.75 meter from the station.

Reference Monument 1148 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the south side of the narrows between North Lake and Little North Lake, 450 meters west of the outlet of North Lake. The station is southeast of island No. 6. It is on the shore line on a large bowlder 0.3 meter below high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1149 (Ontario, Thunder Bay District; E. R. Martin, 1917).—On the north side of the narrows between North and Little North Lakes. The station is near the shore line, about 200 meters east of Little North Lake.

Station mark: A standard 8-inch manganese-bronze reference post set in rock.

Reference Monument 1150 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the south shore of the narrows between North Lake and Little North Lake, about 300 meters west of the North Lake outlet.

Station mark: A standard 8-inch manganese-bronze reference post. A bronze disk set in a solid ledge a little below high-water mark, marking triangulation station "Dog," bears north 10° west, 2.8 meters distant from the station.

Reference Monument 1151 (Ontario, Thunder Bay District; E. R. Martin, 1917).—On the north shore of the narrows between North Lake and Little North Lake, about 460 meters west of the outlet of North Lake. The station is on a rock about 4 meters back from the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1152 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the north shore of North Lake, on the most northern point of the shore on the south side of the narrows or entrance to Little North Lake. The station is on a solid ledge, at high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1153 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—On the north side of the narrows between North Lake and Little North Lake, 300 meters west of the North Lake outlet. The station is on a large granite rock close to the water's edge and 0.3 meter below the high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1154 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the north shore of North Lake, on the eastern tip of the point on the south side of the entrance to Little North Lake. The station is on a solid ledge at high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1155 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—On the north shore of North Lake, on the point on the north side of the entrance to the narrows leaving North Lake and connecting with Little North Lake. The station is on the solid ledge at high-water mark, about 4.5 meters back from the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1156 (Minnesota, Cook County; E. R. Martin, 1917).—On the west end of North Lake, on the middle and largest one of three small islands that are abreast of and three-eighths mile distant from Height-of-Land Portage. The station is on the southeast side of the island.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1157 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—On the north shore of North Lake, on the big rounded point 900 meters east of the entrance to Little North Lake. The station is 1 meter south of and 0.3 meter below high-water mark, on a cobblestone beach.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1158 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the south shore of South Lake, 1½ miles from the west end of the lake and nearly southeast of Height-of-Land Portage.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A drill hole in a rock near the shore line, marking station "Dick," bears north 18° east, 1.4 meters from the station.

Reference Monument 1159 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—On the south shore of North Lake, about 1,000 meters east of Height-of-Land Portage. The station is on a large rock, about 0.3 meter above high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1160 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the south shore of South Lake, on a rounded point 1 mile from the east end of the lake. The station is on the part of the point that projects farthest into the lake, on a large smooth rock about 1 meter from the water's edge and 0.3 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1161 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—On the north shore of South Lake, about 500 meters east of Height-of-Land Portage. The station is on a prominent point of the shore line on a rock.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A drill hole in a rock 4.5 meters from the water's edge, marking triangulation station "Crow," bears south 30° east, 12 meters distant from the station.

Reference Monument 1162 (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the southern shore of South Lake on a rounding point one-half mile west of the portage to Rat Lake. The station is on a large rock, 1 meter from the water's edge and 0.5 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1163 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—On the north shore of South Lake, 1 mile west of the east end of the lake and on the second prominent rocky point from the east end. The station is on a projecting ledge, 2.5 meters back from the water's edge and 0.7 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1164 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—On the east end of South Lake, on the tip of the long rocky point 200 meters southwest of the portage to Rat Lake. There is a small rocky island about 50 meters north of the point. The station is on a large rock at the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1165 (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—On the north shore of South Lake, on the first prominent wooded point west of the east end of the lake, one-half mile west

of South Lake Portage. The station is on a rock, 4.5 meters from the water's edge and 3.5 meters above the level of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1166 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—At the east end of South Lake, about 8 meters west of the portage trail. The station is on a rock, about 23 meters northwest of the mouth of the southern stream from Rat Lake and about 2.5 meters from the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk stamped "1552," marking South Lake bench mark, is 0.3 meter north of the station.

Reference Monument 1167 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—At the east end of South Lake, about 200 meters southwest of the outlet of South Lake. The station is on the smaller island lying in this part of the lake, on a solid rock about 0.6 meter in diameter.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1168 (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—On the west end of Rat Lake, at the east end of South Lake Portage and just south of the main stream connecting Rat and South Lakes. The station is about 3 meters west of the shore on a rock on the northern side of the center of the portage trail. It is about 0.3 meter above high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1169 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—At the east end of South Lake, about 15 meters from the lake shore and about 30 meters north of the head of the boundary stream flowing into Rat Lake.

Station mark: A standard 8-inch manganese-bronze reference post set in a granite bowlder.

Reference Monument 1170 (Minnesota, Cook County; E. R. Martin, 1917).—On the south shore of Rat Lake, about 230 meters south by west from the entrance to Rose Lake. The station is on a rock outcrop on the side hill, about 18 meters back from the shore line and about 9 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1171 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—At the west end of Rat Lake. The station is on a rock outcrop, about 15 meters from the shore on the north side of the road from Rat Lake to South Lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1172 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—At the west end of Rose Lake, between the portage and the short rapids from Rat Lake. The station is on a solid rock 1 meter in diameter and about 2 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk, marking triangulation station "Duke," near the shore line, bears north 14° 27′ east, 5.21 meters distant.

Reference Monument 1173 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—Between Rat and Rose Lakes. The station is on the point on the north side of the narrows, on a rock outcrop about 1.5 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk near the shore line, marking triangulation station "Duke," bears south 73° 27′ east, 16.52 meters distant.

Reference Monument 1174 (Minnesota, Cook County; E. R. Martin, 1917).—At the west end of Rose Lake, on the point about 150 meters east of Rat Portage. The station is on a solid rock about 1.2 meters in diameter, about 15 meters back from the shore and about 4 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. Station "Dark," marked by a drill hole in rock, bears north 33° 18′ east, 15.5 meters distant from the station.

Reference Monument 1175 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1917).—On the west shore of Rose Lake, about 150 meters north of the boundary channel into Rat Lake. The station is on a ledge on the little rock point, about 2.4 meters back from the rock shore and about 1.5 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1176 (Minnesota, Cook County; E. R. Martin, 1917).—Near the west end of Rose Lake, on the rounded shore line about 300 meters east of the Rat Portage. The station is on a rock outcrop about 2 meters above and 10 meters back from the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. Station "Drop," marked by a drill hole in the rock, bears north 25° 35′ east, 10.2 meters distant from the station.

Reference Monument 1177 (Ontario, Thunder Bay District; E. R. Martin, 1917).—On the north shore at the head of Rose Lake, about 400 meters northeast from the outlet of Rat Lake. The station is about 15 meters back from the grassy shore line, on a bowlder about 1 meter in diameter.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1178 (Minnesota, Cook County; E. R. Martin, 1917).—On the south shore of Rose Lake, about 700 meters east of Rat Portage. The station is on a rock outcrop about 2 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A drill hole in the rock near the shore line, marking triangulation station "Dan," bears north 13° 56′ west, 6.1 meters distant from the monument.

Reference Monument 1179 (Ontario, Thunder Bay District; E. R. Martin, 1917).—On the north shore at the head of Rose Lake, on the point facing Rat Portage, about 350 meters across the bay from the portage. The station is on a rock ledge about 3.5 meters back from and about 2 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge. Station "Colt," marked by a drill hole, bears south 67° 06′ west, 3.4 meters distant.

Reference Monument 1180 (Minnesota, Cook County; E. R. Martin, 1917).—On the south shore of Rose Lake, about seven-eighths mile east of the west end of the lake. The station is on a little point near the middle of the part of the shore that runs northeasterly and southwesterly. It is on a small bowlder about 8 meters back from the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder. A drill hole in the rock at the shore line, marking station "Dump," bears north 60° west, 8.4 meters distant.

Reference Monument 1181 (Ontario, Thunder Bay District; E. R. Martin, 1917).—On the north shore of Rose Lake, on the big point that is about 500 meters east of Rat Portage. The station is on the rocks close to the shore line. A small rock island lies just off the point.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A drill hole in the rock, marking triangulation station "Carl," bears south 30° 14′ west, 43.6 meters distant.

Reference Monument 1182 (Minnesota, Cook County; E. R. Martin, 1917).—On the south shore of Rose Lake, on the first prominent point about five-eighths mile west of the narrows in that part of the lake known as Mud Lake. The station is on a prominent cone-shaped white bowlder about 27 meters inland from the shore line and about 3 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder. A drill hole in a fixed rock near the shore line, marking station "Duck," bears north 35° 49′ west, 26.6 meters distant from the monument.

Reference Monument 1183 (Ontario, Thunder Bay District; E. R. Martin, 1917).—On the north shore of the "Mud Lake" portion of Rose Lake, about three-fourths mile east of the west end of the lake. The station is on a rounded point of the shore line, about 9 meters back from the water and about 2 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A drill hole in the rock, marking station "Cap," bears south 68° 34′ east, 8.8 meters distant.

Reference Monument 1184 (Minnesota, Cook County; E. R. Martin, 1917).—On the south shore of Rose Lake, on the bay just west of the narrows in the narrow part of the lake known as Mud Lake. The station is on the shore just after it turns from the south to the west. It is on a granite bowlder about 0.6 meter in diameter, about 9 meters back from the shore and 2 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder. A drill hole in a fixed rock on the shore line, marking station "Deer," bears north 27° west, 9.1 meters distant from the monument.

Reference Monument 1185 (Ontario, Thunder Bay District; E. R. Martin, 1917).—On the north shore of the part of Rose Lake known as Mud Lake, and in the bay three-fourths mile west of the narrows. The station is on a white bowlder about 1 meter in diameter, about 11 meters inland from the shore line, and about 3 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A drill hole in the rock near the shore line, marking station "Crib," bears south 20° 25′ east, 11.4 meters distant.

Reference Monument 1186 (Minnesota, Cook County; W. B. Fairfield, 1910; 1917).—On the south shore of Rose Lake, on the prominent point at the narrows of the "Mud Lake" portion of the lake, just where the lake shore turns to the south. The station is on a large fixed rock, 1.2 meters from the water's edge, and 1.2 meters above the level of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1187 (Ontario, Thunder Bay District; E. R. Martin, 1917).—On the north shore of Rose Lake, about three-eighths mile west of the narrows of that portion of the lake known as Mud Lake. It is on the first point of the shore line west of the bend at the narrows, on a large flat rock about 2 meters in diameter, about 9 meters inland from the shore, and about 1.5 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A drill hole in a fixed rock on the shore line, marking station "Cat," bears south 23° 06′ east, 9.1 meters distant.

Reference Monument 1188 (Minnesota, Cook County; E. R. Martin, 1917).—On the south shore of Rose Lake in the narrow part of the lake known as Mud Lake, about 300 meters east of the big bend in the narrows. The station is on a large bowlder near the shore line and about 1.5 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1189 (Ontario, Thunder Bay District; E. R. Martin, 1917).—On the north shore of that part of Rose Lake known as Mud Lake, in the bend where the shore line turns abruptly to the southwest. The station is on a large flat rock about 9 meters back from the shore line and about 1.5 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1190 (Minnesota, Cook County; E. R. Martin, 1917).—On the south shore of Rose Lake, about 250 meters west of the first prominent point inside the narrow part of the lake known as Mud Lake. The station is on a small bowlder about 9 meters back from the shore and about 3 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder. A bronze disk set in a solid flat rock at the shore line, marking station "Brand," bears north 79° 51′ east, 20.7 meters distant from the monument.

Reference Monument 1191 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1917).—On the north shore of Mud Lake (the local name for the narrow part of Rose Lake), at the narrowest part of the lake. The station is about 100 meters north of the nearest building of Bishop's Lumber Camp, on a cleared knoll about 75 meters back from the lake shore.

Station mark: A standard 8-inch manganese-bronze reference post set in a smooth ledge of rock with a large round bowlder on the north side of it.

Reference Monument 1192 (Minnesota, Cook County; E. R. Martin, 1917).—On the south shore of Rose Lake, at the west end of the wide part of the lake. The station is on the rocky point just at the entrance to the narrow part of the lake. It is on a large rock about 5 meters inland from the water's edge and about 2.4 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A drill hole within a triangle cut in a large flat rock at the shore line, marking station "Bird," bears north 31° 18′ east, 4.76 meters distant from the station.

Reference Monument 1193 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1917).—On the north shore of Mud Lake (the local name for the narrow part of Rose Lake), at the east end of the narrowest place in the lake. The station is about 200 meters east of the Bishop Lumber Co.'s Camp, on a large fixed rock, 3 meters from the water's edge, and 1.5 meters above the level of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1194 (Minnesota, Cook County; E. R. Martin, 1917).—On the south shore of Rose Lake on the rounded point between two small bays, about one-half mile east of the west end of the wide part of the lake. The station is on a rock outcrop about 10 meters inland from the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A drill hole within a triangle cut in a rock near the shore line, marking station "Book," bears north 32° 36′ west, 9.9 meters distant from the monument.

Reference Monument 1195 (Ontario, Thunder Bay District; E. R. Martin, 1917).—On the north shore of Rose Lake, on the first prominent point inside the narrow part of the lake. The station is on a rock outcrop about 1.2 meters in diameter, about 10 meters back from the shore line and about 3 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A drill hole within a triangle cut in a rock near the water's edge, marking station "Alger," bears south 3° 34′ west, 10.4 meters distant from the monument.

Reference Monument 1196 (Minnesota, Cook County; E. R. Martin, 1917).—On the south shore of Rose Lake, about 1,100 meters from the east end of the lake. The station is on the most western of several small points of the rounded shore line. It is on a rock about 4 meters inland from the shore line and about 2.4 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A drill hole within a triangle cut in a large bowlder on the shore line, marking station "Belt," bears north 17° east, 7.5 meters distant from the monument.

Reference Monument 1197 (Ontario, Thunder Bay District; E. R. Martin, 1917).—On the north shore of Rose Lake, about 200 meters west of the prominent point at the entrance to the narrow western part of the lake. The station is on a large rock about 2 meters back from the shore and about 1.5 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk set in a rock on the shore line, marking station "Arthur," bears south 9° 12′ east, 1.64 meters distant from the monument.

Reference Monument 1198 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—On the south shore of Rose Lake, about 650 meters west of the mouth of the boundary stream at the east end of the lake. The station is on the first prominent point of the shore west of the mouth of the stream. It is on a large rock about 4 meters inland from the shore line and about 1.5 meters above the level of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A drill hole within a triangle cut in a large rock near the shore line, marking station "Bag," bears north 8° east, 3.5 meters distant from the monument.

Reference Monument 1199 (Ontario, Thunder Bay District; E. R. Martin, 1917).—On the north shore of Rose Lake, on the prominent point where the lake suddenly narrows down into what is known as Mud Lake. The station is on a large flat rock about 10 meters from the shore.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk set in a small split rock outcrop 12 meters from the shore line, marking station "Altoona," bears south 31° west, 4.35 meters distant from the monument.

Reference Monument 1200 (Minnesota, Cook County; W. B. Fairfield, 1910; 1921).—On the east shore of Rose Lake, about 50 meters west from the mouth of the boundary stream flowing from Watap Lake. The station is on a large rock 2.5 meters from the water's edge and about 0.5 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk set in the rock and marking triangulation station "Bowie," bears south 37° east, 0.5 meter from the monument.

Reference Monument 1201 (Ontario, Thunder Bay District; E. R. Martin, 1917).—On the north shore of Rose Lake on the prominent point seven-eighths mile west of the stream flowing from Rose Lake to Arrow Lake. The station is on a ledge near the shore line and about 2 meters above the level of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge. A drill hole within a triangle cut in a fixed rock near the water, marking station "Antrim," bears south 44° 22′ east, 3.5 meters distant from the monument.

Reference Monument 1202 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—On the south side of the boundary stream flowing from Watap Lake to Rose Lake and about 1 mile east, along the stream, from the east end of Rose Lake. The station is on a rock outcrop about 1 meter in diameter, about 20 meters south of the boundary stream and about 4 meters west of the brook emptying into the boundary stream from the south.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1203 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1917).—On the north shore of Rose Lake, on the projecting point five-eighths mile northwest of the mouth of the boundary stream at the east end of the lake. There is a small rocky island in front of the point. The station is on a large rock, about 4.5 meters from the water's edge and 3 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1204 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—At the head of the boundary stream flowing from the west end of Watap Lake. The station is on a bowlder about 30 meters south of the stream and about 75 meters from the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1205 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1917).—At the east end of Rose Lake. The station is on the sharp and prominent point between two bays, about 600 meters northwest of the west end of the Long Portage trail. It is on a ledge about 6 meters from the shore line and about 3 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1206 (Minnesota, Cook County; W. B. Fairfield, 1910; 1917).—On the south side of Watap (Rove) Lake, about 400 meters from the west end of the lake. The station is on top of a cliff on the side hill about 250 meters from the lake shore. It is on a solid ledge about 3 meters back from the edge of the cliff.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1207 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—At the east end of Rose Lake, about 20 meters north of the mouth of the boundary stream flowing from Watap Lake, about 6 meters from the shore line of the lake, and about 3 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base about 1 foot square, with its top flush with the ground.

Reference Monument 1208 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—On the south shore of Watap Lake, on the south side of the first narrows east of the west end of the lake. The station is on a granite bowlder about 1.5 meters in diameter, lying near the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1209 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—On the north side of the boundary stream flowing from Watap Lake to Rose Lake and about 1 mile east along the stream from the east end of Rose Lake. The station is opposite the mouth of the only brook emptying into the boundary stream from the south. It is about 3 meters from the bank of the stream on a bowlder about 1 meter in diameter.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1210 (Minnesota, Cook County; E. R. Martin, 1917).—On the south shore of Watap Lake about midway between the first and the second narrows east from the west end of the lake. The station is on a bowlder about 3.6 meters from the shore line and 1.5 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1211 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1921).—At the west end of Watap (Rove) Lake, on the small wooded knoll about 50 meters south of the portage trail and about the same distance from the mouth of the stream and the lake. There is an Indian grave about 10 meters northwest of the station. The station is on a large rock that projects about 0.5 meter out of the ground.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1212 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—On the point on the south side of the second narrows east from the west end of Watap Lake. The station is on the east side of the point, on a bowlder about 1 meter in diameter, about 15 meters from the narrows, about 3 meters from the lake shore, and about 1.5 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1213 (Ontario, Thunder Bay District; E. R. Martin, 1917).—On the north shore of Watap (Rove) Lake about 250 meters from the west end of the lake and just opposite the high rock cliff that is on the south side of the lake. The station is on a rock outcrop about 2 meters back from and 1 meter above high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A drill hole within a triangle cut in a large rock at the water's edge, marking station "Aloe," bears south 52° 10′ east, 1.8 meters distant from the monument.

Reference Monument 1214 (Minnesota, Cook County; E. R. Martin, 1917).—On the south shore of Watap (Rove) Lake, about 1½ miles east of the Long Portage to Rose Lake and about 180 meters south of the third narrows from the portage. The station is on a bowlder about 3 meters from the shore line and about 1.5 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder. A drill hole within a triangle cut in a large rock on the shore line, marking station "Bandy," bears south 49° 13′ west, 20.95 meters distant from the monument.

Reference Monument 1215 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1917).—On the north shore of Watap (Rove) Lake, about 900 meters east of the west end of the lake, on the sand point just west of the narrows. The station is about 2 meters from the water's edge and about 0.1 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1216 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—On the south shore of Watap (Rove) Lake, on the tip of the long narrow peninsula that makes the narrows, about 1⅝ miles west of the east end of the lake. The station is on a solid rock about 6 meters from the shore and about 1 meter above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk set in a large fixed rock near the water's edge, marking station "Betwixt," bears north 63° 12′ west, 4.03 meters distant from the monument.

Reference Monument 1217 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1921).—On the north shore of Watap (Rove) Lake, about 800 meters east of the west end of the lake. The station is on a large rock, 3 meters from the shore.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1218 (Minnesota, Cook County; W. B. Fairfield, 1910; 1917).—On the south shore of Watap (Rove) Lake, 1½ miles west of Watap Portage, on the rocky point 200 meters east of the narrows. The point terminates in a rocky knoll about 12 meters high. The station is on top of this knoll on a large rock.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1219 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—On the north shore of Watap Lake and on the north side of the first narrows east of the west end of the lake. The station is on a large rock about 2.4 meters from the shore and about 1.5 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1220 (Minnesota, Cook County; W. B. Fairfield, 1910; 1917).—On the south side of Watap Lake, about 700 meters east of the eastern narrows of the lake. The station is about 240 meters back from the shore line, on the extreme edge of the high cliff overlooking the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1221 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—On the north shore of Watap Lake. The station is on the point on the north side of the second narrows from the west end of the lake. It is on the eastern side of the point, on a granite bowlder about 1.2 meters in diameter, about 1.8 meters from the shore and about 1.5 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1222 (Minnesota, Cook County; W. B. Fairfield, 1910; 1917).—On the south shore of Watap (Rove) Lake, 1,050 meters west of Watap Portage, at the east end of the narrow part of the lake. The station is on a large fixed rock 1.5 meters from the water's edge and 0.3 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1223 (Ontario, Thunder Bay District; E. R. Martin, 1917).—On the north shore of Watap Lake. The station is between the second and third narrows from the west end of the lake. It is about 240 meters west of the third narrows, about 9 meters from the lake shore, and about 2.4 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base about 1 foot square.

Reference Monument 1224 (Minnesota, Cook County; W. B. Fairfield, 1910; 1917).—On the shore of Mountain Lake, in the southwestern angle of the lake, about one-half mile east of the extreme western end of the lake. The station is on the extreme tip of the point of a long narrow peninsula, on a rock, about 1.5 meters from the water's edge and about 0.7 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1225 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—On the north shore of Watap (Rove) Lake, on the point on the north side of the narrows about 1⅝ miles west of the east end of the lake. The station is on a bowlder about 12 meters from the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder. A bronze disk set in a large rock near the water's edge, marking station "Betwixt," bears south 55° 25′ east, 35.11 meters distant from the monument.

Reference Monument 1226 (Minnesota, Cook County; W. B. Fairfield, 1910; 1917).—On the south shore of Mountain Lake, 1⅛ miles east of the west end of the lake, on the first point of the shore west of reference monument 1228. The station is on a large rock, about 1 meter from the water's edge and 0.5 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1227 (Ontario, Thunder Bay District; E. R. Martin, 1917).—On the north shore of the east and largest part of Watap Lake, about 250 meters almost due north across the bay from the narrows, which are at the west end of this part of the lake. The station is about 2 meters from the shore line and about 1 meter above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base 18 inches square.

Reference Monument 1228 (Minnesota, Cook County; W. B. Fairfield, 1910; 1917).—On the south shore of Mountain Lake, about 1½ miles east of the west end of the lake, just under a high and prominent bluff point that is opposite two small bays on the north shore of the lake, and three-fourths mile southwest of the little rocky island on which triangulation station "Andrew" is located. The station is on a large rock just at the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1229 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1917).—On the north shore of Watap (Rove) Lake, 1¼ miles west of the east end of the lake, and on the second point of the shore west of the first narrow place from the east. The station is on the smooth rock ledge, 2.4 meters from the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1230 (Minnesota, Cook County; W. B. Fairfield, 1910; 1917).—On the south shore of Mountain Lake, about 2 miles east of the west end of the lake. The station is on a large rock 1.5 meters from the shore line on the point southwest of the tip of the high peninsula that separates the big bay on the north shore from the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1231 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1917).—On the north shore of Watap (Rove) Lake, 1,300 meters west of Watap Portage and about 300 meters west of where the lake

first narrows. The station is on a solid ledge on a small projecting point. It is about 1 meter from the water's edge and but a few centimeters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1232 (Minnesota, Cook County; W. B. Fairfield, 1910; 1917).—On the south shore of Mountain Lake, 2¾ miles east of the west end of the lake. The station is on a point of the shore one-half mile southeast of the little bare rocky island that lies 100 meters offshore just west of the big bay on the north shore. It is on a large rock about 2 meters from the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1233 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1917).—On the north shore of Watap (Rove) Lake, 1,050 meters west of Watap Portage, at the east end of the narrow part of the lake. The station is on a large flat ledge of rock that projects about 5 meters out from the timber line. It is 2 meters from the water's edge and 0.3 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1234 (Minnesota, Cook County; W. B. Fairfield, 1910; 1917).—On the south shore of Mountain Lake, on the first rocky point west of and about 1½ miles from the narrows of the lake. The station is on a large rock, about 1.5 meters back from the water's edge and about 0.3 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1235 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1917).—On the north shore of Watap (Rove) Lake, 900 meters west of Watap Portage and about 300 meters east of the narrow part of the lake. The station is on the smooth rock ledge, about 2 meters from the water's edge and 0.3 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1236 (Minnesota, Cook County; E. R. Martin, 1917).—On the south shore of Mountain Lake, on the prominent point about 1 mile west of the narrows of the lake. The station is on a gray bowlder about 6 meters from the shore line and 2.4 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1237 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1917).—On the west end of the small rocky island in the east end of Watap Lake, about 120 meters northwest of the west end of Watap Portage. It is on solid rock about 2.4 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1238 (Minnesota, Cook County; W. B. Fairfield, 1910; 1917).—On the south shore of Mountain Lake, about 2¼ miles from its eastern end, on the rocky point just west of the narrows. A vista was cut to the east to reference monument 1240 about 460 meters distant. The station is on a large rock 1.5 meters back from the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1239 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1917).—On the west end of Mountain Lake, on the shore, 2 meters from the east end of the portage trail to Watap (Rove) Lake. The station is on a large flat rock or ledge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. Boundary monument 9 bears north 72° 25′ west, 11.77 meters distant from the monument.

Reference Monument 1240 (Minnesota, Cook County; W. B. Fairfield, 1910; 1917).—On the south shore of Mountain Lake, at the first narrow place from the east end and directly opposite the first rocky point on the Canadian shore, on which point station "Astrid" is situated. The station is 2 miles from the east end of the lake. It is on a rock about 1.5 meters back from the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1241 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1917).—On the small island in the west end of Mountain Lake, about 700 meters east of Watap Portage. The station is on the ledge on the south end of the island, about 2 meters from the water and about 1.5 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1242 (Minnesota, Cook County; E. R. Martin, 1917).—On the south shore of Mountain Lake, about 1,300 meters west of the east end of the lake. The station is on a gray bowlder about 1 meter in diameter, about 3 meters inland from the shore, and about 1 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1243 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1917).—On the north shore of Mountain Lake on a point of the shore line about 1 mile east of the west end of the lake. The station is on a large rock at the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1244 (Minnesota, Cook County; W. B. Fairfield, 1910; 1921).—On the south shore of Mountain Lake, on the rocky point beneath the first rocky cliff west of Lesser Cherry Portage, which is at the east end of the lake. Very large bowlders have fallen from the cliff. The station is on one of these bowlders at the water's edge, just west of a slide of small rocks from the cliff. It is about 0.6 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1245 (Ontario, Thunder Bay District; E. R. Martin, 1917).—On the north shore of Mountain Lake, about 1⅝ miles east of the west end of the lake. The station is on a little point between two small bays. It is on a large rock about 4.5 meters inland from the shore line and about 2.4 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1246 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—At the east end of Mountain Lake, on the south side of the stream flowing to Lily Lakes. The station is on a rock about 1.5 meters square, about 12 meters from the head of the stream, and about 2.4 meters from the shore of the stream at the first turn after leaving the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1247 (Ontario, Thunder Bay District; E. R. Martin, 1917).—On the north shore of Mountain Lake, about midway between the ends of the lake. The station is on the straight shore line, about 750 meters west of the large square jog in the shore. It is on a granite bowlder about 1.5 meters in diameter, about 3.6 meters from the shore line, and about 1 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1248 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—On the south side and about 25 meters west of the mouth of the stream flowing from Mountain Lake into Fan Lake, the western of the Lily Lakes.

Station mark: A standard 8-inch manganese-bronze reference post set in a ledge.

Reference Monument 1249 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1917).—On the north shore of Mountain Lake, on the rocky, wooded, rounding point about 500 meters east of the large bay and about 1 mile west of the narrows. A vista was cut from the station to reference monument 1251. The station is on a large fixed rock, about 1 meter from the water's edge and about 0.3 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1250 (Minnesota, Cook County; E. R. Martin, 1917).—On the south shore of Fan Lake. The station is near the eastern end of the lake, on a ledge, about 3 meters from the water and about 1 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge. A bronze disk set in the rock, marking station "Alpen," bears north 32° 51′ east, 48.54 meters distant from the monument.

Reference Monument 1251 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1917).—On the north shore of Mountain Lake, about 2¼ miles from its eastern end, on the first rocky point west of the two rocky points at the narrows. The station is on a large rock, about 2 meters back from the shore line and about 1.5 meters above the lake level. A group of 5 large birch trees stands about 8 meters east of the station.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1252 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—Between Mountain and Moose Lakes, at the west end of Vaseux Lake, the eastern of the Lily Lakes. The station is on a large rock on the south side of the mouth of the boundary stream.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1253 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1917).—On the north shore of Mountain Lake, about 2 miles from its eastern end, on the western of the two rocky points which are at the narrowest place in the lake. The point projects into the lake about 15 meters. The station is on the extreme tip of the point, on a large rock, about 2 meters from the water's edge and about 0.3 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1254 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—At the east end of Vaseux Lake. The station is about 50 meters west of the head of the stream flowing from Vaseux Lake into Moose Lake, about 9 meters back from the shore line and about 5.5 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in a ledge.

Reference Monument 1255 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1917).—On the small rocky island that lies just off the point at the west side of the entrance to the large bay on the north shore of the eastern end of Mountain Lake. The station is near the middle of the rocky ridge, on the largest of the rocks, and is about 0.7 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1256 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—On the west end of Moose Lake, on the south side of the mouth of the boundary stream. The station is on a rock outcrop about 7.5 meters from the lake shore and about 0.8 meter above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk set in the rock, marking station "Ate," bears north 77° 40′ east, 44.16 meters distant.

Reference Monument 1257 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1917).—On the north side of Mountain Lake, on the first rocky point from the east end. There are some rocks in the lake about 50 meters offshore, about 100 meters to the east of the station. The station is on a large rock about 2 meters back from the water's edge and but a few centimeters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1258 (Minnesota, Cook County; E. R. Martin, 1917).—On the south shore of Moose Lake, near the head of the lake, in the bight of a small cove about 500 meters southeast from the mouth of the boundary stream flowing into the west end of the lake. The station is on a solid rock on the slope about 5 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk set in the rock near the water's edge, marking station "Bill," bears north 56° 44′ east, 15.15 meters distant from the monument.

Reference Monument 1259 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1917).—On the north shore at the foot or east end of Mountain Lake. The station is on a rock ledge about 200 meters west of the outlet of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1260 (Minnesota, Cook County; E. R. Martin, 1917).—On the south shore of Moose Lake, on the second prominent point, about 2¼ miles west of Moose Portage. The station is on a large rock at the edge of the timber, about 3 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk set in a large fixed rock near the water's edge, marking station "Bear," bears north 35° 49′ east, 13.2 meters distant from the monument.

Reference Monument 1261 (Ontario, Thunder Bay District; 1917; 1921).—At the east end of Mountain Lake, on the north side of the stream flowing to Lily Lakes. The station is on a rock outcrop about 9 meters north of the stream at its first turn and about 10 meters south of the portage trail to Moose Lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1262 (Minnesota, Cook County; E. R. Martin, 1917).—On the south shore of Moose Lake, about seven-eighths mile above Moose Portage. The station is on a rock near the shore line on the first prominent point above the portage.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A drill hole within a triangle cut in a rock near the water's edge, marking station "Black," bears south 77° 18′ east, 14.05 meters distant from the monument.

Reference Monument 1263 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—On the west end of Fan Lake, about 300 meters east of Mountain Lake. The station is in the swamp, about 9 meters north of the mouth of the stream flowing from Mountain Lake to Fan Lake, which is the western of the two lakes known as Lily Lakes.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete pier. The pier is about 0.5 meter in diameter and 0.8 meter long, cast in a circular metal casing and set on end on a bed of large rocks in a hole dug to solid clay bottom at a depth of about 1.8 meters. Large rocks are packed around the pier filling the hole to the surface of the ground. The top of the pier is about 1 meter above the surface of the water in the stream.

Reference Monument 1264 (Minnesota, Cook County; E. R. Martin, 1917; 1921).—At the east end of Moose Lake, about 75 meters west of the outlet of the lake. The station is on a large rock about 7.5 meters back from the shore line and about 3 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk set in a large fixed rock near the water's edge, marking station "Big," bears north 14° 46′ east, 9.9 meters distant from the monument.

Reference Monument 1265 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—On the north shore near the east end of Fan Lake, about 600 meters east of Mountain Lake. The station is on a rock outcrop on the north side of the wagon road and about 1.5 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk set in the rock, marking station "Alpen," bears south 17° 35′ west, 26.08 meters distant.

Reference Monument 1266 (Minnesota, Cook County; W. B. Fairfield, 1910; 1921).—On the southwest side of North Fowl Lake, about 200 meters east of the portage to Moose Lake and just opposite the last bend of the narrows before entering the stream connecting North Fowl and Moose Lakes. The station is on top of a cliff about 6 meters high and about 50 meters back from the shore.

Station mark: A standard 8-inch manganese-bronze reference post set in the solid rock.

Reference Monument 1267 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—Between Mountain and Moose Lakes, at the west end of Vaseux Lake, the eastern of the Lily Lakes. The station is on the north side of the mouth of the boundary stream, on a large rock, just north of the portage trail and about 4.5 meters from the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1268 (Minnesota, Cook County; Jesse Hill, 1918).—On the west shore of North Fowl Lake, about 560 meters southeast of the mouth of the boundary stream from Moose Lake. The station is on a bowlder about 20 meters back from the shore line and about 3 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1269 (Ontario, Thunder Bay District; E. R. Martin, 1917).—Between Mountain and Moose Lakes, on the north side of the eastern of the Lily Lakes, which is also known as Vaseux Lake. The station is in the muskeg, about 170 meters east from the west end of the lake and about 35 meters from the shore of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base, which rests on solid bottom 1.5 meters below the surface of the ground.

Reference Monument 1270 (Minnesota, Cook County; Jesse Hill, 1918).—On North Fowl Lake, on the west end of the island that lies 150 meters off the west shore, about 1,000 meters below Moose Portage. The station is on the east edge of a ledge, about 6 meters from the water and about 2.4 meters above it.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge. Station "Bull" was north 39° west, 3.03 meters distant from the monument, but was not marked.

Reference Monument 1271 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1921).—On the Canadian shore of Vaseux Lake, at the beginning of the portage to Moose Lake (Great Cherry Portage). The station is on a large smooth ledge just north of the trail, about 5 meters from the water and about 1.5 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1272 (Minnesota, Cook County; W. B. Fairfield, 1910; 1918).—On the west side of North Fowl Lake, on the first high cliff north of the narrows between North and South Fowl Lakes. The foot of the cliff is about 200 meters back from the lake shore. The station is on the highest point of the cliff, about 2 meters back from the edge, where there is a vertical drop of about 30 meters.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk set in the rock, marking triangulation station "Bab," bears north 51° east, 0.84 meter from the monument.

Reference Monument 1273 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—On the west end of Moose Lake, on the point on the north side of the mouth of the stream from the Lily Lakes. The station is on a bowlder about 6 meters from the stream and about 6 meters from the lake shore.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder. A bronze disk set in the rock, marking station "Ate," bears north 75° 04′ east, 24.27 meters distant.

Reference Monument 1274 (Minnesota, Cook County; Jesse Hill, 1918).—On the west shore of North Fowl Lake, near the middle of the narrow southern portion of the lake. The station is on a round-topped bowlder about 20 meters from the water and about 3.6 meters above it.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1275 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1917).—On the north shore of Moose Lake, on the first prominent point one-half mile east of Great Cherry Portage. The station is on a large rock, about 8 meters back from the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1276 (Minnesota, Cook County; Jesse Hill, 1918).—At the south end of North Fowl Lake, on the most northern of the islands that separate North Fowl from South Fowl Lake. The station is on the northeast point of the island on a large bowlder about 0.8 meter in height, about 24 meters from the water, and about 3 meters above it.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1277 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1917).—On the north shore of Moose Lake, about 1½ miles distant, and on the third prominent point from the west end of the lake. The station is on the tip of the point, on a large rock, about 2 meters from the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1278 (Minnesota, Cook County; Jesse Hill, 1918).—Between North and South Fowl Lakes, on the north point of the largest island of the group that separates the two lakes. The station is on a bowlder about 0.3 meter in height, about 75 meters from the shore line, and about 3 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1279 (Ontario, Thunder Bay District; E. R. Martin, 1917).—On the north shore of Moose Lake, about seven-eighths mile west of Moose Portage and on the high rocky point first above the portage and lying between two prominent bays. The station is on a rock near the shore line and about 1.5 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk set in a large fixed rock about 8 meters back from the shore, marking station "Aunt," bears south 87° 38′ west, 4.36 meters distant from the monument.

Reference Monument 1280 (Minnesota, Cook County; Jesse Hill, 1918).—On the west shore of South Fowl Lake. The station is on the first prominent point, about 1 mile northwest of the South Fowl Dam across the head of Pigeon River. It is about 15 meters from the shore line and about 4.5 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk, marking triangulation station "Ball," is set in the same rock at a distance of 0.3 meter from the station.

Reference Monument 1281 (Ontario, Thunder Bay District; E. R. Martin, 1917; 1921).—On the east shore of Moose Lake. The station is on a rock ledge about 150 meters north of the outlet of the lake. It is about 3 meters from the edge of the ledge and about 3.5 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1282 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the west bank of South Fowl Lake, about 230 meters north of the South Fowl Dam across the head of Pigeon River. The station is on top of the high rock cliff, about 3.5 meters back from the edge of the cliff and about 35 meters above the level of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk stamped "280," marking Pigeon River traverse station 280, bears north 54° east, 3.2 meters distant from the monument.

Reference Monument 1282-A (Minnesota, Cook County; E. R. Martin, 1918).—On the west side of the outlet of South Fowl Lake. The monument is about 14.6 meters south of the west end of South Fowl Lake Dam and about 4.6 meters above the lake level.

Station mark: A bronze disk set in a bowlder.

Reference Monument 1283 (Ontario, Thunder Bay District; Jesse Hill, 1918; 1921).—At the head of North Fowl Lake. The station is on a large bowlder about 40 meters north of the stream flowing from Moose Lake and about 40 meters west of the shore of North Fowl Lake. It is between the stream and the portage trail.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1284 (Ontario, Thunder Bay District; Jesse Hill, 1918).—At the outlet of South Fowl Lake. The station is on a flat-topped ledge, about 60 meters east of the dam across the head of Pigeon River and about 30 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1284–A (Ontario, Thunder Bay District; Jesse Hill, 1918).—At the outlet of South Fowl Lake. The station is on a flat-topped ledge about 30 meters east of the South Fowl Dam across the head of Pigeon River, on the north side of a trail and about 13 meters above the lake level.

Station mark: A bronze disk marked "U. S. & C. B. Survey," set in the ledge.

Reference Monument 1285 (Ontario, Thunder Bay District; Jesse Hill, 1918).—At the head of North Fowl Lake. The monument is about 400 meters northeast of the mouth of the stream flowing into the lake from Moose Lake. It is about 80 meters north of the shore line of the lake and about 6 meters above the lake level. It is on a round-topped rock just above the ground surface in an old logging road.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1286 (Minnesota, Cook County; Jesse Hill, 1918).—On the west bank of Pigeon River, about 1,000 meters below South Fowl Lake. The monument is on a prominent rock point about 25 meters back from the river and about 12 meters above the water. It is about 300 meters below the second rolling dam and about 200 meters above the third rolling dam. There is a small wing dam opposite.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1287 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north shore of North Fowl Lake, about 1,200 meters east of the mouth of the stream flowing from Moose Lake. It is on a rounded projecting point of the shore line, about 20 meters back from the shore line and about 7 meters above the lake level. It is on a bowlder whose top is almost level with the surface of the ground.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1288 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 1,300 meters below South Fowl Lake. The station is on a large rock about 50 meters below the second dam below South Fowl Lake. It is about 10 meters back from the shore line and is about 3 meters above the river level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk stamped "305," marking traverse station 305, is beside it in the same rock.

Reference Monument 1289 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the east shore of North Fowl Lake, near the middle of the eastern shore line of the eastern bay of the lake. The station is on a bowlder in the marshy ground about 30 meters back from the lake shore and about 2 meters above the lake level. At the east side of the marsh, about 200 meters distant from the station, is a high, steep rock wall which terminates in a vertical cliff at the lake shore about 350 meters south of the station.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1290 (Minnesota, Cook County; Jesse Hill, 1918).—On the south bank of Pigeon River, about 1⅞ miles below South Fowl Lake and about 500 meters below the mouth of Stump River. The station is about 6 meters back from the high-water shore line and about 1.5 meters above it.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1291 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1918).—On the east shore of North Fowl Lake. The station is on the rounded bluff point that separates the eastern bay of the lake from the south reach of the lake. It is on a large rock about 9 meters back from the shore line and about 1 meter above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1292 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north bank of Pigeon River, about 500 meters below the mouth of Stump River. The station is about 120 meters below the mouth of a small creek, about 40 meters back from the river's edge, and 2.5 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A drill hole and cross cut in a rock on the shore line, marking traverse station 291, are 44 meters south of the monument.

Reference Monument 1293 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the east shore of the southern reach of North Fowl Lake, about 700 meters north of the most northern large island lying in the channel between North and South Fowl Lakes. The station is on a round-topped granite bowlder about 40 meters back from the shore line and about 6 meters above the lake level.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1294 (Minnesota, Cook County; Jesse Hill, 1918).—On the south bank of Pigeon River, just below the mouth of Portage Brook. The station is about 25 meters south of the bank of the river and about 35 meters east of the bank of the brook.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1295 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the east side of the channel between North and South Fowl Lakes. The station is at the head of a small bay about 500 meters north of the largest island in the channel between the two lakes. It is on a bowlder near the shore line of the flood stage of water when the dams are closed.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1296 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 450 meters below the mouth of Portage Brook and about 1 meter above normal water level.

Station mark: A standard 8-inch manganese-bronze reference post set in a large rock.

Reference Monument 1297 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the east side of the channel between North and South Fowl Lakes. The station is on the west shore of the peninsula opposite and about 300 meters distant from the largest island in the channel between the two lakes. It is on a bowlder projecting about 0.3 meter above the ground near the flood-water shore line when the dams are closed.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1298 (Minnesota, Cook County; Jesse Hill, 1918).—On the south bank of Pigeon River, about 3⅝ miles below South Fowl Lake. The station is at a bend in the river near the middle of a stretch which runs north for about 600 meters. It is about 150 meters north of the mouth of a small brook. It is about 15 meters from the shore line and about 2 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1299 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1918).—On the north side of South Fowl Lake, on the rocky point just east of the narrows. This point is the only high solid land along the swampy north shore of the lake. The station is on the highest part of the point, on a large rock with some

large dead trees standing around it. When the lake is flooded the portion of the point on which the station is situated may appear as an island.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1300 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north bank of Pigeon River about 3¾ miles below South Fowl Lake. The station is on a bend of the river where it turns from a northerly to an easterly course. It is about 12 meters from the shore line and about 2 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference mark set in a concrete base.

Reference Monument 1301 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the northeast shore of South Fowl Lake. The station is on a projecting point of the marshy shore line and is about 1¾ miles a little east of north across the lake from the head of Pigeon River. It is about 15 meters back from the sand beach and about 2 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1302 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north bank of Pigeon River, about 4⅜ miles below South Fowl Lake. The station is on a sharp bend of the river just below a short stretch of rapids. It is on the high bank about 30 meters from the water and about 12 meters above it.

Station mark: A standard 8-inch manganese-bronze reference post set in a large rock.

Reference Monument 1303 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the south shore of South Fowl Lake, about 1 mile east of the head of Pigeon River. The station is on a rounded point of the shore line at the foot of a steep bluff. It is about 10 meters back from the water's edge and about 3 meters above the level of the lake.

Station mark: A standard 8-inch manganese-bronze reference post set in a rock which projects a little above the ground. A bronze disk set in the rock, marking triangulation station "Alder," bears south 69° 23′ west, distant 33.58 meters from the monument.

Reference Monument 1304 (Minnesota, Cook County; Jesse Hill, 1918).—On the south bank of Pigeon River, about 4⅜ miles below South Fowl Lake. It is in a sharp bend of the river just above the head of a long stretch of rapids. It is about 20 meters back from the water's edge and about 2 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in a large rock outcrop.

Reference Monument 1305 (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1918).—On an island in South Fowl Lake, about 500 meters north of the South Fowl Dam, which is at the outlet into Pigeon River. The station is on the west end of the island on the highest part of the solid rock ledge about 50 meters back from the extreme tip of the island.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge. A bronze disk set in the ledge, marking station "Abel," bears south 75° 45′ east, 1.3 meters from the monument.

Reference Monument 1306 (Minnesota, Cook County; Jesse Hill, 1918).—On the south bank of Pigeon River about 4⅞ miles below South Fowl Lake, and about one-half mile above Camp 5 of the Pigeon River Lumber Co. The station is opposite the upper end of a low marshy island. It is about 12 meters back from the shore line and about 3 meters above the level of the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a small rock.

Reference Monument 1307 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south bank of Pigeon River, about 800 meters above the mouth of Swamp River. The station is on a large rock on the grassy bank, about 8 meters from the river's shore, about 2.5 meters above the water level, about 80 meters west of the mouth of the creek on the opposite side of the river, and about 200 meters downstream from an old river drivers' camp.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1308 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north bank of Pigeon River, about 800 meters above the mouth of Swamp River. The station is about 40 meters up the river from the mouth of a large creek, between the wagon trail and the river, and about 25 meters from the river.

Station mark: A standard 8-inch manganese-bronze reference post set in a rock outcrop. A bronze disk, marking traverse station 261, is set in the rock outcrop 0.6 meter southeast of the monument.

Reference Monument 1309 (Minnesota, Cook County; Jesse Hill, 1918).—On the south bank of Pigeon River, about 25 meters above the mouth of Swamp River. The station is on the high bank of the river about 3 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1310 (Minnesota, Cook County; Jesse Hill, 1918).—On the south bank of Pigeon River, about one-half mile below the mouth of Swamp River. The station is on a sharp bend of the river at

the head of the long rapids. It is on a round rock outcrop about 12 meters from the river and about 2.5 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1311 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north bank of Pigeon River, about one-half mile below the mouth of Swamp River. The station is in a sharp bend of the river just above the long rapids. It is on the high bank about 2.5 meters above the level of the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1312 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north bank of Pigeon River, about 1½ miles below the mouth of Swamp River. The station is on the high bank of the river about 3 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1313 (Minnesota, Cook County; Jesse Hill, 1918).—On the south bank of Pigeon River, about 2⅞ miles above Partridge Falls. The station is about 230 meters up the river from the mouth of a small creek, about 6 meters from the river bank and about 2.5 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1314 (Minnesota, Cook County; Jesse Hill, 1918).—On the south bank of Pigeon River, about 2 miles upstream from Partridge Falls. The station is about 7 meters from the river and about 6 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1315 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north bank of Pigeon River, about 2 miles above Partridge Falls. The station is about 30 meters back from the river and about 2.5 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1316 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north bank of Pigeon River, about 1⅜ miles above Partridge Falls. The station is opposite the head of a prominent island, about 10 meters from the river and about 2.5 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1317 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south side of Pigeon River, at the big bend of the river 1,800 meters above Partridge Falls. The station is on the highest of the rocks on the rocky point that juts out into the bend of the river and becomes an island when the river rises above ordinary stages.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk, marking traverse station 188½, is set beside the monument in the same rock.

Reference Monument 1318 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north bank of Pigeon River at Partridge Falls. The station is on top of the cliff above and overlooking the falls. It is on a round-topped rock about 9 meters from the edge of cliff.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk stamped "221," marking traverse station 221, is set in the ledge a short distance southeast of the monument.

Reference Monument 1318–A (Ontario, Thunder Bay District; Jesse Hill, 1918).—In Pigeon River, 400 meters below Partridge Falls. The station is on the north end of a triangular, wooded island.

Station mark: A bronze disk set in a small bowlder embedded in concrete which rests on bedrock.

Reference Monument 1319 (Minnesota, Cook County; Jesse Hill, 1918).—On the south bank of Pigeon River at Partridge Falls. The station is on the slate rock ledge just east of and above the dam, about 3 meters from the water and about 3.5 meters above it.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock with a mass of concrete around it.

Reference Monument 1320 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north bank of Pigeon River, on the bend of the stream about three-fourths mile below Partridge Falls. The station is about 30 meters back from the river, about 40 meters northeast of the mouth of a small creek, and about 6 meters above the river.

Station mark: A standard 8-inch manganese-bronze reference post set in a rock outcrop.

Reference Monument 1321 (Minnesota, Cook County; Jesse Hill, 1918).—On the south bank of Pigeon River, at the bend of the river about three-fourths mile below Partridge Falls, about 15 meters back from the shore line, and about 3 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1322 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north side of Pigeon River, in the bend of the stream about 1¼ miles below Partridge Falls. The station is about 40 meters back from the river and about 3 meters above the level of the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1322–A (Minnesota, Cook County; Jesse Hill, 1918).—On the south bank of Pigeon River, on the big bend of the river about 1¼ miles below Partridge Falls. There are four small brooks entering this bend of the river at intervals of from 30 to 100 meters. The station is on the bank on the east side of the mouth of the third one of these brooks counting from west to east.

Station mark: A bronze disk set in a bowlder embedded in concrete.

Reference Monument 1323 (Minnesota, Cook County; Jesse Hill, 1918).—On the south bank of Pigeon River at The Cascades. The station is on the high rock ledge that is north of the dam and west of the long sluiceway. It is about 6 meters above the water level above the dam and about 25 meters above the water in the gorge below the dam and northwest from the station.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1324 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, on the point just above the head of The Cascades. The station is on the highest part of the rocky ledge about 25 meters south of the dam.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bronze disk, stamped "199," is set in the rock south 30° east, 0.97 meter distant from the monument.

Reference Monument 1325 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north side of Pigeon River, about 1 mile below The Cascades. The station is on the high bluff about 80 meters east of the sharp bend where the river turns south and leaves the canyon. It is about 20 meters above the river.

Station mark: A standard 8-inch manganese-bronze reference post set in a rock outcrop.

Reference Monument 1326 (Minnesota, Cook County; Jesse Hill, 1918).—On the south side of Pigeon River, about 1 mile below The Cascades. The station is on the top of the high rock point at the mouth of the canyon. It is on the highest part of the ledge, about 9 meters back from the end of the high point.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1327 (Minnesota, Cook County; Jesse Hill, 1918).—On the south bank of Pigeon River, about 1⅞ miles below The Cascades. The station is on a large rock ledge, about 3 meters above the water and about 1 meter back from the water's edge. There is an old abandoned lumber camp on the opposite side of the river and about 150 meters distant.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1328 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north bank of Pigeon River, about 1⅞ miles below The Cascades. The station is about 9 meters back from the river's edge and about 2.5 meters above the water level. An abandoned lumber camp stands about 100 meters to the northeast of the station.

Station mark: A standard 8-inch manganese-bronze reference post set in a rock outcrop.

Reference Monument 1329 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north bank of Pigeon River, about 2½ miles below The Cascades and about 200 meters upstream from a large timbered island that lies in the bend of the river where it turns from an easterly course to a northeasterly course. The station is about 12 meters from the shore line and about 1.5 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1330 (Minnesota, Cook County; Jesse Hill, 1918).—On the south bank of Pigeon River, about 3 miles below The Cascades. The station is at a sharp bend of the river opposite a large island. It is about 25 meters from the shore line and about 2 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1331 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On an island in Pigeon River, about 3 miles below The Cascades. The station is on the south shore of and about 60 meters below the head of a large island lying in a sharp bend or loop of the river.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1332 (Minnesota, Cook County; Jesse Hill, 1918).—On the south bank of Pigeon River, about 1½ miles above the mouth of Arrow River. The station is about 50 meters upstream from the low falls that are in a short right-angle bend of the river. The station is on the high bank about 7 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a round-topped rock outcrop.

Reference Monument 1333 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north bank of Pigeon River, about 1½ miles above the mouth of Arrow River. The station is on the sloping bank at the falls where the river makes a short right-angle turn to the south. It is about 5 meters above and 5 meters from the water's edge.

Station mark: A standard 8-inch manganese-bronze reference post set in a rock outcrop.

Reference Monument 1334 (Minnesota, Cook County; Jesse Hill, 1918).—On the south bank of Pigeon River, on the point opposite the mouth of Arrow River. The station is about 15 meters back from the river bank and about 3.5 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1335 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the bank on the north side of Pigeon River and the east side of Arrow River at the junction of the two streams. The station is about 10 meters from the water's edge and about 9 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1336 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north side of Pigeon River, in the southern part of the loop of the river known as the Ox Bow. The station is about 70 meters upstream from the extreme southern bend of the loop and opposite the head of a small island. It is about 10 meters back from the shore line and about 2 meters above high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1337 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River at The Tunnel, about 1,100 meters above the Scott Highway Bridge. The station is on the top of the high cliff directly over the gorge at its deepest place. It is about 2 meters back from the edge of the cliff.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1338 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south side of Pigeon River, about 1,100 meters upstream from the Scott Highway Bridge. The station is on the high, bare, rocky point above the cliffs at The Tunnel. It is about 50 meters back from the edge of the cliff and about 45 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1339 (Minnesota, Cook County; Jesse Hill, 1918).—On the south bank of Pigeon River, just west of the Scott Highway Bridge. The station is about 25 meters south of the river bank and about 18 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1340 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north bank of Pigeon River, just west of the Scott Highway Bridge. The station is about 10 meters north of the river bank and about 20 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base which rests on solid rock.

Reference Monument 1341 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the large island in Pigeon River, 1 mile below the Scott Highway Bridge. The station is on the south shore of the island about midway between the head and foot of the island. It is on a large bowlder near the shore line and about 1.2 meters above high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1342 (Minnesota, Cook County; Jesse Hill, 1918).—On the south side of the main channel of Pigeon River, about 1¼ miles below the Scott Highway Bridge. The station is on the south side of the point which becomes an island at high water—the second large island below the bridge. It is on a ledge about 4.5 meters from the water, about 60 meters west of the downstream point of the island, and about 3 meters above the water level.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1343 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north shore of Pigeon River, at Horn Rapids. The station is on top of the cliff on the rock point at the head of the rapids, about 0.8 meter from the edge of the cliff and about 4.5 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. A bench mark, a bronze disk stamped "861," is about 8 meters east of the station.

Reference Monument 1344 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south side of Pigeon River at Horn Rapids. The station is on top of the high rock point about 3.5 meters from the water and about 2 meters above the top of the falls.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1345 (Minnesota, Cook County; Jesse Hill, 1918).—On the south bank of Pigeon River, about halfway between Horn Rapids and Little Falls. The station is at the bend just east of the south loop of the river. It is about 7 meters from and about 2.5 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1346 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north bank of Pigeon River, about halfway between Horn Rapids and Little Falls. The station is at the bend just east of the south loop of the river. It is between the highway and the river bank, about 20 meters from the river and about 15 meters from the highway.

Station mark: A standard 8-inch manganese-bronze reference post set in a bowlder.

Reference Monument 1347 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north side of Pigeon River at Little Falls, about 3½ miles above the mouth of the river. The station is on the barrier ledge over which the water falls, about 2 meters from the edge of the rock and about 3 meters above the falls.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1347–A (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north shore of Pigeon River, about 3½ miles above the mouth of the river. The station is at the narrow gorge at the head of the rapids, 100 meters above Little Falls. The station is on the barrier ledge about 20 meters west of the head of the gorge.

Station mark: A bronze disk stamped "1347A" set in the ledge.

Reference Monument 1348 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south bank of Pigeon River at Little Falls, about 3½ miles above the mouth of the river. The station is on the barrier ledge over which the water falls. It is about 9 meters from the falls and about 2.5 meters above them.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge. A bronze disk, stamped "40," marking traverse station 40, is set in the ledge about 2.4 meters north of the monument.

Reference Monument 1348–A (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south side of Pigeon River, about 3½ miles above the mouth of the river. The station is at the narrow gorge at the head of the rapids 100 meters above Little Falls. It is on the barrier ledge, about 10 meters back from the water and about 4.5 meters above it.

Station mark: A bronze disk stamped "1348A" set in the ledge.

Reference Monument 1349 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south bank of Pigeon River, about 620 meters above High Falls and about 100 meters below the mouth of "The Canyon." The station is on a flat rock, about 2 meters across and about 1.5 meters high, just above high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock.

Reference Monument 1349–A (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north shore of Pigeon River about 650 meters upstream from High Falls and just below the gorge known as "The Canyon." The station is on the solid rock point just opposite the lower end of a long wing dam which blocks the head of a high-water channel on the south side of the river.

Station mark: A bronze disk stamped "1349A" set in the rock.

Reference Monument 1350 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south shore of Pigeon River at High Falls. The station is on the rocky point about 10 meters upstream from the south end of the dam. It is on a solid ledge near the shore line at high-water mark.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge.

Reference Monument 1351 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north side of Pigeon River at High Falls. The station is on the high bank just northeast of the dam, 12 meters north of the sluiceway, about 4 meters above the top of the falls, and beside the trail leading to the dam. It is on a solid ledge.

Station mark: A standard 8-inch manganese-bronze reference post set in the ledge. A bench mark, a bronze disk stamped "722," is set in the rock 0.45 meter east of the station.

Reference Monument 1352 (Minnesota, Cook County; Jesse Hill, 1918).—On the south bank of Pigeon River, about 400 meters below High Falls. The station is on the first point upstream from the group of small islands in the bay below the falls and is about 29 meters back from the river bank.

Station mark: A standard 8-inch manganese-bronze reference post set in a rock outcrop.

Reference Monument 1353 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north bank of Pigeon River, about 400 meters below High Falls. The station is on the point of the shore north of the group of islands lying in the bay below the falls. It is about 9 meters from the river and about 3.5 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1354 (Minnesota, Cook County; Jesse Hill, 1918).—On the south bank of Pigeon River on the point of the shore where the river becomes narrow below the bay that lies below High Falls. The station is on the bluff, about 15 meters back from the river and about 9 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1355 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north bank of Pigeon River and on the east side of the mouth of an inlet about one-half mile below High Falls. The station is about 8 meters back from and about 2.5 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1356 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north bank of Pigeon River, about 1 mile above its mouth. The station is on the bend of the river where the first high ground comes down to the river from the north. It is about 10 meters from and 3.5 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a large bowlder.

Reference Monument 1357 (Minnesota, Cook County; W. B. Fairfield, 1908; 1918).—On the south bank of Pigeon River, about five-eighths mile below High Falls. The station is on the low bluff bank on the point in the sharp bend of the river just below the wide part below the falls. It is about 15 meters from and 6 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base 0.3 meter square and 1.2 meters deep. The part of the base underground is inclosed in a large tile resting on a large mass of concrete.

Reference Monument 1358 (Minnesota, Cook County; Jesse Hill, 1918).—On the south bank of Pigeon River, nearly 1 mile above its mouth. The station is on the bluff bank about 50 meters north of the mouth of a small creek, about 20 meters from the river and about 12 meters above the level of the water in the river.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1359 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north bank of Pigeon River a little less than 1 mile above the mouth of the river and opposite the head of the second long island above the mouth of the river. The station is about 6 meters from and 25 meters above the river. It is about 18 meters from the main building of an abandoned lumber camp.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1360 (Minnesota, Cook County; W. B. Fairfield, 1908; 1918).—On the south shore of Pigeon River, in the first big bend of the river 1,200 meters above its mouth. The station is on top of the bank, about 15 meters from the river, about 25 meters upstream from a small but deep gulch and spring branch, and about 5 meters above the water. There are some graves between the station and the gulch. It is on a large bowlder which was placed with its top just above the surface of the ground.

Station mark: A standard 8-inch manganese-bronze reference post set in the rock. There is a bronze disk stamped "6," marking triangulation station 6, set in the rock beside the monument.

Reference Monument 1361 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north bank of Pigeon River, about one-half mile above the mouth of the river. The station is in the first bend of the river above the mouth and opposite the head of the first long island above the mouth. It is about 15 meters from the river and about 1.5 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base.

Reference Monument 1362 (Ontario, Thunder Bay District; W. B. Fairfield, 1908; 1918).—On the north shore of Pigeon River, about 550 meters upstream from the mouth of the river. The station is on a large, flat bowlder between the wagon road and the river, about 8 meters from each. It is a little downstream from the lower end of the first long island above the mouth of the river. The bowlder was hauled from a distance and placed for the purpose of marking the station, there being no native bowlders in the vicinity.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1363 (Minnesota, Cook County; W. B. Fairfield, 1908; 1918).—On the south shore of Pigeon River about 650 meters upstream from the mouth of the river. The station is about 30 meters downstream from a little spring branch and is nearly opposite the lower end of the first long island above the mouth of the river. It is on a large bowlder placed nearly flush with the ground, about 12 meters from the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1364 (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north bank of Pigeon River, about 300 meters above the mouth of the river. The station is on the south side of the wagon road, about 30 meters from the river and about 1.5 meters above the water.

Station mark: A standard 8-inch manganese-bronze reference post set in a concrete base. A drill hole in a bowlder, marking triangulation station "Ban," bears south 15° 10′ east, 27.65 meters distant.

Reference Monument 1365 (Minnesota, Cook County; W. B. Fairfield, 1908; 1918).—On the south bank, about one-fourth mile above the mouth of Pigeon River. The station is on a large bowlder set in place with its top projecting a little above the ground, about 2.5 meters above the river and about 12 meters back from the shore line.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Reference Monument 1366 (Minnesota, Cook County; W. B. Fairfield, 1908; 1918).—On the rocky point on the south side of the mouth of Pigeon River. Several large rocks stick up out of the water just off the point. The station is on a very large flat bowlder that projects from the ground about 1 meter and is about 12 meters back from the point.

Station mark: A standard 8-inch manganese-bronze reference post set in the bowlder.

Monument I. W. C. No. 3 (Ontario, Thunder Bay District; International Waterways Commission, 1911; 1918).—On the point on the north side of the mouth of Pigeon River, about 70 meters north of the river and about 30 meters back from the lake shore. The monument is of concrete, in the form of the frustum of a cone with a hemispherical top. It is 30 inches high, 24 inches in diameter at the base, 18 inches in diameter at the top of the frustum, and the hemispherical crown has a radius of 9 inches. The foundation extends 5 feet below the surface of the ground. The number is cast in one side.

Station mark: A brass plug three-fourths inch in diameter set in the crown of the monument.

Monument 1 (Minnesota, Lake County; Ontario, Rainy River District; E. R. Martin 1916; 1921.).—At the west end of Swamp Portage between Swamp and Cypress Lakes. The station is about 45 meters from Cypress Lake and on the south side of the portage trail.

Station mark: A 5-foot bronze post with a concrete base 3 feet square set in a hole blasted out of the solid rock. Reference monument 938, an 8-inch manganese-bronze post, is 3.7 meters west of the station.

Monument 2 (Minnesota, Lake County; Ontario, Rainy River District; E. R. Martin, 1916; 1921).—Between Cypress and Swamp Lakes, on the Swamp Portage trail at the divide about midway between the two lakes.

Station mark: A conical bronze post with a rounded apex standing 22 inches above a raised circular concrete base which rests on and is firmly attached to a subbase of concrete 3 feet square set 3 feet in the ground and resting on solid bedrock.

Monument 3 (Ontario, Rainy River District; Minnesota, Lake County; E. R. Martin, 1916; 1921).—On the Swamp Portage trail, about 65 meters west of the west end of Swamp Lake.

Station mark: A 5-foot bronze post set in a concrete base about 3 feet square.

Monument 4 (Ontario, Thunder Bay District; Minnesota, Cook County; E. R. Martin, 1917; 1921).—On the south side of North Lake, at the north end of the old Hudson's Bay Company Portage trail to South Lake. The station is 11 meters from the shore line and about 2 meters above the water level.

Station mark: A conical bronze post set in a raised circular concrete base which rests on a concrete subbase 3 feet square.

Monument 5 (Ontario, Thunder Bay District; Minnesota, Cook County; E. R. Martin, 1917; 1921).—On the height of land on the old Hudson's Bay Company Portage trail between North and South Lakes. The station is on a rock ledge.

Station mark: A conical bronze post set in a raised circular concrete base which rests on a concrete subbase 3 feet square.

Monument 6 (Ontario, Thunder Bay District; Minnesota, Cook County; E. R. Martin, 1917; 1921).—On the north shore of South Lake. The station is on a rock ledge about 10 meters from the shore line on the old Hudson's Bay Company Portage trail to North Lake.

Station mark: A conical bronze post set in a raised circular concrete base which rests on a concrete subbase 3 feet square.

Monument 7 (Ontario, Thunder Bay District; Minnesota, Cook County; E. R. Martin, 1917; 1921).—On the east end of Watap (Rove) Lake at the west end of the portage trail to Mountain Lake.

Station mark: A conical aluminum-bronze post, with a rounded apex, about 2 feet high set in a raised circular concrete base about 1½ feet high, which, in turn, is set on a concrete subbase about 3 feet square and level with the surface of the ground.

Monument 8 (Ontario, Thunder Bay District; Minnesota, Cook County; E. R. Martin, 1917; 1921).—Between Mountain and Watap Lakes. The station is on the portage trail about 160 meters west of Mountain Lake.

Station mark: A conical aluminum-bronze post, with a rounded apex, about 2 feet high, set in a raised circular concrete base which rests on a concrete subbase about 3 feet square and level with the surface of the ground.

Monument 9 (Ontario, Thunder Bay District; Minnesota, Cook County; E. R. Martin, 1917; 1921).—On the extreme western shore of Mountain Lake, at the east end of the portage trail between Mountain and Watap Lakes. The station is about 10 meters back from and 2 meters above the water.

Station mark: A conical aluminum-bronze post, with a rounded apex, about 2 feet high set in a raised circular concrete base about 1½ feet high which, in turn, is set on a concrete subbase about 3 feet square and level with the ground. Reference monument 1239 is 11.77 meters east of the monument.

NORTHWESTERNMOST POINT OF LAKE OF THE WOODS TO LAKE SUPERIOR, FIRST-ORDER SCHEME

Warroad North Base=Boundary Monument 909 (Manitoba, Provencher District; Minnesota, Roseau County; C. H. Sinclair, 1912; Geodetic Survey of Canada, 1924).—On the forty-ninth parallel international boundary at the crossing of the Canadian National Railway about 4 miles west of where the boundary intersects Lake of the Woods. The station is on the east side of the railroad track.

Station mark: A 5-foot cast-iron post set in a concrete base. The mark is in unstable soil and was found out of plumb in 1915. It was straightened up but was again found out of plumb in 1917. It was straightened up once more and additional concrete placed around the base, making the base 5 feet square and 2½ feet deep, resting on clay bottom. An 85-foot tower was built over the station, its seven legs being set in concrete foundations 3 feet deep.

Warroad South Base (Minnesota, Roseau County; C. H. Sinclair 1912; U. S. Coast and Geodetic Survey, 1923).—About 1 mile north of Warroad, Minn., on the east side of the Canadian National Railway, 700 meters north of the Great Northern Railway crossing. The station is 14.575 meters east, at right angles, from the east rail of the track.

Station mark: A bronze disk marked "U. S. & C. B. S.," set in a block of concrete 2 feet square and 2½ feet deep, with the top a little above the surface of the ground. The subsurface mark is a bronze disk set in concrete 2½ feet underground; under this is another concrete block with a cross in its top surface. A cross cut in the top of a concrete post 8 by 8 by 18 inches, set flush with the ground, is 26.622 meters west of the station. Another like mark is 3.885 meters west of the station. Both reference marks are inside the railway right-of-way fences, one on either side of the track. A 55-foot tower was used at this station.

Thunder (Manitoba, Provencher District; Jesse Hill, 1917; U. S. Coast and Geodetic Survey, 1923).—On the west side of Lake of the Woods, about 1,300 meters northwest of Buffalo Point and about 1,100 meters north of the international boundary line. The station is on a sandy ridge about 10 meters above the lake level. It may be reached by a trail from the Indian houses on Buffalo Point.

Station mark: A bronze disk set in concrete. A 65-foot tower was built over the station for observing.

West Willow (Minnesota, Roseau County; Jesse Hill, 1917).—On the south shore of Lake of the Woods, about 1¼ miles west of the mouth of Willow Creek and in the eastern part of fractional section 33, township 163 north, range 35 west. The station is on a sand bar at the lake shore and is backed by a swamp which extends a half mile inland.

Station mark: A bronze disk set in a concrete block 2 feet square and 3 feet deep. A 35-foot tower was used for observing, and the legs of the tower were set in concrete.

Stoney (Minnesota, Lake of the Woods County; C. H. Sinclair 1913; 1917).—On the north side of Lake of the Woods, on Stony Point. The station is about 300 meters southeast of the shore of Sand Point Bay, which lies south of the mouth of Stony Creek. It is in the southwest corner of section 35, township 166 north, range 35 west. It is on the first rise of ground from the muskeg as approached from the south or west.

Station mark: A bronze disk marked "U. S. & C. B. S." set in a concrete block flush with the ground. A 75-foot tower was used for observing.

Miller (Minnesota, Lake of the Woods County; Jesse Hill, 1917).—On the south shore of Lake of the Woods, about 1¼ miles southeast of Long Point. The station is about 200 meters inshore southwest of a shallow indenture of the shore line and is in the edge of burnt timber on bare rock about 10 meters above the lake level.

Station mark: A bronze disk set in the rock. An arrow pointing toward the station is cut in the rock, south 5° east (magnetic), 7.71 meters from the station; and a second arrow cut in like manner is south 85° east (magnetic), 7.16 meters from the station.

Garden (Minnesota, Lake of the Woods County; J. J. McArthur, 1913; 1917).—On Lake of the Woods, near the middle of the lake, on Garden Island. The station is about one-third mile from the northwest end of the island and is nearer the north shore than the south shore. It is best approached from the north shore, as the south shore is swampy. Lines cut in 1913 through the heavy timber show the location of the station.

Station mark: A bronze disk set in a concrete block. A 40-foot tower was used for observing.

Big (Ontario, Kenora District; C. H. Sinclair, 1913; 1917).—On Lake of the Woods, on the southwest point of Big Island. The station is on a bare rock about 3½ meters above the lake level. Back of the rock is a growth of large hardwood timber.

Station mark: A bronze disk set in the solid rock. A 55-foot tower was used for observing.

Reference Monument 48. (See p. 362.)

Burton (Ontario, Rainy River District; C. H. Sinclair, 1913; 1917).—On Lake of the Woods, about 7½ miles northeast of the mouth of Rainy River. The station is on the bare rock on the west end of Burton Island.

Station mark: A bronze disk set in the solid rock.

War (Minnesota, Roseau County; U. S. Coast and Geodetic Survey, 1923).—About one-half mile west of Warroad, Minn., at the first curve of the Canadian National Railway track west of Warroad. The station is at the intersection of the tangents of the east rail of the track.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square concrete block. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is placed in a square concrete block 19.29 meters from the station in azimuth 321° 49′.

Road (Minnesota, Roseau County; U. S. Coast and Geodetic Survey, 1923).—About 1 mile east of Warroad, Minn. The station is in the field of H. Moorehead, at the first curve east of Warroad, on the Canadian National Railway. It is at the intersection of the tangents of the east rail from the north and the southwest rail from the east.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square block of concrete. A like mark is placed 3 feet underground. A standard reference mark disk, with the arrow pointing toward the station, is set in a square concrete block 104.28 meters from the station in azimuth 307° 49′.

Red (Minnesota, Roseau County; U. S. Coast and Geodetic Survey, 1923).—About 3 miles east of Warroad, Minn., at the second curve on the Canadian National Railway east of Warroad. The station is on the extension of the south rail of the track from the west and 7.475 meters south of the extension of the north rail from the east at a point 95 meters west of milepost 35.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in square block of concrete. A like mark is placed 3 feet underground. A standard reference mark disk with arrow pointing toward the station is set in a square concrete block 28.35 meters from the station in azimuth 122° 11′.

Full (Minnesota, Roseau County; U. S. Coast and Geodetic Survey, 1923).—About 3 miles east of Swift, Minn., and on the highest point on the line between Swift and Roosevelt, Minn. The station is 9.826 meters north of the north rail of the Canadian National Railway, at a point 199.3 meters east of milepost 29.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square concrete block. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is set in a square concrete block 7.27 meters from the station in azimuth 228° 47′.

Dout (Minnesota, Lake of the Woods County; U. S. Coast and Geodetic Survey, 1923).—On the Canadian National Railway about 1 mile east of Roosevelt, Minn. The station is at the first curve of the railway east of Roosevelt. It is on the extension of the south rail from the east and 6.514 meters south of the extension of the north rail from the west.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square concrete block. A like mark is placed 3 feet underground.

Wet (Mlnnesota, Lake of the Woods County; U. S. Coast and Geodetic Survey, 1923).—About 2¼ miles east of Roosevelt, Minn., on top of the bank of the cut of the Canadian National Railway. The station is 12.911 meters south of the south rail of the track at a point 240 meters east of milepost 23.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square concrete block. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is placed in a square concrete block 47.50 meters from the station in azimuth 189° 50′.

May (Minnesota, Lake of the Woods County; U. S. Coast and Geodetic Survey, 1923).—About 1¾ miles west of Williams, Minn. The station is on a knoll 8.018 meters north of the south rail of the Canadian National Railway. It is 3 meters east of a private road-crossing.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square block of concrete. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is set in a square concrete block 22.80 meters from the station in azimuth 37° 57′.

Spur (Minnesota, Lake of the Woods County; U. S. Coast and Geodetic Survey, 1923).—About 2½ miles east of Williams, Minn., and about one-tenth mile west of Cedar Spur, Minn. The station is 3 meters north of the fence at the west switch and 7.641 meters south of the south rail of the Canadian National Railway.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square concrete block. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is set in a concrete block 22.73 meters from the station in azimuth 189° 26′.

Hen (Minnesota, Lake of the Woods County; U. S. Coast and Geodetic Survey, 1923).—About 1 mile west of Graceton, Minn., and about 8 meters east of a road crossing where the main highway comes close to the Canadian National Railway. The station is 1.572 meters south of the south rail of the railroad and between the main track and the passing track.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square concrete block. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is set in a square concrete block 17.82 meters from the station in azimuth 24° 40′.

Ton (Minnesota, Lake of the Woods County; U. S. Coast and Geodetic Survey, 1923).—About 3 miles east of Graceton, Minn. The station is 8.040 meters north of the south rail of the Canadian National Railway at a point 5 meters west of the crossing of the main highway.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square block of concrete 3 by 3 by 4 feet in size. A standard reference mark disk with the arrow pointing toward the station is placed in a square concrete block 26.02 meters from the station in azimuth 344° 21′.

Bon (Minnesota, Lake of the Woods County; U. S. Coast and Geodetic Survey, 1923).—About one-third mile west of Pitt Station on the Canadian National Railway. The station is 11.477 meters north of the south rail of the Canadian National Railway at a point 150 meters east of the west switch at Pitt.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a concrete block 3 by 3 by 4 feet in size. A standard reference mark disk with the arrow pointing toward the station is set in a square concrete block 27.20 meters from the station in azimuth 35° 49′.

Brush (Minnesota, Lake of the Woods County; U. S. Coast and Geodetic Survey, 1923).—About 5 miles west of Baudette and about 1½ miles east of Pitt, Minn. The station is at the point of intersection of the tangents at the first curve west of Baudette on the Canadian National Railway. It is 17.91 meters south of the south rail of the track.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square concrete block. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is set in a square block of concrete 14.99 meters from the station in azimuth 119° 16′.

Baudette (Minnesota, Lake of the Woods County; U. S. Coast and Geodetic Survey, 1923; 1925).—In the northwest part of the town of Baudette. The station is on the extension from the west of the north rail at the curve of the Canadian National Railway to the west of Baudette. It is about 15 meters south of the main track of the railway, in the middle of a roadway leading to the back entrance of the Cross Dodds Lumber Co., and about 15 meters west of their back gate.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square block of concrete. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is set in a square block of concrete in azimuth 102° 43′, 86.82 meters from the station.

Toad (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923; 1925).—About 1 mile west of the town of Rainy River, Ontario, and on the first curve of the Canadian National Railway east of the international bridge between Baudette and Rainy River. The station is about 40 meters to the east of the first road crossing the track east of the bridge and about 50 meters from the nearest track. It is on the extension or tangent of the center line of the main track to the east.

Station mark: A standard Unted States Coast and Geodetic Survey station mark disk set in a square concrete block. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is placed in a square concrete block 46.21 meters from the station in azimuth 71° 17′.

Gip (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923).—About 1 mile east of the town of Rainy River, Ontario. The station is 1.924 meters south of the south rail of the Canadian National Railway at a point 977 meters west of milepost 141.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square concrete block. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is set in a square concrete block 11.705 meters from the station in azimuth 2° 38′.

Fritz (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923).—About 2 miles east of the town of Rainy River, Ontario. The station is 2.620 meters south of the south rail of the Canadian National Railway at a point 976 meters west of milepost 140.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square concrete block. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is set in a square concrete block 12.32 meters from the station in azimuth 3° 11′.

Ray (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923).—Near Sleeman, Ontario. The station is 10.89 meters north of the south rail of the Canadian National Railway at a point 155 meters east of milepost 138.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square concrete block. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is set in a square concrete block 38.91 meters from the station in azimuth 50° 51′.

Henri (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923).—About 2½ miles west of Pinewood, Ontario. The station is at the curve of the Canadian National Railway, 552 meters west of milepost 133. It is on the extension of the south rail from the west and 3.212 meters south of the extension of the north rail from the east.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square concrete block. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is set in a square concrete block 11.385 meters from the station in azimuth 293° 15′.

Reddy (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923; 1925).—About 1½ miles west of Pinewood, Ontario. The station is 7.353 meters south of the south rail of the Canadian National Railway at a point 1,071 meters east of milepost 133.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square concrete block. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is set 16.38 meters from the station in azimuth 185° 30′.

Myrtle (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923; 1925).—About 1¾ miles east of Pinewood, Ontario. The station is 3.884 meters south of the south rail of the Canadian National Railway, at a point 262 meters west of milepost 129.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square concrete block. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is set in a square concrete block 10.83 meters from the station in azimuth 345° 01′.

Delf (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923; 1925).—About 1¼ miles west of Stratton, Ontario. The station is 3.752 meters north of the south rail of the Canadian National Railway at a point 878 meters west of milepost 125.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a concrete block. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is set in a square concrete block 17.55 meters from the station in azimuth 10° 44′.

Pipp (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923).—About 4¾ miles west of the town of Barwick, Ontario. The station is between the main track and the spur track of the Canadian National Railway, at a point 1.525 meters south of the south rail of the main track and 477 meters west of milepost 120

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square block of concrete. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is set in a square concrete block 13.00 meters from the station in azimuth 28° 47′.

Grace (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923).—About 1½ miles west of Barwick, Ontario. The station is 3.21 meters north of the south rail of the Canadian National Railway at a point 22 meters west of milepost 117.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square concrete block. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is set in a square concrete block 11.86 meters from the station in azimuth 196° 25′.

Zip (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923).—About 1 mile east of Barwick, Ontario, at the curve of the Canadian National Railway, 800 meters west of milepost 114. The station is at the intersection of the tangents of the south rail of the track.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square concrete block. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is placed in a square concrete block 9.98 meters from the station in azimuth 53° 57′.

Rip (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923).—About 4½ miles west of Emo, Ontario. The station is at the intersection of the tangents of the south rail of the Canadian National Railway, at the curve 846 meters west of milepost 113.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square concrete block. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is set 22.50 meters from the station in azimuth 182° 18′.

Pat (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923).—Beside the Canadian National Railway, about 3½ miles west of Emo, Ontario, and about 637 meters west of milepost 112. The station is at Tobas, Ontario, 1.456 meters south of the extension of the south rail of the track from the east and 87 meters east of the road crossing.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square concrete block. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is placed in a square concrete block 90.70 meters from the station in azimuth 83° 13′.

Rub (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923).—About 2¼ miles west of Emo, Ontario. The station is 9.493 meters north of the south rail of the Canadian National Railway at a point 462 meters west of milepost 111.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square concrete block. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is placed in a square concrete block 22.83 meters from the station in azimuth 28° 55′.

Jesse (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923).—About 1¾ miles west of Emo, Ontario. The station is at the curve of the Canadian National Railway, 431 meters east of milepost 111 and 35 meters west of bridge No. 110.72. It is on the extension of the north rail from the east and 7.313 meters south of the extension of the south rail from the west.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square block of concrete. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is set in a square concrete block 54.36 meters from the station in azimuth 250° 31′.

Walt (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923; 1925).—About 1 mile west of Emo, Ontario. The station is 1.605 meters north of the north rail of the Canadian National Railway, at a point 79 meters west of milepost 110.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square block of concrete. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is set in a square block of concrete 14.64 meters from the station in azimuth 214° 29′.

Pine (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923; 1925).—About 1 mile east of Emo, Ontario. The station is beside the Canadian National Railway at the second curve east of Emo. It is 1.8 meters north of the intersection of the extensions of the south rail from the east and the north rail from the west.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square block of concrete. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is set in a square concrete block 14.10 meters from the station in azimuth 52° 52′.

LaBelle (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923).—About 5⅓ miles east of Emo, Ontario. The station is beside the Canadian National Railway, 544 meters east of milepost 105 and about 100 meters east of a private road-crossing in the rear of the LaBelle farm. It is 7.448 meters north of the south rail of the railway.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a concrete block 3 by 3 by 4 feet in size. A standard reference mark disk with the arrow pointing toward the station is set in a square concrete block 21.45 meters from the station in azimuth 358° 31′.

Stone (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923).—About 6⅓ miles east of Emo, Ontario, on a hill near Bishop's farm. It is 9.12 meters north of the south rail of the Canadian National Railway at a point 546 meters east of milepost 104.

Station mark: A standard United States Coast and Geodetic Survey station mark disk wedged in a drill hole in outcropping bedrock. A standard reference mark disk with the arrow pointing toward the station is wedged in a drill hole in outcropping bedrock 22.26 meters from the station in azimuth 321° 25′.

States (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923).—About 550 meters east of the Canadian National Railway station at Devlin, Ontario. The station is on the curve of the railway, at the intersection of the tangents of the south rail of the track.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square block of concrete. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is placed in a square concrete block 11.77 meters from the station in azimuth 351° 51′.

Rob (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923).—About 1¼ miles west of Crozier, Ontario. The station is 9.53 meters north of the south rail of the Canadian National Railway at a point 500 meters west of milepost 96.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square concrete block. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is set in a square concrete block 23.82 meters from the station in azimuth 8° 08′.

Pig (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923).—The station is 2.22 meters south of the south rail of the Canadian National Railway at the highest point of the track about 200 meters west of the Crozier, Ontario, railway station.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square block of concrete. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is set in a square concrete block 23.9 meters from the station in azimuth 243° 52′.

Fort Frances West Base Ecc. (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923).—Near Crozier, Ontario. The station is 8.06 meters north of the south rail of the Canadian National Railway at a point 281 meters west of milepost 94 and about 354 meters west of the main highway crossing.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square concrete block. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is placed in a square concrete block 23.9 meters from the station in azimuth 243° 10′. "Fort Frances west base" is 61.97 meters from the station in azimuth 0° 09′.

Fort (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923; 1925).—In Fort Frances, Ontario. The station is on the south side of First Street, at a point 38.25 meters from the east side of Victoria Street and about 76 meters from the east side of Christy Street.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square concrete block countersunk 0.6 meter below the ground level. A like mark is placed about 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is set in a square concrete block on the east side of Christy Street, 5.58 meters from the south fence line and 7.11 meters from a telephone pole, in azimuth 275° 37′ and distant 76.41 meters from the station.

Zero (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923).—On the first curve of the Canadian National Railway east of Fort Frances, Ontario. The station is 8.68 meters south of the south rail of the track at a point 10 meters east of the first road crossing west of an Indian's house.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a square concrete base. A like mark is placed 3 feet underground. A standard reference mark disk with the arrow pointing toward the station is placed in a square concrete block 24.38 meters from the station in azimuth 123° 54′.

Lake (Minnesota, Koochiching County; U. S. Coast and Geodetic Survey, 1923; 1925).—On Rainy Lake, about 5 miles east of Ranier, Minn. The station is on the most northern point of Signal Island, the most northern of the Fransen Islands. It is about 11 meters from the shore line and about 3 meters above the lake level.

Station mark: A standard United States Coast and Geodetic Survey station mark disk wedged in a drill hole in outcropping bedrock. A standard United States Coast and Geodetic Survey reference mark disk with the arrow pointing toward the station is wedged in a drill hole 10.00 meters from the station in azimuth 320° 46′. Boundary reference monument 270, an 8-inch bronze post, is 0.2 meter from the station in azimuth 242°, and a bronze disk set in the rock, marking triangulation station "Rainy Lake 9," is 0.206 meter from the station in azimuth 282°.

Raney=Rainy Lake 14 (Ontario, Rainy River District; James H. Van Wagenen, 1913; U. S. Coast and Geodetic Survey, 1923; 1925).—On Rainy Lake, on the south end of the first island north of Red Sucker Island. It is on a narrow rocky point about 1.5 meter above the lake level, about 8 meters from the end of the point and 2.5 meters from the shore on either side.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock. This station was occupied in 1923 by the United States Coast and Geodetic Survey and called "Raney." They set one of their standard reference mark disks, with the arrow pointing toward the station, in outcropping bedrock 10.00 meters from the station. The azimuth from station to reference mark is 219° 42′.

Water=Rainy Lake 37 (Minnesota, Koochiching County; James H. Van Wagenen, 1913; U. S. Coast and Geodetic Survey, 1923; 1925).—On Rainy Lake, south of American Narrows, about 450 meters southeast of Red Sucker Island and about 300 meters from Red Pine Island. It is in the center of a bare, diamond-shaped rock which is about 15 meters long and 9 meters wide and whose top is about 1.5 meters above the normal lake level. About 30 meters eastward is another small rock whose shore line, at low water, will join that of the rock on which the station is located.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in the ledge. A standard United States Coast and Geodetic Survey reference mark disk was set in outcropping bedrock 3.701 meters from the station in azimuth 73° 40′ when the station was occupied in 1923 by a Coast Survey party. The station appears in the Coast Survey records under the name of "Water."

Roll (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923; 1925).—On Rainy Lake on the southeast island of a group of five small islands lying just south of Sand Point midway between the east and west ends of Sand Point Island. The island is a mass of vertical stratified rock. The station is about 40 meters west of the east end of the island.

Station mark: A standard United States Coast and Geodetic Survey station mark disk wedged in a drill hole in outcropping bedrock. A standard United States Coast and Geodetic Survey reference mark disk with the arrow pointing toward the station is wedged in a drill hole in outcropping bedrock 11.32 meters from the station in azimuth 256° 10′.

Sea (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923; 1925).—On Rainy Lake on the south end of the large island lying just west of Mackenzie Island and on the north side of the west entrance

to Brule Narrows. The station is about 75 meters from the shore on the west side and about 50 meters from the shore on the south side.

Station mark: A standard United States Coast and Geodetic Survey station mark disk wedged in a drill hole in outcropping bedrock. A standard United States Coast and Geodetic Survey reference mark disk with the arrow pointing toward the station is wedged in a drill hole in outcropping bedrock 5.35 meters from the station in azimuth 176° 13′. Boundary reference monument 286, an 8-inch bronze post, is 91.1 meters northeast of the station.

Breaul (Minnesota, St. Louis County; U. S. Coast and Geodetic Survey, 1923; 1925).—On Rainy Lake, on the long point just south of the east entrance to Brule Narrows, variously called Soldier Point and Point Observe. The station is about 100 meters west of the east end of the point.

Station mark: A standard United States Coast and Geodetic Survey station mark disk wedged in a drill hole in outcropping bedrock. A standard United States Coast and Geodetic Survey reference mark disk with the arrow pointing toward the station is wedged in a drill hole in outcropping bedrock 4.7 meters from the station in azimuth 186° 18′. Triangulation station "Rainy Lake 60," a bronze disk, and boundary reference monument 291, an 8-inch bronze post, are side by side on the east end of the point 99 meters east of the station.

Manitou (Ontario, Rainy Lake District; U. S. Coast and Geodetic Survey, 1923; 1925).—On Rainy Lake, about 3¾ miles east of the east entrance to Brule Narrows, on a small, high, bare island about 50 meters southwest of Anchor Island. The station is on the highest point of the island.

Station mark: A standard United States Coast and Geodetic Survey station mark disk wedged in a drill hole in outcropping bed rock. Boundary reference monument 294, an 8-inch bronze post, is set in the solid rock 11.89 meters from the station in azimuth 16° 43′.

Late=Boundary (Ontario, Rainy River District; Jesse Hill, 1914; U. S. Coast and Geodetic Survey, 1923; 1925).—On Rainy Lake on a small rock island about 8½ miles east of the eastern entrance to Brule Narrows and about 5 miles northwest of Kettle Falls. It is on the northwestern island of a group of six small islands which are south of Deer Horn Point and near the international boundary. The station is on the highest point of the island about 3 meters above the lake level.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock. Four reference bolts are set in the ledge as follows: 3.25 meters south, 3.80 meters west, 4.55 meters north, and 3.82 meters east of the station. The United States Coast and Geodetic Survey occupied this station in 1923 and called it "Late." They set a standard United States Coast and Geodetic Survey reference mark disk, with the arrow pointing toward the station, in outcropping bed rock 3.145 meters from the station in azimuth 302° 10′.

Joy (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923; 1925).—On Rainy Lake, on the southernmost point of Breezy Island, which is about 1½ miles north of the mouth of Kettle River.

Station mark: A standard United States Coast and Geodetic Survey station mark disk wedged in a drill hole in outcropping bedrock. A standard United States Coast and Geodetic Survey reference mark disk with the arrow pointing toward the station is wedged in a drill hole in outcropping bedrock 6.42 meters from the station in azimuth 210° 05′.

Dog (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923; 1925).—On Kettle River at the head of Rainy Lake. The station is on Oak Point Island, about 750 meters south of Surveyors Island and the mouth of the river. It is on the highest point of the hill, about 120 meters back from the shore and nearly due east of the first narrow place in the river above its mouth.

Station mark: A standard United States Coast and Geodetic Survey station mark disk wedged in a drill hole in outcropping bedrock. A standard United States Coast and Geodetic Survey reference mark disk with the arrow pointing toward the station is 6.30 meters from the station in azimuth 147° 21′. Station "Rainy Lake 90," marked by a bronze disk set in ledge rock, is 16.29 meters from the station in azimuth 144° 31′.

Bell (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923).—At the upper end of Rainy Lake about 700 meters east of Kettle Falls. The station is on the eastern point of the first island east of Kettle Falls and between the Canadian Channel and Kettle River.

Station mark: A standard United States Coast and Geodetic Survey station mark disk wedged in a drill hole in outcropping bedrock. A United States Coast and Geodetic Survey reference mark disk with the arrow pointing toward the station is wedged in a drill hole in outcropping bedrock at an unknown distance in azimuth 334° 57′ from the station.

Knox (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923).—On Rainy Lake on the flat point about 600 meters due east of the Canadian dam at Kettle Falls. The station is about 400 meters due east of Oliver Knox's house and is on the northeastern part of the point.

Station mark: A standard United States Coast and Geodetic Survey station mark disk wedged in a drill hole in outcropping bedrock. A standard United States Coast and Geodetic Survey reference mark disk with the arrow pointing toward the station is wedged in a drill hole in outcropping bedrock 33.71 meters from the station in azimuth 80° 06′.

Nix (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923).—Between Rainy Lake and Namakan Lake. The station is 9.1 meters west of the north end of the dam in the Canadian Channel at Kettle Falls.

Station mark: A standard United States Coast and Geodetic Survey station mark disk wedged in a drill hole in outcropping bedrock. A standard United States Coast and Geodetic Survey reference mark disk with the arrow pointing toward the station is wedged in a drill hole in outcropping bedrock 4.59 meters from the station in azimuth 88° 29′.

Bat (Minnesota, St. Louis County; U. S. Coast and Geodetic Survey, 1923; 1925).—About 1 mile west of Kettle Falls and on the north shore of Namakan Lake. The station is at the east entrance to Squirrel Narrows, about 300 meters northeast of where one can get a clear view to the west through the narrows to Mica Island. It is on the highest part of the point which runs down to the shore from the west and is but a few meters from the shore line.

Station mark: A standard United States Coast and Geodetic Survey station mark disk wedged in a drill hole in outcropping bed rock. A standard reference mark disk with the arrow pointing toward the station is wedged in a drill hole in outcropping bedrock 7.25 meters from the station in azimuth 1° 21′.

Doran (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923; 1925).—At the foot of Namakan Lake and about 1 mile west of Kettle Falls. The station is on the northeast corner of the point between two bays and on the south side of Squirrel Narrows, where one can first look due west through the narrows to Mica Island.

Station mark: A standard United States Coast and Geodetic Survey station mark disk wedged in a drill hole in outcropping bedrock. Boundary reference monument 333, an 8-inch manganese-bronze post, is 13.46 meters from the station in azimuth 267° 36′.

Bees Kees (Minnesota, St. Louis County; U. S. Coast and Geodetic Survey, 1923; 1925).—On Namakan Lake, about 3 miles west of Kettle Falls. The station is on the southern high point of a small rocky island just southwest of Mica Island.

Station mark: A standard United States Coast and Geodetic Survey station mark disk wedged in a drill hole in outcropping bedrock. Boundary reference monument 338, an 8-inch manganese-bronze post, is 36.4 meters from the station in azimuth 186° 39′.

Pluss=Reference Monument 340 (Minnesota, St. Louis County; U. S. Coast and Geodetic Survey, 1923; 1925).—On Namakan Lake. The station is on the most eastern point of the shore on the west side of Squaw Narrows.

Station mark: Boundary reference monument 340, an 8-inch manganese-bronze post set in the solid rock. A standard United States Coast and Geodetic Survey reference mark disk with the arrow pointing toward the station is 7.17 meters from the station in azimuth 269° 16′.

Harry (Minnesota, St. Louis County; U. S. Coast and Geodetic Survey, 1923; 1925).—On Namakan Lake, about 1½ miles south of Squaw Narrows. The station is on the highest point of a small island known as Lone Tree Island near the boundary line, about 300 meters northeast of Bivo Island.

Station mark: A standard United States Coast and Geodetic Survey station mark disk wedged in a drill hole in outcropping bedrock. A standard United States Coast and Geodetic Survey reference mark disk with the arrow pointing toward the station is wedged in a drill hole in outcropping bedrock 19.76 meters from the station in azimuth 279° 41′.

Rye (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923; 1925).—On Namakan Lake, about 6 miles southwest of Kettle Falls and about 1¾ miles south of Squaw Narrows. The station is on the highest point of the small rocky island just northwest of Erickson (or Dunsmoore) Island.

Station mark: A standard United States Coast and Geodetic Survey station mark disk wedged in a drill hole in outcropping bedrock. A standard United States Coast and Geodetic Survey reference mark disk with the arrow pointing toward the station is wedged in a drill hole in outcropping bedrock 6.27 meters from the station in azimuth 191° 35′.

Deer (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923; 1925).—On Namakan Lake, about 9 miles by water along the boundary route south of Kettle Falls. The station is on the southern point of Randolph Island.

Station mark: A standard United States Coast and Geodetic Survey station mark disk wedged in a drill hole in outcropping bedrock. A standard United States Coast and Geodetic Survey reference mark disk with the arrow pointing toward the station is wedged in a drill hole in outcropping bedrock 18.53 meters from the station in azimuth 34° 17′. Boundary reference monument 351 bears southeast from the station 84.0 meters distant.

Randolph (Minnesota, St. Louis County; U. S. Coast and Geodetic Survey, 1923; 1924).—On the south side of Namakan Lake, about 9 miles by the international boundary line southeast of Kettle Falls. The station

is on the eastern end of a high rocky ridge about one-half mile to the southward of Randolph's fishery. It is on the highest point of the bare rock at the eastern end of the ridge. The top of the ridge has a scattering growth of trees about 35 feet in height; the slopes are heavily timbered. The station may be reached by boat via Namakan Lake to Randolph's fishery, thence westward about one-half mile to the first small bay, landing at the small log cabin which stands on the hillside about 60 meters from the shore. From this cabin follow a trail up the hill to the southward about 200 meters, thence southeast to the top of the ridge and along the north rim of the ridge east to the station.

Station mark: A standard United States Coast and Geodetic Survey station mark disk wedged in a drill hole in outcropping bedrock. A standard United States Coast and Geodetic Survey reference mark disk with the arrow pointing toward the station is wedged in a drill hole in outcropping bedrock 17.93 meters from the station in azimuth 105° 06′.

Namakan West Base (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923; 1925).—On Namakan Lake, on the small rocky island (at low water connected with the mainland) at the southern end of Blackstone Island. The station is on the extreme southern end of the island.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in a drill hole in outcropping bedrock. Boundary reference monument 353, an 8-inch manganese-bronze post, is set in the rock 14.49 meters from the station in azimuth 209° 44′.

Grassy (Minnesota, St. Louis County; U. S. Coast and Geodetic Survey, 1923; 1925).—On Namakan Lake on the largest island just off the entrance to Grassy Portage. The station is about 100 meters northwest of boundary reference monument 356, which is on the highest point of the island. It is about 8 meters above the lake level and about 20 meters back from the north shore of the island.

Station mark: A standard United States Coast and Geodetic Survey station mark disk wedged in a drill hole in outcropping bedrock. A standard United States Coast and Geodetic Survey reference mark disk with the arrow pointing toward the station is wedged in a drill hole in outcropping bedrock 9.20 meters from the station in azimuth 339° 02′.

Portage (Minnesota, St. Louis County; U. S. Coast and Geodetic Survey, 1924).—About 1½ miles south of east of the Namakan Lake end of Grassy Portage and about three-fourths mile northeast of the head of Grassy Bay of Sand Point Lake. The station is on the summit of a prominent, high, rocky, burned-over hill. The station may be reached from Grassy Portage or from the head of Grassy Bay.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in solid rock. A standard United States Coast and Geodetic Survey reference mark disk set in solid rock is 20.93 meters from the station in azimuth 201° 35′.

Namakan East Base (Minnesota, St. Louis County; U. S. Coast and Geodetic Survey, 1923; 1924).—On Namakan Lake, on a small island in the eastern part of the lake. The island is about 1 mile south of the mainland, about 2 miles almost due west of the mouth of Namakan River, and faces the open water of the lake to the west. It lies at the west entrance of a passage between two large islands, through which the international boundary passes just before turning toward Namakan Narrows. The island has a sheer drop of about 10 meters on the west end and slopes down to a beach on the east end. The station is near the west end.

Station mark: A standard United States Coast and Geodetic Survey station mark disk wedged in a drill hole in outcropping bedrock. Boundary reference monument 360, an 8-inch manganese-bronze post, is set in the rock 13.90 meters from the station in azimuth 42° 26′.

Tower (United States Coast and Geodetic Survey) (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1923; 1924).—On the north shore of Namakan Lake on a very conspicuous high, rocky, timbered point due north of Namakan Narrows and about three-fourths mile north of the lake shore. The station can be reached from the head of a small bay about 1 mile from the east end of the lake. The station bears a little west of north from the head of the bay.

Station mark: A standard United States Coast and Geodetic Survey station mark disk wedged in a drill hole in outcropping bedrock. A standard United States Coast and Geodetic Survey reference mark disk with the arrow pointing toward the station is wedged in a drill hole in outcropping bedrock 9.09 meters from the station in azimuth 207° 36′. Station "Tower," marked by a United States and Canadian Boundary Survey bronze disk, is 52.26 meters southwest by south of the station.

Fish (Ontario, Rainy River District; J. J. McArthur, 1915; U. S. Coast and Geodetic Survey, 1924).—Between David and Thompson Lakes, about 2½ miles east of David Lake and about 1½ miles west of Thompson Lake. David Lake is a tributary of Sand Point Lake; Thompson Lake lies just northwest of Wilkins Bay of Lac La Croix. The station is on the divide between the lakes and is on the steep bluff overlooking the north shore of a small lake.

Station mark: A bronze disk marked "U. S. & C. B. S." set in an outcropping bowlder. The reference mark is a Geodetic Survey of Canada bronze disk set in an outcropping ledge 11.32 meters from the station in azimuth 319° 58′.

Vermilion (Ontario, Rainy River District; J. J. McArthur, 1915; U. S. Coast and Geodetic Survey, 1924).—On the northeast side of Little Vermilion Lake, about 1½ miles east of the north end of the lake and about 1 mile northwest of Trout Lake. The station is on a rocky timbered hill, the highest in the vicnity.

Station mark: A bronze disk marked "U. S. & C. B. S." set in solid rock. The reference mark is a Geodetic Survey of Canada bronze disk set in solid rock 5.64 meters from the station in azimuth 8° 40′.

Center II (Ontario, Rainy River District; J. J. McArthur, 1915; U. S. Coast and Geodetic Survey, 1924).—On the north side of Lac La Croix, about 1 mile east of Wilkins Bay. The station is about three-fourths mile northwest of the prominent point which is opposite Snow Bay and on which boundary reference monument 513 is situated. The station is on a high and prominent hill covered with a dense growth of jack pine. It may be reached from the head of the little bay north of reference monument 513, where a blazed trail leads to the station.

Station mark: A bronze disk marked "U. S. & C. B. S." set in solid rock. The reference mark is a Geodetic Survey of Canada bronze disk set in solid rock 12.69 meters from the station in azimuth 350° 49′.

Loon (Minnesota, St. Louis County; U. S. Coast and Geodetic Survey, 1924).—About 2 miles northeast of the head of the extreme northeast bay of Loon Lake, about one-half mile southeast of Steep Lake and about three-fourths mile west of Eugene Lake. The station is on a high hill covered with a dense growth of small jack pine. The station may be reached from the head of the extreme northeast bay of Loon Lake by a very narrow opening which leads into a lake extending a mile north. From the north end of this lake and just west of a cedar swamp a blazed trail leads northeast, crosses Slim Lake on fallen trees, and continues eastward to the station.

Station mark: A standard United States Coast and Geodetic Survey station mark disk set in solid rock. A standard United States Coast and Geodetic Survey reference mark disk set in solid rock is 5.15 meters from the station in azimuth 265° 24′.

Burnt (Ontario, Rainy River District; J. J. McArthur, 1915; U. S. Coast and Geodetic Survey, 1924).—On the north side of Lac La Croix, about three-fourths mile northwest of the northwest corner of the Bay of Lac La Croix just north of the solitary dome-shaped island in the middle of the lake and about 5 miles northwest of Andrew Williams' trading post. The station is on the summit of the very conspicuous, high, burnt ridge that extends along the northwest shore of Lac La Croix and between it and Thompson Lake.

Station mark: A bronze disk marked "U. S. & C. B. S." set in a solid bowlder. A standard United States Coast and Geodetic Survey reference mark disk with the arrow pointing toward the station is wedged in a drill hole in outcropping sandstone 9.15 meters from the station in azimuth 334° 30′.

Granite (Minnesota, St. Louis County; U. S. Coast and Geodetic Survey, 1924).—On the south side of Lac La Croix, about 1½ miles south of the shallow bay at the southwest corner of the main body of the lake and due south of the large island shown on the boundary maps as Twentyseven Island. The station is on a high timbered ridge.

Station mark: A bronze disk set in solid rock. A bronze disk is set in solid rock 13.04 meters from the station in azimuth 230° 49′.

Timber (Minnesota, St. Louis County; U. S. Coast and Geodetic Survey, 1924).—On the south side of Lac La Croix, about 5 miles south of Coleman Island and 5 miles west of Bottle Portage. The station is on a very high hill covered with white pines 100 feet tall and is about 1¼ miles west of south of the head of the long narrow arm of Lac La Croix which extends south from the western part of Coleman Island.

Station mark: A bronze disk set in the top of a rock about 10 by 20 feet and 6 feet above the general ground surface. The reference mark is a bronze disk set in solid rock 6 feet below and 18.20 meters from the station in azimuth 247° 14′.

Cedar (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1924.)—On Lac La Croix, on a small low island at the eastern end of the main body of open water. The island lies about 1¼ miles east of boundary reference monument 551, which is on a very small island in the open lake and conspicuous by its lone bushy-topped pine tree. The island on which the station is located is covered with tall Norway pine, white pine, and cedar. The station is near the western extremity of the island and about 15 meters from the shore. The reference mark is near the water level at the most western point of the island.

Station mark: A bronze disk marked "G. S. of C." set in a rock ledge about 1 foot below the ground level. The hole is walled up with rock to the ground level. A bronze disk set in a solid rock ledge near the shore is 24.13 meters from the station in azimuth 58° 10′.

Shortiss (Ontario, Rainy River District; J. J. McArthur, 1915; U. S. Coast and Geodetic Survey, 1924).—On the highest point of Shortiss Island in the southeastern part of Lac La Croix. The station is about 3 miles northeast of Bottle Portage and 1 mile northeast of Bass Lake. The location of the station is made conspicuous by the tall grove of Norway pines on the summit of the hill.

Station mark: A bronze disk marked "U. S. & C. B. S." set in a small bowlder found in place flush with the ground. The reference mark is a Geodetic Survey of Canada bronze disk set in a small bowlder about 6 inches above the ground and 24.29 meters from the station in azimuth 22° 16′.

Falls (Minnesota, St. Louis County; J. J. McArthur 1915; U. S. Coast and Geodetic Survey, 1924).—About 1½ miles east of south from the mouth of Beartrap River discharging into Iron Lake and about one-half mile southeast of the head of a slough leading south from Beartrap River about one-half mile above its mouth. The station is on a low hill covered with a dense growth of small jack pine and spruce.

Station mark: A bronze disk marked "U. S. & C. B. S." set in solid rock. A United States Coast and Geodetic Survey bronze disk set in solid rock is 12.27 meters from the station in azimuth 233° 43′.

Lister (Minnesota, St. Louis County; W. B. Fairfield, 1915; U. S. Coast and Geodetic Survey, 1924).—About 3¾ miles due south of Curtain Falls and about three-fourths mile southwest of the head of the narrow bay which is the southwest extremity of Crooked Lake. The station is on a flat-topped thickly timbered hill.

Station mark: A drill hole within a triangle cut in solid rock. In 1924 a United States Coast and Geodetic Survey disk was placed in the hole and a bronze disk was set in solid rock 22.84 meters from the station in azimuth 181° 23′.

Ark (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1924).—About 2 miles northwest of the most northern extremity of Gardner Bay of Crooked Lake and one-half mile west of Elk Lake. The station is on a high burned-over hill conspicuous by the dense stand of large white-pine snags on it. It is on the divide between Elk and Trout Lakes. The station is reached from Crooked Lake via the deep bay extending north, just west of the rapids, to the entrance into Gardner Bay; thence to the southwest corner of the northwest bay of Gardner Bay, where a portage leads into a small beaver-dam lake; thence across this lake to a portage which leads to another beaver dam; thence continue up a narrow channel through floating bog to a short portage into Elk Lake; thence go to the head of the first little bay on the west side of Elk Lake and about three-fourths mile from the portage. From this point a trail has been cut and blazed to the station.

Station mark: A Geodetic Survey of Canada bronze disk set in solid rock. The reference mark is a United States Coast and Geodetic Survey bronze disk set in solid rock 15.03 meters from the station in azimuth 21° 59′.

Hargo (Minnesota, Lake County; W. B. Fairfield, 1914; U. S. Coast and Geodetic Survey, 1924).—On the south side of Crooked Lake and on the west side of the most eastern large southern arm of the large irregular portion of the lake. The station is 1⅞ miles southwest across the lake from the south end of the narrow boundary channel, with rapids in it, that passes around the north and west sides of a large island and connects the upper and lower levels of the lake. It is about 400 meters west of the lake shore and about 75 meters above the level of the lake on the summit of a steep rounded hill covered with young pines.

Station mark: A bronze disk marked "U. S. C. & G. S." set in solid rock, with a triangle cut in the rock around the disk. A bronze disk set in solid rock is 16.60 meters from the station in azimuth 231° 59′.

Glint (Ontario, Rainy River District; W. B. Fairfield, 1914; U. S. Coast and Geodetic Survey, 1924).—The station may be reached from Crooked Lake by leaving the lake at the head of Moose Bay, traveling with canoe, following a portage along the stream that connects Robinson Lake with the head of the bay, thence by the stream, portaging at the three rapids in the stream, until Robinson Lake is reached. From this point the station can be seen on the top of a very high and prominent hill. The top of the hill has been cleared of trees.

Station mark: A bronze disk marked "G. S. of C." set in solid rock, with a triangle cut in the rock around the disk. A reference mark, a bronze disk marked "U. S. C. & G. S.," is set in solid rock 12.65 meters from the station in azimuth 268° 21′.

Beaver (Ontario, Rainy River District; U. S. Coast and Geodetic Survey, 1924).—On the north side of Basswood Lake about 1 mile north of the head of North Bay and about one-half mile northwest of an inland lake. The station is on the summit of a rocky burned-over ridge. It may be reached by a one-half-mile portage from North Bay to the inland lake. A blazed and cut-out trail leads from a bay in the north shore of the inland lake just west of the narrows at the west end of the main body of water. It can be reached by shorter portages from the arm of Basswood Lake, east of North Bay, by keeping the northwest shore to a narrows opening into a lake, thence across this lake to a portage at the mouth of a small creek. Follow the portage to a beaver dam and continue up a slough to another short portage. This leads into the inland lake above mentioned; thence this route is the same as by the first route.

Station mark: A Geodetic Survey of Canada bronze disk set in solid rock. An arrow pointing toward the station is cut in solid rock 8.17 meters from the station in azimuth 248° 21′; a second arrow is cut in the solid rock 8.69 meters from the station in azimuth 338° 44′.

Rock (Minnesota, Lake County; U. S. Coast and Geodetic Survey, 1924).—South of Basswood Lake, about 2½ miles southeast of Upper Basswood Falls and about 1¼ miles east of the entrance to Jackfish Bay and the Pipestone Falls branch of Basswood Lake. The station is on the highest point and near the southwest end of the highest hill on United States Point and may be identified from the west by the steep, smooth, rock bluff on its west side and the thin growth of tall Norway pines on its summit. It is about one-half mile back from the shore line to the west and may best be approached from the west.

Station mark: A bronze disk set in solid rock. A bronze reference mark disk is set in solid rock 8.9 meters from the station in azimuth 220° magnetic. A nail in the center of a triangle blazed on a Norway pine tree is 14.71 meters from the station in azimuth 29° 45′.

Canada (Ontario, Rainy River District; Geodetic Survey of Canada, 1917; U. S. Coast and Geodetic Survey, 1924).—On Basswood Lake on the peninsula known as Canadian Point. The station is on the highest hill on the point and is about 2 miles east of the channel connecting the western and middle bodies of the lake. Vistas cut through the extremely heavy timber converge at the station.

Station mark: A copper bolt stamped "G. S. C." and set flush in solid rock. Three copper bolts set flush in outcropping bowlders reference the station mark at the following azimuths and distances: Reference mark No. 1, 19.90 meters in azimuth 346° 59′; reference mark No. 2 (distance not measured) in azimuth 99° 17′; reference mark No. 3, 18.09 meters in azimuth 232° 05′.

Found (Minnesota, Lake County; W. B. Fairfield, 1914; U. S. Coast and Geodetic Survey, 1924).—About 3 miles south of Basswood Lake, about 1 mile northwest of New Found Lake, and about 1 mile east of Wind Lake. The station is on the summit of a high, bare, rock hill south of a burn. The station is best approached from the northeast end of Wind Lake, following the bare rocks eastward from there to the station.

Station mark: A copper bolt within a triangle cut in the rock. A copper bolt set in solid rock is 8.16 meters from the station in azimuth 340° 17′, and a copper bolt is set in solid rock 12.92 meters from the station in azimuth 90° 39′.

Emily (Ontario, Rainy River District; W. B. Fairfield, 1914; 1924).—On the north shore of Basswood Lake, on the south end of the point between Merriam and Bayley Bays. The station is on the highest point of the rocks, about 100 meters back from the shore line and about 30 meters above the lake level.

Station mark: A drill hole within a triangle cut in the rock.

Fang (Minnesota, Lake County; W. B. Fairfield, 1913; Geodetic Survey of Canada, 1915).—On the southeast side of Sucker Lake, on the high, bare, rock hill about 700 meters south of the dam at the west end of Iron Mountain (Ensign) Lake. The hill or ridge is a series of white granite ledges, one above the other. It is the highest in the vicinity and commands an extensive view in all directions.

Station mark: A drill hole within a triangle cut in the solid ledge of the summit.

Gone (Ontario, Rainy River District; W. B. Fairfield, 1915).—On the north side near the east end of Basswood Lake. The station is on the prominent peninsula that lies on the west side of the most northeastern small bay of the northern shore of Bayley Bay. It is on a flat rock well up on the southern point of the eastern ridge of the peninsula. There is a small island lying about 125 meters offshore south of the station.

Station mark: A drill hole within a triangle cut in the rock.

Had (Minnesota, Lake County; W. B. Fairfield, 1913; Geodetic Survey of Canada, 1915).—On the Minnesota shore of Basswood Lake south of the peninsula that lies between Merriam and Bayley Bays. The station is on a wooded point about 1 mile west of Rice Bay and three-fourths mile west of reference monument 823. It is on a large bowlder about 3 meters from the water's edge. About 10 meters back from the station the point is higher, rocky, and wooded.

Station mark: A bronze disk set in the rock.

Garb (Ontario, Rainy River District; W. B. Fairfield, 1913; Geodetic Survey of Canada, 1915).—On the Canadian side of Basswood Lake, on the east shore of Bayley Bay. The station is one-third mile north of the wooded island on which reference monument 825 is situated. It is near the middle of a flat rock about 10 feet square that projects into the lake and is about 1 foot above the level of the lake.

Station mark: A bronze disk set in the rock.

Sunday (Ontario, Rainy River District; Geodetic Survey of Canada, 1916).—On a hill about 2 miles northwest of the northeast bay of Sunday Lake. A trail from the northwest corner of this bay leads to the station. The hill is a "hogs back" running in a northeasterly direction and the station is at the southwest end.

Station mark: A copper bolt stamped "G. S. C. 1916." Three reference bolts are placed as follows: No. 1, azimuth 1° 05′, distance 7.73 meters; No. 2, azimuth 112° 35′, distance 8.93 meters; No. 3, azimuth 248° 50′, distance 14.87 meters.

Paddy (Ontario, Rainy River District; Geodetic Survey of Canada, 1915; 1917).—On the north side of Knife Lake opposite the mouth of the big southern arm of the lake. The station is on the top of a high timbered hill about 400 meters back from the shore of the small bay on the south side of which reference monument 894 is situated.

Station mark: A copper bolt set in a drill hole within a triangle cut in rock.

Ewing (Minnesota, Lake County; Geodetic Survey of Canada, 1915).—About 2 miles southwest of the west end of Cacaquabic Lake. The station is on a hill, about one-fourth mile from a wagon road and about three-fourths mile from an abandoned lumber camp.

Station mark: A copper bolt set in rock.

Trouble (Ontario, Rainy River District; Geodetic Survey of Canada, 1916).—This station is on a burnt-over hill about 2 miles from the northeast corner of Louisa Lake, from which it is best reached.

Station mark: A copper bolt stamped "G. S. C. 1916."

Saunders (Minnesota, Lake County; Geodetic Survey of Canada, 1916).—On a hill on the south side of the long narrow arm of Knife Lake, at the entrance of which is the island on which reference monuments 895 and 898 are situated. The station is about 3 miles east of reference monument 898 and the hill, which can be seen from the water, is a flat oval with the long side east and west, and its south side slopes steeply down to a small lake.

Station mark: A copper bolt stamped "G. S. C. 1914," referenced by three copper bolts, placed as follows: No. 1, azimuth 255° 42′, distance 23.90 meters; No. 2, azimuth 1° 21′, distance 14.42 meters; No. 3, azimuth 118° 10′, distance 17.74 meters.

Dorothy (Ontario, Rainy River District; Geodetic Survey of Canada, 1916).—On a prominent point 30 meters southwest of the highest part of the hill, a mile northeast of the bay in Cypress Lake north of the island on which reference monument 925 is situated. Reference monument 925 is about 2 miles northeast of the west end of Cypress Lake.

Station mark: A copper bolt stamped "G. S. C. 1916" set in solid rock. Three reference bolts are placed as follows: No. 1, azimuth 140° 24′, distance 5.29 meters; No. 2, azimuth 264° 48′, distance 9.43 meters; No. 3, azimuth 1° 29′, distance 6.04 meters.

Poly (Minnesota, Cook County; Geodetic Survey of Canada, 1916).—On the highest part of the hill, about three-fourth mile northeast of the north bay of Lake Gabbimichigama and about 2½ miles southwest of Seagull Lake south of Saganaga Lake.

Station mark: A copper bolt stamped "G. S. C. 1916" set in solid rock. There are three reference bolts: No. 1, azimuth 211° 46′, distance 18.12 meters; No. 2, azimuth 282° 31′, distance 18.03 meters; No. 3, azimuth 80° 38′, distance 10.67 meters.

Helga (Minnesota, Cook County; Geodetic Survey of Canada, 1916).—On a high wooded hill on the south side of the west end of Saganaga Lake. About three-fourth mile south of the bay, south of reference monuments 952 and 954.

Station mark: A copper bolt stamped "G. S. C. 1916." There are no reference bolts, as the hill is covered with deep soil.

Paulsen (Minnesota, Cook County; Geodetic Survey of Canada, 1915; 1917).—On a prominent ridge lying in an east and west direction, about 10 minutes walk north from the buildings of the abandoned Paulsen Iron Mine. A 5-mile trail, following the right of way of the abandoned Port Arthur & Duluth Railway, leads from the west end of Gunflint Lake to the mine buildings.

Station mark: A copper bolt stamped "G. S. C. 1915," set in solid rock (diabase) in the center of a triangle cut in the rock. Three reference bolts, also set in solid rock, are placed as follows: No. 1, azimuth 226° 01′, distance 4.50 meters; No. 2, azimuth 358° 30′, distance 7.01 meters; No. 3, azimuth 96° 50′, distance 8.65 meters.

Mabel (Minnesota, Cook County; W. B. Fairfield, 1912; Geodetic Survey of Canada, 1916).—About 1½ miles west of the south end of Maraboeuf or Gneiss Lake and one-fourth mile east of the south end of the east arm of Saganaga Lake. The station is on the summit of a high, sharp, rocky point, the highest within several miles.

Station mark: A copper bolt stamped "G. S. C. 1916" set in solid rock. Three reference bolts are set as follows: No. 1, azimuth 216° 57′, distance 16.06 meters; No. 2, azimuth 339° 06′, distance 13.98 meters; No. 3 azimuth 111° 12′, distance 17.02 meters.

Vera (Ontario, Rainy River District; W. B. Fairfield, 1912; Geodetic Survey of Canada, 1917).—On the north shore of Saganaga Lake 2⅛ miles northeast of the entrance to Cache Bay. The station is on the summit of a high rock cliff, about 175 meters back from the lake shore and about 50 meters above the level of the lake. This station was later occupied by the Geodetic Survey of Canada.

Station mark: A copper bolt stamped "G. S. C. 1916." Reference marks are set as follows: No. 1, azimuth 52° 11′, distance 12.40 meters; No. 2, azimuth 151° 42′, distance 14.62 meters; No. 3, azimuth 263° 29′, distance 10.14 meters; No. 4, which is on the boundary line between Rainy River and Thunder Bay Districts, azimuth 256° 18′, distance 71.61 meters.

Stuart (Ontario, Thunder Bay District; Geodetic Survey of Canada, 1915).—In the center of a much dissected peninsula at the northeastern end of Saganaga Lake. The station is at the eastern end of a ridge which runs in a southeasterly direction. There is a distinct drop of about 175 feet to the east of the station into a swampy valley. A trail leads from the head of a marshy bay along the summit of a ridge in a southeasterly direction. Part of the ridge is timbered with jack pine, spruce, and a few birch and poplar, while the rest has been swept by fire. The trail is blazed through the timber.

Station mark: A copper bolt stamped "G. S. C. 1915," set in a solid outcrop of gray granite. A triangle is inscribed in the rock about the bolt. Three reference bolts, also set in solid rock, are placed as follows: No. 1, azimuth 54° 55′, distance 11.75 meters; No. 2, azimuth 186° 08′, distance 4.60 meters; No. 3, azimuth 300° 25′, distance 3.89 meters.

Light (Ontario, Thunder Bay District; Geodetic Survey of Canada, 1915).—On a hill about 1½ miles southeast of the end of a large bay on Northern Light Lake, opposite the outlet of the lake. Northern Light Lake may be entered at its west end by the river which flows from it into Saganaga Lake. A trail enters the woods near a large rock outcrop and goes in a southeasterly direction to a high hill and thence in an easterly direction to the station. The hill on which the station is situated is timbered with jack pine and spruce and a few birch and poplar. Its western slope is steep, while the other slopes are gradual.

Station mark: A copper bolt stamped "G. S. C. 1915," set in a solid outcrop of gray granite. Three reference bolts are placed as follows: No. 1, azimuth 182° 43′, distance 7.24 meters; No. 2, azimuth 320° 59′, distance 10.13 meters; No. 3, azimuth 61° 27′, distance 9.78 meters.

John (Ontario, Thunder Bay District; Geodetic Survey of Canada, 1915).—On a heavily wooded hill about 1 mile north of the northeast arm of Saganaga Lake. About 1½ miles from the northeast end of the lake, behind the more eastern of two large islands, a trail leads almost due north along a ravine and turns slightly to the west over higher ground onto the ridge where the station is located. The station is on a prominent rock outcrop.

Station mark: A copper bolt stamped "G. S. C. 1915," set in solid rock, with a triangle inscribed around it. Three reference bolts are set as follows: No. 1, azimuth 282° 53′, distance 12.54 meters; No. 2, azimuth 18° 29′, distance 12.53 meters; No. 3, azimuth 130° 20′, distance 15.17 meters.

Mowe (Ontario, Thunder Bay District; Geodetic Survey of Canada, 1915).—On the summit of a heavily wooded flat ridge about 1 mile northwest of the northwest angle of Mowe Lake. Mowe Lake is about 2 miles northeast from the northeast angle of Saganaga Lake.

Station mark: A copper bolt stamped "G. S. C. 1915" set in solid rock. Three reference bolts are set as follows: No. 1, azimuth 11° 38′, distance 12.07 meters; No. 2, azimuth 122° 46′, distance 39.69 meters; No. 3, azimuth 228° 23′, distance 12.67 meters.

Gunflint (Ontario, Thunder Bay District; Geodetic Survey of Canada, 1915; 1917).—On the top of a ridge running north and south, covered with jack pines. The station is 2 miles from a small bay in the northwest angle of North Lake. From this bay a well-blazed trail leads to the station. The hill on which the station is situated is an abrupt rocky outcrop of granite with a small amount of soil on the surface. This hill drops off abruptly on the west side of the station at a distance of about 12 feet.

Station mark: A copper bolt stamped "G. S. C. 1915" set in solid rock in the center of a triangle cut in the rock. Three reference bolts also set in solid rock are placed as follows: No. 1, azimuth 189° 54′, distance 8.15 meters; No. 2, azimuth 254° 39′, distance 7.72 meters; No. 3, azimuth 43° 30′, distance 7.99 meters.

Addie (Ontario, Thunder Bay District; Geodetic Survey of Canada, 1914; 1917).—This station is on the summit of a wooded round-topped hill about three-fourths mile southeast of mile post 45 (1½ miles west of Addie Lake station) of the branch of the Canadian National Railway from Port Arthur to North Lake.

Station mark: A copper bolt stamped "G. S. C. 1914" set in solid rock, referenced by three copper bolts.

Greenwater (Ontario, Thunder Bay District; Geodetic Survey of Canada, 1914).—This station is situated on a hill about 2 miles southwest of the southern arm of Greenwater Lake. It is best reached from Kashabowi on the Canadian National Railway.

Station mark: A copper bolt stamped "G. S. C. 1914," referenced by three copper bolts.

Echo (Ontario, Thunder Bay District, Geodetic Survey of Canada, 1913).—In Marks Township, reached by following the road about 6 miles northerly from Silver Mountain, on the branch of the Canadian National Railway from Port Arthur to North Lake. The station is in the woods and a small tower was built over it.

Station mark: A copper bolt stamped "G. S. C. 1913" set in solid rock about 10 inches below the surface, referenced by three copper bolts.

Zero (Ontario, Thunder Bay District; Geodetic Survey of Canada, 1914).—Situated on a hill south of Zero Lake and west of Copper Lake. The top of the hill has been cleared. It is reached from Lake Shebandowan by following the trail shown on the English River sheet, published by the Department of the Interior of Canada. The trail leads from the south side of the lake.

Station mark: A copper bolt stamped "G. S. C. 1914" set in solid rock, referenced by three copper bolts.

Ware (Ontario, Thunder Bay District, Geodetic Survey of Canada, 1913).—On a hill in Ware Township, about 4½ miles east along the Dawson road from Kaministikwia on the Canadian Pacific Railway. The station is about three-fourths mile south of the road.

Station mark: A copper bolt stamped "G. S. C. 1913" set in solid rock. Three reference bolts are set as follows: No. 1, azimuth 119° 13′, distance 11.34 meters; No. 2, azimuth 253° 31′, distance 8.41 meters; No. 3, azimuth 356° 39′, distance 10.45 meters.

Whitefish (Ontario, Thunder Bay District; Geodetic Survey of Canada, 1912; 1917).—On a hill about 7½ miles south of Silver Mountain, on the branch line of the Canadian National Railway from Port Arthur to North Lake. To reach the station follow the road which follows the east side of Little Whitefish River for

about 7½ miles until it comes to the base of a rock bluff about 30 feet high close to the river. From here the magnetic bearing to the station is about 245° and the distance is about 2 miles.

Station mark: A copper bolt stamped "G. S. C. 1912" set in solid rock, referenced by three copper bolts.

Devilfish (Minnesota, Cook County; Geodetic Survey of Canada, 1913; 1918).—About 14 miles northwest of Hovland, Minn., in lot 31, township 64 north, range 3 east of the fourth principal meridian. On the summit of a high wooded hill, sloping gradually to the south and abruptly to the north, one-half mile south and 2 miles east of the east end of Devilfish Lake. It is reached by following the Flute Reed Valley tote road north from Hovland post office to a lumber camp near McFarland Lake; this road should be followed to where it most nearly approaches Devilfish Lake and from that point travel west to the lake.

Station mark: A copper bolt stamped "G. S. C. 1913" set in solid rock. Three reference bolts are placed as follows: No. 1, azimuth 334° 07′, distance 3.07 meters; No. 2, azimuth 84° 41′, distance 8.46 meters; No. 3, azimuth 207° 18′, distance 3.83 meters.

Pigeon (Minnesota, Cook County; Geodetic Survey of Canada, 1911; 1918).—About 4 miles west of Grand Portage, Minn., and about 10 miles southwest of the mouth of Pigeon River. The station is on a low hill (the highest in this vicinity) which rises abruptly on the south and east and slopes gradually on the other sides, and is reached by following the "Cascade Trail" from Grand Portage for a distance of about 4 miles.

Station mark: A ⅝-inch copper bolt stamped "G. S. C. 1911," referenced by three bolts.

Farquhars Knob (Minnesota, Cook County; U. S. Lake Survey, 1869; Geodetic Survey of Canada, 1911).—On a hill about 4 miles northwest of Hovland, Minn. The height of the ground at the station is 1,113 feet and the height of the tower used was 24 feet.

Station mark: A cross cut in solid rock about 3 feet below the surface of the ground. Above this cross is set a stone post.

Blake (Ontario, Thunder Bay District; Geodetic Survey of Canada, 1913).—In the southwest corner of Blake Township, on the summit of the southern shoulder of the hill which rises abruptly from the west shore of Mud Lake. The northern part of the hill is quite precipitous. To reach the station follow the Pigeon River road south from Twin City Junction, near Fort William, about 25 miles.

Station mark: A copper bolt stamped "G. S. C. 1913" set in solid rock, referenced by three bolts as follows: No. 1, azimuth 255° 15′, distance 12.71 meters; No. 2, azimuth 5° 54′, distance 6.00 meters; No. 3, azimuth 142° 59′, distance 8.75 meters.

McKay (Ontario, Thunder Bay District; Geodetic Survey of Canada, 1912).—This station is on the highest point of Mount McKay, near Fort William, Ontario.

Station mark: A copper bolt stamped "G. S. C. 1912," referenced by three copper bolts.

Macgregor (Ontario, Thunder Bay District; Geodetic Survey of Canada, 1912).—In Macgregor Township, about 7 miles northwest of Mackenzie station on the Canadian Pacific Railway, on a rock outcrop on the highest part of a hill with slightly wooded sides. It is best reached by following the track westward to where a water pipe, covered by a dump of sand 10 feet high, joins the right of way; thence following the pipe 1¼ miles to a dam, and from a place on the stream 100 meters west of the dam following a trail, about 4½ miles long, to the station.

Station mark: A copper bolt stamped "G. S. C. 1912," set in solid rock. Three reference bolts are set as follows: No. 1, azimuth 180° 29′, distance 18.64 meters; No. 2, azimuth 322° 35′, distance 14.37 meters; No. 3, azimuth 0° 29′, distance 11.31 meters.

Isle Royal East (Michigan, Keweenaw County; U. S. Lake Survey, 1869; Geodetic Survey of Canada, 1911).—Situated near the east end of Isle Royal, about 1¼ miles north of the old mining company's landing in Rock Harbor. The height of the ground at the station is about 460 feet above the level of the lake and the height of the tower used was 34 feet.

Station mark: A copper bolt set in solid rock, referenced by a mark about 4 inches in diameter cut into a large bowlder. From this mark the station bearing is south 18° 44′ west, distance 2.23 meters. Thunder Cape Light bears north 55° 22′ 40″ west.

NORTHWESTERNMOST POINT OF LAKE OF THE WOODS TO LAKE SUPERIOR, MAJOR SCHEME

Buffalo (Manitoba, Provencher District).—On the west side of Lake of the Woods at the high-water mark on Buffalo Point. This station has been destroyed.

Willow, 1913 (Minnesota, Roseau County.)—On a very narrow island in Lake of the Woods, 8 miles east of Warroad, Minn. This station has been destroyed.

Gull Island (Minnesota, Lake of the Woods County; C. H. Sinclair, 1913).—On the southern part of Lake of the Woods, on Cormorant Rock, which is a large rock in the lake, about 3½ miles west of Long Point, and about 1½ miles north of Rocky Point.

Station mark: A drill hole in the rock. Three other drill holes used for fastening signal guys are equally spaced about the station mark a few feet distant.

Gould (Manitoba, Provencher District; C. H. Sinclair, 1913).—On the west side of Lake of the Woods, about 1 mile south of the mouth of Reed River on the west shore of Buffalo Bay. The station is about 200 meters inland and is near the quarter post on the east line of section 18, township 2 north, range 17 east. The station is surrounded by heavy timber.

Station mark: A bronze disk marked "U. S. & C. B. S." set in concrete flush with the ground.

Long Point (Minnesota, Lake of the Woods County; C. H. Sinclair, 1913).—On the southern shore of Lake of the Woods, on Long Point, about 2 miles northwest of Lude, Minn. The station is on the rock ledge near the extreme end of the point.

Station mark: A bronze disk set in concrete in the rock.

Zippel (Minnesota, Lake of the Woods County; C. H. Sinclair, 1913).—On the south shore of Lake of the Woods, just east of the mouth of Zippel Creek. The station is the United States engineer's bench mark at Zippel, (Minn.), post office. It is also a transit point of the International Joint Commission. It is about 30 meters northwest of the store.

Station mark: A nail set in a lead plug in the top of a large bowlder.

Big Point (Ontario, Kenora District; J. J. McArthur, 1912).—On Big Island in Lake of the Woods, about 30 miles northeast of Warroad, Minn., and the same distance northwest of Rainy River, Ontario; on the northwest point of the small peninsula southwest of Sugar Point, on the highest part of the point. Reference monument 45 is on a small island about 600 feet northwest.

Station mark: A piece of drill steel 2 feet below surface.

Bigsby (Ontario, Kenora District; J. J. McArthur, 1912).—On Bigsby Island in Lake of the Woods, about 23 miles northwest of Rainy River, Ontario, and Baudette, Minn., 2½ miles east of The Three Sisters Islands; on the southwest end of the southwest point of the island.

Station mark: A piece of drill steel 2 feet below surface.

Hungry, 1917 (Ontario, Rainy River District; Jesse Hill, 1917).—At the mouth of Rainy River on the eastern bank about 1¾ miles south of Oak Point. The station is about 9 meters from the rise in the bank of the river, 100 meters southwest of some old buildings, and near the edge of the timber.

Station mark: A bronze disk set in a concrete base. A 45-foot tower was erected over the station.

Ben (Minnesota, Lake of the Woods County; J. J. McArthur, 1913; 1917).—About 1½ miles south of Four Mile Bay and the mouth of Bostick Creek. The station may be reached from a settler's house on Bostick Creek by going northeast on an old road, crossing one field. It is about one-half mile from the house to the station.

Station mark: A steel drill in the rock under a 12-foot scaffold.

Pitt (Minnesota, Lake of the Woods County; J. J. McArthur, 1913).—In section 23, township 161 north, range 32 west; about 500 feet from the north and 1,600 feet from the east boundaries; about 7 miles northwest of Baudette and 1¼ miles southwest of the school at the corner about a mile west of Wabanica Creek. This station has been destroyed.

Point (Ontario, Rainy River District; J. J. McArthur, 1913–14).—In the Wild Lands Reserve, section 51; on the right side of Rainy River, about 2½ miles northwest of the bridge between Baudette, Minn., and Rainy River, Ontario; close to the shore of the river just west of a small creek. Reference monument 77 is 206.5 meters west of the station.

Station mark: A bronze disk set in a square concrete base.

Rainy (Ontario, Rainy River District; C. H. Sinclair, 1913).—On the north shore of Rainy River about 1⅛ miles north of the mouth of Baudette River, and 1¼ miles northwest of the town of Rainy River, Ontario. The station is on a gravel ridge about 450 meters west of a north-and-south road and 30 meters south of an east-and-west road in section 33, Atwood Township.

Station mark: A wooden stake. Subsurface mark is a bronze disk set in concrete 2 feet below the surface. A 55-foot tower was built over the station.

Spooner (Minnesota, Lake of the Woods County; C. H. Sinclair, 1913).—On the south side of Rainy River about 3 miles south of Spooner, Minn., and 1 mile east of Baudette River. The station is on the south side of the east-and-west road allowance between sections 14 and 23, township 160 north, range 31 west, and about 40 meters west of the north and south line between sections 23 and 24.

Station mark: No surface mark. Subsurface mark is a bronze disk set in a concrete block 2 feet below the surface of the ground. A 70-foot tower was erected over the station.

Clementson (Minnesota, Lake of the Woods County; C. H. Sinclair, 1913).—On the south side of Rainy River, about 425 meters east and a little south of the dam in Rapid River. The station is on a high isolated rock about 20 meters above the surface of Rainy River.

Station mark: A bronze disk set in concrete embedded in the rock. A 60-foot tower was erected over the station.

Sleeman (Ontario, Rainy River District; C. H. Sinclair, 1913; 1921).—On the north side of Rainy River, about 4 miles north and one-half mile west of Sleeman Siding, Ontario. The station is on the northwest quarter of section 15, Blue Township, about 20 meters west of the center of the section and about one-fourth mile south of the north line. It is on a rock about 20 feet high.

Station mark: A bronze disk set in concrete embedded in the rock. A 70-foot tower was erected over the station.

Pinewood (Ontario, Rainy River District; C. H. Sinclair, 1913; 1925).—On the north side of Rainy River, about three-fourths mile northwest of Pinewood, Ontario. The station is on a rock about 45 meters above the surface of the river, in the northwest corner of section 27, Dilke Township.

Station mark: A bronze disk cemented in the rock.

Darby (Ontario, Rainy River District; C. H. Sinclair, 1913; 1921).—On the north side of Rainy River, on section 27, Patullo Township. The station is on the higher of two prominent rocks known as Darby Rocks, just north of Pine River.

Station mark: A bronze disk cemented in a crack in the rock. A ½-inch drill hole one-half inch deep bears northeast by north 0.40 meter from the station. In 1921 the hole in which the disk was cemented was recovered, but the disk was reported gone.

Stratton (Ontario, Rainy River District; C. H. Sinclair, 1913; 1925).—On the north side of Rainy River, on the summit of a ridge about 1¼ miles north of Stratton, Ontario, and one-fourth mile west of a road. The station is in the northeast quarter of section 22, Morley Township. It is on a rocky mound on the south side of a lumber road running to the northwest.

Station mark: A bronze disk set in a rock 8 by 8 by 20 inches. A 45-foot tower was erected over the station.

Partridge (Ontario, Rainy River District; C. H. Sinclair, 1913).—On the north side of Rainy River, on the northwest quarter of section 29, Shenston Township. The station is on the highest point of the southeast part of a high rock ridge covered with scrub poplar and pine.

Station mark: A bronze disk cemented in a drill hole in the rock. A rock cairn, 5 feet in diameter and 5 feet high, was built 1.2 meters south of center of the station. The station mark was not found in 1921.

Frontier (Minnesota, Koochiching County; C. H. Sinclair, 1913).—On the west shore of Rainy River, near the Frontier (Minn.) school and in section 20, township 160 north, range 28 west. The station is about 200 meters west of the river, 40 meters south of the center of the east-and-west road, 80 meters west of the schoolhouse, and 50 meters west of the north and south section line. It is on high, level ground.

Station mark: A bronze disk set in a concrete base 9 by 9 by 20 inches. A 70-foot tower was erected over the station. The station mark was not recovered in 1921. The ground was cultivated, and no search was made below the surface of the ground.

Soo (Minnesota, Koochiching County; C. H. Sinclair, 1913; 1921).—About 1 mile south of Rainy River at Birchdale, Minn. The station is near the southeast corner of section 33, township 160 north, range 27 west, and is about 200 meters west of a north-and-south road, and 200 meters north of an east-and-west road. A 50-foot tower built by fire rangers is on a rock ridge about 150 meters south of the station.

Station mark: A bronze disk set in a concrete base 9 by 9 by 18 inches. A 75-foot tower was erected over the station.

Manitou (Minnesota, Koochiching County; C. H. Sinclair, 1913).—About 2½ miles south of Rainy River, on a high rock ridge near the south line of the south quarter of section 10, township 159 north, range 25 west. The station is on a crumbling rocky knoll about 80 meters east of the highest part of the ridge.

Station mark: A bronze disk cemented in the crumbling rock. A 40-foot tower was erected over the station. In 1921 the station mark was reported lost.

Tillet (Ontario, Rainy River District; C. H. Sinclair, 1913; 1921).—On the north side of Rainy River, near the southwest corner of lot 7 of the third concession of Dobie Township, and just north of Indian Reservation No. 11. The station is on a rock called Tillets Rock which stands about 35 feet above the surrounding ground.

Station mark: A bronze disk cemented in a drill hole. A 40-foot tower was erected over the station.

Redford (Ontario, Rainy River District; C. H. Sinclair, 1913; 1921).—On the north side of Rainy River in the northwest quarter of section 35, Aylsworth Township. The station is on William Redford's property about 150 meters south of his house. It is at a rise in a road and about 20 meters back from the east side of the road.

Station mark: A bronze disk set in a concrete base about 10 by 10 by 20 inches. A 75-foot tower was erected over the station.

Cook (Ontario, Rainy River District; C. H. Sinclair, 1913; 1921).—On the north side of Rainy River, about 60 meters slightly south of east from the northwest corner of section 25, Lash Township. The station is on the highest point of a prominent rock, around which the section-line road detours.

Station mark: A bronze disk cemented in the rock. A 35-foot tower was erected over the station. In 1921 it was reported that the top of the mark had been broken off, leaving the shank still in place.

Hill (Ontario, Rainy River District; C. H. Sinclair, 1913).—On the north side of Rainy River, near the southwest corner of the southeast quarter of section 33, Shenston Township. The station is on the highest point of a high rock on Mrs. Hill's property.

Station mark: A bronze disk cemented in the rock.

Indus (Minnesota, Koochiching County; C. H. Sinclair, 1913).—On the south side of Rainy River on the summit of a ridge about one-eighth mile south of the Indus (Minn.) store and post office.

Station mark: A bronze disk set in a concrete base about 10 by 10 by 18 inches. A 45-foot tower was erected over the station.

Devlin (Ontario, Rainy River District; C. H. Sinclair, 1913).—On the north side of Rainy River on a rock hill north of Devlin, Ontario, on the property of Mr. McDonald. The station is near the center of a slight depression at the summit of the rock hill.

Station mark: A bronze disk set in a concrete base. A 55-foot tower was erected over the station. In 1921 the station mark was reported lost.

Daw (Ontario, Rainy River District; C. H. Sinclair, 1913; 1921).—On the north side of Rainy River, in the northwest quarter of section 33, Devlin Township. The station is on a high ridge about one-third mile east of the road between Devlin and Big Fork, and due east of Mr. Daw's house.

Station mark: A bronze disk set in a concrete block 2 feet below the surface of the ground. A 90-foot tower was erected over the station.

Fort Frances West Base (Ontario, Rainy River District; C. H. Sinclair, 1913; 1923).—About 5½ miles west of the Fort Frances (Ontario) railway station and about one-fourth mile west of the north-and-south road between sections 21 and 22, Crozier Township. The station is 54 meters south of the south rail of the Canadian National Railway.

Station mark: A bronze disk set in a concrete base 16 inches square and 2 feet deep. The subsurface mark is a United States and Canada Boundary Survey bronze bench-mark disk set in a concrete base 3 feet below the surface of the ground.

Johnson (Minnesota, Koochiching County; C. H. Sinclair, 1913; 1926).—About five-eighths mile south of Rainy River and about 7 miles southwest of International Falls, at a point where the river turns abruptly from south to west. The station is on the summit of a rise on J. K. Johnson's farm, and beside a trail leading south to the railroad station.

Station mark: A bronze bench-mark disk set in a concrete base 12 by 12 by 20 inches. An 85-foot tower was erected over the station.

Fort Frances East Base (Ontario, Rainy River District; C. H. Sinclair, 1913).—On the north side of Rainy River about one-third mile west of the Fort Frances railway station. The station is 54 meters south of the south rail of the Canadian National Railway in a grove of small spruce within the street limits paralleling the railway right of way.

Station mark: A bronze disk set in a concrete base 18 by 18 by 30 inches. Subsurface mark is a bronze bench-mark disk set in a concrete block 3 feet below the surface of the ground. An 85-foot tower was erected over the station. In 1923 the surface mark was reported lost.

Frog (Ontario, Rainy River District; C. H. Sinclair, 1913; 1921).—On the north side of Rainy River, about 3 miles north and 1 mile west of Fort Frances, Ontario, and about one-half mile north of Frog Creek. The station is on a rock knoll on Napoleon Ducette's homestead about 170 meters southwest of his house.

Station mark: A bronze disk set in concrete in the sandy surface of the knoll. A 75-foot tower was erected over the station. In 1921 it was reported that the station mark was at the edge of a gravel pit and would probably soon be destroyed.

Squall Point (Ontario, Rainy River District; F. C. Warner, 1913).—On the north shore of Rainy Lake, about 2½ miles northeast of Ranier, Minn., on top of the small timbered hill on Squall Point. It is about 18 meters above the lake level, about 150 meters from the lake shore on the south, and about 260 meters on the east.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in a concrete base.

Birch Point (Minnesota, Koochiching County; F. C. Warner, 1913).—On the south shore of Rainy Lake, about 1½ miles east of Ranier, Minn., near the tip of Birch Point, a low timbered point. It is about 1 meter above the lake level, about 53 meters from the shore at the end of the point, about 23 meters from the west shore of the point, and about 53 meters from the east shore.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in a concrete base.

Lockhart (Ontario, Rainy River District; F. C. Warner, 1913).—On the north shore of Rainy Lake, about 6 miles northeast of Ranier, Minn., about one-half mile due north of the east end of Pukamo Island, and about three-fourths mile east of Lockhart's sawmill. It is about 33 meters above the lake level, about 260 meters from the point of the shore line to the southwest, and about 150 meters from the shore to the southeast.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock. Four iron bolts are set in the ledge at the following distances and directions from the station: 5.77 meters southwest, 4.44 meters southeast, 5.41 meters northeast, and 5.03 meters northwest.

Fransen (Minnesota, Koochiching County; F. C. Warner, 1913; 1921).—On Rainy Lake, about 4¾ miles east of Ranier, Minn., on the highest point of Victoria or Fransen Island. It is about 21 meters above the lake level, about 100 meters southeast of the north end of the island, and about 70 meters from the west shore.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock. Three iron bolts are set in the ledge at the following distances and directions from the station: 4.05 meters south, 5.15 meters west, and 4.51 meters north.

Island View (Minnesota, Koochiching County; F. C. Warner, 1913).—On the mainland on the south side of Rainy Lake, on the northeast side of a small hill about 2 miles west of the entrance to Black Bay. It is about one-half mile southwest of the head of the bay the entrance to which is just south of Grindstone Island. It is about 200 meters south of the winter road which runs from the head of the above bay to Tillson Bay, and is about 27 meters above the lake level. A native timber tower was erected at this point.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Dunsmoore (Ontario, Rainy River District; F. C. Warner, 1913).—On Rainy Lake, on the highest part of Dunsmoore Island, about 1¼ miles north of American Narrows. It is near the north end of the island at the site of a rustic observation tower, about 170 meters south of a summer cottage, about 130 meters from both the east and west shores of the island, and about 20 meters above the lake level.

Station mark: A 2-inch bronze disk set in the rock.

Lumber Camp (Ontario, Rainy River District; F. C. Warner, 1913).—On Rainy Lake, near the center and on the highest ground of the northern peninsula of Sand Point Island, about one-half mile north of Goose Portage and the same distance north of an old lumber camp. It is in the timber, about 20 meters above the lake level, about 250 meters from the south shore, and about 400 meters from the east shore. A sawed-lumber tower was erected at the station.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in concrete. The subsurface mark is a similar disk set in the rock. An iron bolt is set in ledge rock 2.32 meters northeast of the station.

Bushyhead (Minnesota, Koochiching County; F. C. Warner, 1913; 1921).—On the south shore of Rainy Lake, about 1 mile east of the entrance to Black Bay, about three-fourths mile southwest of Bushyhead Island. It is on the top of a rock ridge, about 24 meters above the lake level, and about 180 meters south of the lake shore.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock. Two iron bolts are set in ledge rock at the following distances and directions from the station: 6.90 meters north and 5.30 meters west.

Sand Point (Ontario, Rainy River District; F. C. Warner, 1913).—On Rainy Lake on the highest point of Sand Point Island; about one-half mile northwest of the site of the old trading post, which is on a low point on the south shore; and about 300 meters northeast of the head of a small bay the mouth of which is about three-fourths mile northeast of Capstan Rock. The station is on the top of a cliff about 45 meters above the lake level.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Berry (Ontario, Rainy River District; F. C. Warner, 1913).—On Rainy Lake, on Berry Island, a long, irregularly shaped island on the south side of Swell Bay, the second large island east of Sand Point Island, and one-half mile west of Little Rocky Narrows. It is on a cleared area on the east end and the highest point of the island, about 27 meters above the lake level, about 120 meters from the south shore, and about 480 meters from the east end of the island.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock. Two iron bolts are set in ledge rock at the following distances and directions from the station: 6.90 meters north and 5.36 meters west.

Cranberry (Minnesota, St. Louis County; F. C. Warner, 1913; 1921).—On Rainy Lake, on Cranberry Island, a high-timbered island about 5 miles east of the entrance to Black Bay and about 1 mile northwest of the entrance to Cranberry Bay. It is about 14 meters above the lake level, about 30 meters south of the north shore of the island, and about 140 meters from the northeast end of the island.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock. An iron bolt is set in the ledge at a distance of 5.7 meters in azimuth 40° 55′ from the station.

Lost (Minnesota, St. Louis County; F. C. Warner, 1913; 1921).—On Rainy Lake, on the south side of Lost Bay about 1 mile east of the entrance. It is on the summit of a knoll about 12 meters above the level of the lake and about 150 meters southeast of the first small bay on the south shore east of the entrance to Lost Bay. A native-timber tower was erected at the station.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock. Two iron bolts are set in the ledge at the following distances and directions from the station: 7.14 meters northwest and 4.40 meters a little south of west.

Baldy (Ontario, Rainy River District; F. C. Warner, 1913).—On Rainy Lake, on the south side of the entrance to Seine Bay, near the highest point of a high, bald, barren island. It is near the center of the island and about 18 meters above the lake level.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock. Three iron bolts are set in the ledge at the following distances and directions from the station: 5.90 meters east, 6.55 meters north, and 5.95 meters west. Reference monument 283 is set in the same ledge 0.43 meter distant.

Swell (Ontario, Rainy River District; F. C. Warner, 1913).—On Rainy Lake, on the north side of Swell Bay, about 5 miles northeast of Sand Point Island and about three-fourths mile east of Bears Passage. It is on the highest part of a high, timbered, rocky hill about 45 meters above the level of the lake, about 270 meters northeast of the water's edge at the head of a small bay, and about 240 meters northwest of the northwest shore of Shelter Cove.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Scott (Ontario, Rainy River District; F. C. Warner, 1913).—On Rainy Lake, on the largest island of the group south of the entrance to Seine Bay. It is on the eastern part of the island south of the western part of Scott Island, in a grove of tall jack pines. It is on the highest point of the island, about 30 meters above the level of the lake, about 120 meters from the north shore of the island, and about 180 meters southwest of a small bay in the entrance to which there is a small island.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in bare ledge rock.

Saginaw (Minnesota, St. Louis County; F. C. Warner, 1913).—On Rainy Lake, on the south shore of Saginaw Bay, on the northeast extremity of a prominent peninsula about one-half mile west of Finlander Bay and Finlander Island. It is about 13 meters above the lake level, about 60 meters south of the north shore of the peninsula, and about 160 meters west of the east shore. A native-timber tower was erected over the station.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. S." set in ledge rock and surrounded by trees. Two iron bolts are set in the ledge at the following distances and directions from the station: 4.90 meters northeast and 4.71 meters southeast.

Brule (Ontario, Rainy River District; F. C. Warner, 1913; 1921).—On Rainy Lake, about three-fourths mile northeast of the eastern entrance to Brule Narrows, and about 120 meters north of the lake shore at the east end of the north or canoe channel which parallels Brule Narrows. It is about 6 meters above the lake level. A native-timber tower was erected over the station.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Big Island (Minnesota, St. Louis County; F. C. Warner, 1913).—On Rainy Lake near the highest point of Big Island, about 4 miles southeast of the eastern entrance to Brule Narrows. It is about 27 meters above the lake level and is about 150 meters southwest of the head of a small bay which is on the north shore of the island On Emerald Island in this bay is a summer home belonging to T. J. Lenander. A native-timber tower was erected over the station.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock. Two iron bolts are set in the ledge at the following distances and directions from the station: 5.65 meters west and 5.44 meters south.

Manitowoc (Ontario, Rainy River District; Jesse Hill, 1914; 1925).—On Rainy Lake, about 4 miles east of the eastern entrance to Brule Narrows, on an island covered with scattered timber, the most northern of a group of four islands. It is on the highest part of the southeastern part of the island.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock. Two iron bolts are set in the ledge, one 5.02 meters north of the station, the other 6.13 meters west.

Duck (Minnesota, St. Louis County; Jesse Hill, 1914).—On Rainy Lake, about 6 miles east of the eastern entrance to Brule Narrows, and about 180 meters south of the head of Duck Bay, an indentation in the south shore of Rainy Lake due south of Manitou Rock and Anchor Island. There is a small timbered island at the middle of the entrance to Duck Bay and a small island at the west side of the entrance. The station is on a rocky ridge, about 31 meters above the lake level, sloping toward the bay.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in concrete in a nail keg with small rocks piled around it. An iron reference bolt is set 8.06 meters east and a second bolt is set 6.05 meters north of the station.

Whitewash (Ontario, Rainy River District; Jesse Hill, 1914; 1925).—On Rainy Lake, about 6 miles east of the eastern entrance to Brule Narrows, on a rocky island covered with loose bowlders, the northeast island of a group of three called Gull Rocks which are near the middle of the lake. The station is on the north side of the island a little above the average lake level.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock. Four reference bolts are set as follows: 5.62 meters south, 7.89 meters west, 3.39 meters north, and 5.33 meters east of the station.

Brown (Minnesota, St. Louis County; Jesse Hill, 1914).—On Rainy Lake, about 6½ miles east of the eastern end of Brule Narrows, on the high rocky ridge just west of Browns Bay. It is about 40 meters above the lake level and about 180 meters south of the lake shore.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in concrete. An iron reference bolt is set 4.52 meters north and a second bolt is set 6.08 meters west of the station.

Lake (Minnesota, St. Louis County; Jesse Hill, 1914).—Between Rainy Lake and Namakan Lake, on the northeast end of a high, rocky jack-pine ridge about 1¾ miles south of the south shore of Rainy Lake and about one-half mile west of Mica Bay, an arm of Lake Namakan. It is about 200 meters southwest of the shore of a small inland lake and about 100 meters south of a small creek which flows east.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock. An iron reference bolt is set 5.21 meters south and a second bolt is set 8.47 meters west of the station.

Boundary. (See first-order station "Late.")

Moose (Minnesota, St. Louis County; Jesse Hill, 1914; 1921).—Between Rainy Lake and Namakan Lake about 3¾ miles west of Kettle Falls, about 1 mile south of the shore line of Rainy Lake, and about 500 meters northeast of the head of the largest cove near the middle of the north side of Mica Bay. It is on a high jack-pine ridge. A 75-foot tower was erected over the station.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock. An iron reference bolt is set 5.71 meters northeast and a second bolt is set 6.70 meters west northwest of the station.

Sand Narrows (Minnesota, St. Louis County; Jesse Hill, 1914).—On Rainy Lake, about 2 miles northwest of Kettle Falls, on the southeast side of the bay which is south of Sand Narrows and Smith Island. It is on a high rocky ridge about 15 meters above the lake level and about 70 meters from shore. A 50-foot tower was erected over the station and the path to the station is indicated by the bare place on the ledge where the tower legs were hauled up. The reef across this arm of the bay can be crossed about two-thirds of the distance from the west end.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock. An iron reference bolt is set 4.94 meters north of the station and a second bolt is set 6.54 meters west.

Bear (Ontario, Rainy River District; Jeses Hill, 1914).—Between Rainy Lake and Namakan Lake, about 1½ miles east of Kettle Falls near the top of a ridge on the point of land which lies between the south end of the Canadian Channel and the entrance to Hale Bay. The station is among tall pines, about 26 meters above the lake level, about 240 meters east of the shore of the Canadian channel, and about 320 meters north of the shore of Hale Bay. A 70-foot tower was erected over the station.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in concrete in a nail keg and partly buried in the earth. An iron reference bolt is set 6.67 meters south, and a second bolt is set 7.97 meters east-northeast of the station.

Snow (Ontario, Rainy River District; Jesse Hill, 1914).—On Namakan Lake, about 2½ miles south of Kettle Falls, about three-fourths mile northwest of Blackstone Island, and about 1¼ miles north of Randolph Island. It is about 220 meters from the shore on the east side of the point and about 270 meters from the south shore. A 65-foot tower was constructed here.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock. An iron reference bolt is 6.10 meters east, and a second bolt is 14.63 meters south of the station.

Squaw (Minnesota, St. Louis County; Jesse Hill, 1914).—On Namakan Lake, about 6 miles southwest of Kettle Falls and about three-fourths mile north of the bay which leads west from Lake Namakan to Lake Kabetogama. It is on a high, flat, timbered, rocky ridge and is reached from the second small bay west of a fisherman's house. A 25-foot tower was constructed, using the butt of a tree for an instrument stand. The station is about 10 meters east of the tower.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock. An iron reference bolt is 12.23 meters east and a second bolt is 18.46 meters south of the station.

Namakan (Minnesota, St. Louis County; Jesse Hill, 1914; 1925).—On Namakan Lake, about 6 miles southeast of Kettle Falls, about 1¾ miles southeast of Blackstone Island, on the highest point of an island near the south shore of the lake and opposite the entrance to a deep bay. The island is the largest of a group and can be identified by its high rock face and the dark timber which covers it.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock. An iron reference bolt is 7.88 meters north, and a second iron bolt is 5.51 meters east of the station. Reference monument 356 is 0.11 meter southeast of the station.

Bump (Ontario, Rainy River District; Jesse Hill, 1914).—Near Namakan Lake, about 5 miles east of Kettle Falls, and about 1½ miles east of the east end of Hale Bay. It is on the south side of the top of a dome-shaped

hill, the first one east of Hale Bay, and is on the north side of the eastern of two small lakes. It is reached by following a logging road from the east end of Hale Bay.

Station mark: A hole, 1 inch in diameter and 3 inches deep, drilled in a granite ledge. Four iron reference bolts are set as follows: 3.74 meters southeast, 3.05 meters southwest, 3.61 meters northwest, and 2.89 meters northeast of the station.

Bay (Minnesota, St. Louis County; Jesse Hill, 1914).—Between Namakan and Sand Point Lakes, on a high, rocky ridge southwest of Namakan Narrows, about 1 mile south of the south shore of Namakan Lake and about 1 mile west of the bay at the northwest corner of Sand Point Lake, from which a trail leads to the station. The ridge is covered with small pine. A 30-foot tower was erected over the station.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock. An iron reference bolt is 7.47 meters east and a second bolt is 7.25 meters north of the station.

Tower (Ontario, Rainy River District; Jesse Hill, 1914; 1924).—On the north shore of Namakan Lake on a very conspicuous high, rocky, timbered point, due north of Namakan Narrows and about three-fourths mile from the lake shore. A trail leads from a little bay at the mouth of a small creek north to the station which is on the southwest shoulder of the ridge. A 30-foot tower was erected over the station.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in cement and rock. An iron reference bolt is 9.12 meters east, and a second bolt is 5.60 meters south of the station. The United States Coast and Geodetic Survey station "Tower" was established about 50 meters northeast by north of the station in 1923 and marked with their standard station mark and reference mark disks.

Center I (Ontario, Rainy River District; J. J. McArthur, 1914).—About one-half mile northwest of the small island in the little bay of David Lake that is 1 mile northeast of the western end of the narrows which connect David Lake with Clearwater Lake, an arm of Sand Point Lake. David Lake is about 3 miles east of reference monument 381.

Station mark: A bronze disk set in a drill hole in rock in place.

La Croix (Minnesota, St. Louis County; J. J. McArthur, 1915).—One-third mile south of the swampy shore of the narrows at the southeast corner of the bay of Lac La Croix just south of the west bend of the lake. Reference monument 512 is on a small island near the south side of the entrance to the bay.

Station mark: A bronze disk set in a drill hole in rock in place.

Ely (Minnesota, St. Louis County; J. J. McArthur, 1915).—Two-thirds mile south of the mouth of the creek at the south shore of the bay in Lac La Croix, 1 mile south of the large island due south of the entrance to Namakan River. The creek is 1¼ miles southeast of the narrows between the island and the southern mainland, one-eighth mile south of the most southern island in the bay; a large stretch of open water lies to the northeast.

Station mark: A bronze disk cemented in a drill hole in rock in place. The point is referenced by two bronze disks, cemented in the rock, one east, 17.39 meters, and the other northwest, 20.22 meters; the distance between the reference disks is 31.27 meters.

Village (Ontario, Rainy River District; J. J. McArthur, 1915).—One-half mile north of the north shore of Lac La Croix and one-half mile east of Namakan River. Reference monument 548 is a little over one-half mile southeast.

Station mark: A bronze disk set in a drill hole in rock in place.

Winton (Minnesota, St. Louis County; J. J. McArthur, 1915).—On the highest part of the ridge 1½ miles west of the west shore of Lac La Croix at the entrance to the bay leading to Agnes River, at the southwest corner of the east bend of the lake. There is an island one-fourth mile long which lies in a north and south direction at the mouth of this bay and Bottle River lies about 2 miles east.

Station mark: A bronze disk set in a drill hole in rock in place.

Center III (Minnesota, St. Louis County, J. J. McArthur, 1915).—On the northeast side of the highest hill on the west side of Iron Lake, one-fourth mile from the shore of the lake where a small bay projects northerly into the mainland. Reference monument 638 is about one-third mile due east of the bay.

Station mark: A bronze disk set in drill hole in rock in place.

Curtain II (Ontario, Rainy River District; J. J. McArthur, 1916).—On the rocky ridge which runs parallel to the shore of the northwest corner of Crooked Lake. The station is two or three hundred meters from the shore. It may also be reached from Iron Lake, from the bay on the north side of the mouth of Curtain River, the trail running northeasterly for about a mile to the station. "Curtain" triangulation station is about half a mile south of Curtain II.

Station mark: A bronze disk cemented in a drill hole in rock in place; the point is referenced by two bronze disks, one 11.40 meters east and the other 10.21 meters south; the reference disks are 15.03 meters apart.

Curtain (Ontario, Rainy River District; W. B. Fairfield, 1915).—On the west side of Crooked Lake about 650 meters northeast of Curtain Falls. The station is on top of a heavily timbered ridge about 200 meters west of the shore line of a small bay.

Station mark: A bronze disk set in rock.

Mutt (Ontario, Rainy River District; W. B. Fairfield, 1915).—On the north side near the west end of Crooked Lake. The station is on the heavily timbered isolated hill on the point at the bend of the lake about 2¾ miles southeast of Curtain Falls. There is a Canadian forest ranger's cabin on the slope between the station and the shore.

Station mark: A drill hole within a triangle cut in the rock. A bronze disk set in rock marking triangulation station "Knit" is on the point of the shore at the foot of the hill about 100 meters southwest of the station.

Jeff (Minnesota, St. Louis County; W. B. Fairfield, 1915).—On the south side, near the west end of Crooked Lake. The station is about 600 meters east-southeast from the head of the narrow bay of the southwest extremity of Crooked Lake. It is on the summit of a high rocky-topped hill.

Station mark: A drill hole within a triangle cut in the rock.

Gape (Ontario, Rainy River District; W. B. Fairfield, 1914; 1924).—On the north side of Crooked Lake, near the middle of the large irregular portion of the lake. The station is about one-half mile north of the north arm of the lake from which the narrow passage leads to Gardner Bay and about 1 mile west-northwest of the mouth of this narow passage. It is on a high bare hill, the highest in the vicinity, that rises steeply from the west shore of a small lake.

Station mark: A drill hole within a triangle cut in the rock.

Gorge (Ontario, Rainy River District; W. B. Fairfield, 1914).—On the north side of Crooked Lake about 7 miles north of Lower Basswood Falls. The station is on a high hill about 250 meters west of the north end of the large bay or inlet that extends north from the second and last long narrow north-and-south reach of the eastern part of the lake. A narrow inlet about 2 miles long extends southeast from Gardner Bay and heads against the foot of the hill on the west side of the station. The station is on the bare pinnacle of the hill.

Station mark: A drill hole within a triangle cut in the rock.

Fave (Minnesota, Lake County; W. B. Fairfield, 1914).—About 3¼ miles north-northwest, air line, from Lower Basswood Falls. To reach the station, go north from Lower Basswood Falls via Crooked Lake for 4½ miles, thence follow the turn of the lake to the west about 1 mile, thence south one-half mile to the head of the large bay, near the southwest angle of which will be found a portage going south to Jackfish Lake; follow the portage about three-eighths mile, or nearly to Jackfish Lake, then turn to the right on a blazed trail up the hill three-eighths mile to the station. The station is on top of the hill among the young pines. Lines were cleared toward other stations.

Station mark: A drill hole within a triangle cut in the bare rock.

Flag (Minnesota, Lake County; W. B. Fairfield, 1914; 1924).—About 1⅛ miles due north of Lower Basswood Falls, and about 600 meters west of Crooked Lake. The station is on a large rock about 3 meters higher than the surrounding ground. Lines were cut toward adjacent stations.

Station mark: A drill hole within a triangle cut in the rock.

German (Ontario, Rainy River District; W. B. Fairfield, 1914).—About 3⅜ miles northeast, on an air line, from Lower Basswood Falls and about 1⅝ miles east of Moose Bay of Crooked Lake. The station is on a high bare point near a small lake. The station may be reached by leaving the head of Moose Bay by canoe, following the stream to Robinson Lake, portaging where necessary on account of rapids, thence via the portage which leaves Robinson Lake to the east of the creek which drains a small lake with a red bottom. Cross this small lake to a point at the left of a swamp, where there is a blazed trail along a small creek to another small lake; cross this last lake to another creek which is steep and bowlder-strewn, and dry at times; follow this creek to a bay in another lake, go around the right end of this last lake, which is long and narrow, to the highest bare point in sight, on which the station is located.

Station mark: A drill hole within a triangle.

Gosh (Ontario, Rainy River District; W. B. Fairfield, 1914).—Three miles north of Basswood Lake and 5½ miles east of Crooked Lake. The station is reached by leaving the head of Moose Bay in Crooked Lake, taking a portage and a rapid stream to Robinson Lake, traveling with canoe; thence to the most eastern arm of Robinson Lake; thence by a portage to a small lake; thence by another portage to another small lake. From the sand beach on the southeast arm of this last lake a trail was blazed over the rough timbered and rocky hills to the station. Lines were cut at the station to see stations "Gill," "German," and "Glint."

Station mark: A drill hole within a triangle cut in the rock.

Gill (Ontario, Rainy River District; W. B. Fairfield, 1913; 1914).—On the west side of Basswood Lake, about 800 meters northeast of the head of the bay from which Basswood River flows, and about 700 meters

northwest from the shore line of the main body of the lake. The station is on a high timbered hill, detached from the surrounding heights by low passes on all sides.

Station mark: A drill hole within a triangle cut in the smooth granite ledge of the summit.

Have (Minnesota, Lake County; W. B. Fairfield, 1913; 1914).—On the south side of Basswood Lake, southeast across the lake and about 2 miles distant from Basswood Falls. The station is on the summit of a high, detached hill just back of a small oval bay. It is on the bare, solid, ledge of the summit.

Station mark: A bronze disk set in the ledge.

Fluke (Minnesota, Lake County; W. B. Fairfield, 1914; 1924).—On the south side of Basswood Lake, between Jackfish Bay and Leo Chosa Bay. The station is about one-half mile northeast of the bend in Pipestone Bay, on the highest point of a bare rock hill.

Station mark: A drill hole within a triangle cut in the rock.

Fear (Minnesota, Lake County; W. B. Fairfield, 1914).—On the south side of Basswood Lake. The station is on the northwest side of the large western arm of Jackfish Bay, about 3 miles northeast from Jackfish Bay hoist. The station is most easily approached via a trail which begins opposite the southwest end of a large island lying between this western arm and the main part of Jackfish Bay.

Station mark: A drill hole within a triangle cut in the rock.

Fote (Minnesota, Lake County; W. B. Fairfield, 1914).—On the south side of Basswood Lake, between Pipestone and Jackfish Bays, about 3 miles southwest of the mouth of Pipestone Bay and about 2 miles east of the Swallow and Hopkins hoist and railroad.

Station mark: A drill hole within a triangle cut in the rock.

Finn (Minnesota, Lake County; W. B. Fairfield, 1914).—On the south side of Basswood Lake. The station is on the summit of a bare hill about 1½ miles northwest of the warehouse and hoist of the St. Croix Lumber & Manufacturing Co., and about one-half mile north of their railroad.

Station mark: A drill hole within a triangle cut in the rock.

Handy (Minnesota, Lake County; W. B. Fairfield, 1913; 1914).—On the south end of Basswood Lake, on the high bare rocky hill on the point 1,300 meters northeast across the bay from Hoist Camp and Hoist Portage. The station is on the highest part of the hill, on a solid granite ledge, about 200 meters back from the lake.

Station mark: A drill hole within a triangle cut in the ledge.

Fagin (Minnesota, Lake County; W. B. Fairfield, 1914).—On the south side of Basswood Lake, about 2½ miles due west of Canadian Point. The station is about three-fourths mile north of the west end of the large southern bay of the lake. A marshy inlet extends north from the bay to a point about 400 meters from the station. The station is on the highest point of a bare rocky hill.

Station mark: A drill hole within a triangle cut in the rock.

Frump (Minnesota, Lake County; W. B. Fairfield, 1914; 1915).—On the south side of Basswood Lake, about 1⅜ miles west of the St. Croix Co.'s hoist and railroad to Fall Lake. The station is on a high hill just south of a narrow channel in this south arm of the lake, and about 90 meters west of a gorge. It is about 20 meters above the lake.

Station mark: A drill hole within a triangle cut in the rock.

English (Ontario, Rainy River District; W. B. Fairfield, 1914).—On the north side of Basswood Lake, just west of Merriam Bay. The station is on Canadian Point just north of English Channel, and is opposite the northeast end of the large island that lies between the boundary channel and English Channel. It is on the highest rock in the Norway pine woods, about 100 meters north of the shore.

Station mark: A drill hole within a triangle cut in the rock.

Fate (Minnesota, Lake County; W. B. Fairfield, 1914).—At the south end of Basswood Lake, between Basswood and Wind Lakes, about 1¼ miles southeast of the mouth of Wind Lake. The station is on a high, bare rocky ridge between two poplar groves, one to the east and one to the west of it. The station is best approached via Wind Bay and a tote road along the north side of Wind Lake. About 1 mile east of Wind Bay a blazed trail leads up to the station.

Station mark: A drill hole within a triangle cut in the rock.

Echo (Ontario, Rainy River District; W. B. Fairfield, 1914).—Between Birch and Basswood Lakes, about 1¼ miles northeast of Prairie Portage. The station is on the crest of the west end of a densely wooded ridge, 500 meters east of the head of the first large bay in Basswood Lake, and 700 meters northwest from the shore line of Birch Lake.

Station mark: A drill hole within a triangle cut in the rock.

Ensign (Minnesota, Lake County; W. B. Fairfield, 1915).—About 3 miles south of the east end of Ensign Lake. The station is on the highest point of a very high, wooded hill. The station may be reached by following

the small river that enters the lake near the east end to an old dam. Thence take a southwest course to the station.

Station mark: A bronze disk set in rock.

Higher (Minnesota, Lake County; W. B. Fairfield, 1915).—About 650 meters south of Melon Lake and about 1⅛ miles southeast of Carp Portage. The station is on top of a prominent, nearly bare rock hill due south of reference monument 865.

Station mark: A bronze disk set in the rock.

Driggs (Minnesota, Cook County; W. B. Fairfield, 1912).—On Saganaga Lake, on a very large irregularly shaped island lying north of the point between the two long southern arms of the lake and next to the open water of the lake. The island is divided by inlets into an east and a west lobe. The western lobe is high, rocky, and covered with timber. The station is on the highest point and near the center of the western lobe.

Station mark: A drill hole within a triangle cut in the solid granite ledge of the summit.

Dunlap (Minnesota, Cook County; W. B. Fairfield, 1912).—On the highest timbered knoll on the ridge between Mariboeuf (Gneiss) Lake and the eastern of the two long southern arms of Saganaga Lake. The station is about 1,200 meters due west of the most western bay of the northern wide expanse of Mariboeuf Lake. It is 1,100 meters south of a large inclosed or nearly land-locked bay on the east shore of Saganaga Lake and 1,000 meters east of the main shore line of that lake. The station is on a solid granite ledge on the summit of the knoll.

Station mark: A drill hole within a triangle cut in the ledge.

Domino (Minnesota, Cook County; W. B. Fairfield, 1912).—On the south shore of Saganaga Lake, on the point between the two long southern arms of the lake, and about 2,000 meters northeast of the western of the two arms. The station is on the summit of a hill, about 100 meters back from the shore and about 18 meters above the level of the lake. A large island lies just off the shore a little to the northeast of the station.

Station mark: A drill hole within a triangle cut in the smooth granite ledge of the summit.

Dixie (Minnesota, Cook County; W. B. Fairfield, 1912).—On the south side of Saganaga Lake, on the high, wooded ridge about 1,300 meters south 20° west of Rocky Point, and about 450 meters due south of the west arm of the bay that lies just west of Rocky Point. The station is on the smooth granite ledge on the summit of the ridge.

Station mark: A drill hole within a triangle cut in the ledge.

Dicker (Minnesota, Cook County; W. B. Fairfield, 1912).—On the south shore of Saganaga Lake, on Rocky Point which is the extreme point at the angle of the shore between the extreme western arm and the southern part of the lake. The station is on a large fixed rock about 3 meters from the water's edge.

Station mark: A bronze disk set in the rock.

Dubois (Minnesota, Cook County; W. B. Fairfield, 1912).—On the west side of Maraboeuf or Gneiss Lake, on the high rounding pine-covered hill 200 meters west of the lake, and 500 meters south of the most northern large bay indenting the west shore of the lake. The station is on the smooth granite ledge that forms the summit of the hill.

Station mark: A drill hole within a triangle cut in the ledge.

Dye (Minnesota, Cook County; W. B. Fairfield, 1912).—On the summit of the high ridge west of Maraboeuf, or Gneiss Lake. The station is about 500 meters west of the south end of the lake and about 600 meters south of the first long narrow inlet on the west side of the lake. It is approximately west-southwest of the narrows at the entrance to the lake.

Station mark: A drill hole within a triangle cut in the smooth granite ledge of the summit.

Champ (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—On the summit of the high rocky ridge west of Round Lake and 700 meters north of the narrows at the outlet of the lake. The river, after leaving the lake, makes a big bend to the north and flows along the base of the ridge about 300 meters southwest of the station.

Station mark: A drill hole within a triangle cut in a solid ledge.

Droit (Minnesota, Cook County; W. B. Fairfield, 1912).—On the south side of Maraboeuf or Gneiss Lake, almost directly south of the east end of the lake. The station is on the high ridge about 400 meters south of the lake shore at the most southeastern point of the lake. It is on the highest point of an extensive granite ledge on the summit and east end of the ridge.

Station mark: A drill hole within a triangle cut in the ledge.

Dimple (Minnesota, Cook County; W. B. Fairfield, 1911).—On the east end of the high range known as Granite Hills that lies northwest of Magnetic Lake. The station is on a bare summit of almost solid granite with cliffs on all sides. It is about 650 meters northwest of the head of the little cove that lies just west of the rocky island in the northern part of the lake.

Station mark: A drill hole within a triangle cut in the rock.

Chris (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—On the north side of Magnetic Lake, on the high, wooded, round-topped hill about one-half mile due east of the rapids at the outlet of the lake. The station is on the highest point of the hill, on a solid granite ledge.

Station mark: A drill hole within a triangle cut in the ledge.

Carlos (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—About 400 meters north of Granite Lake and about 900 meters east of Granite River. The station is about 60 meters above the level of the lake, on the south spur of a high ridge overlooking the lake.

Station mark: A drill hole within a triangle cut in the rock.

Dotty (Minnesota, Cook County; W. B. Fairfield, 1911).—On the south side of Gunflint Lake, a little east of the west end of the lake. The station is near the top of the west end of the high ridge one-half mile back from the lake shore. An old road from the lake tops the ridge about 200 meters east of the station.

Station mark: A bronze disk set in a rock ledge.

Dulce (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the south shore of Gunflint Lake, on the first prominent timbered point 1¾ miles east of the west end of the lake. The station is on a large rock 3.5 meters back from the water's edge.

Station mark: A bronze disk set in the rock. Reference monument 1114 bears south, 59° 36′ east, 5.5 meters distant from the station.

West Dotty (Minnesota, Cook County; Jesse Hill, 1917).—On the south side of Gunflint Lake at its west end. The station is near the top of a ridge about 700 meters south of the lake shore. It is among some small poplar trees on the north slope and near the west end of the ridge.

Station mark: A cross on a partly buried bowlder.

Caddie. (See description of reference monument 1117.)

Dam (Minnesota, Cook County; W. B. Fairfield, 1911).—On the west shore of Gunflint Lake, on the tip of the long point 300 meters south of the outlet of Gunflint Lake into Magnetic Lake. The station is on a large flat rock 2.5 meters back from the water's edge. A large poplar tree stands about 4.5 meters back from the station.

Station mark: A bronze disk set in the rock.

Dough. (See description of reference monument 1118.)

Chowder (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the north shore of Gunflint Lake, on the prominent point south of the large bay which lies 2¾ miles east of the outlet into Magnetic Lake. The station is on the most lakeward part of the point, on a solid rock ledge, 2.5 meters back from the lake shore and about 0.3 meter above the lake level. Island No. 8 lies about 375 meters to the northeast of the station.

Station mark: A bronze disk set in the ledge.

Den (Minnesota, Cook County; W. B. Fairfield, 1911).—On the south shore of Gunflint Lake, 2¾ miles west of the mouth of the stream entering the lake from Little Gunflint Lake. The station is 800 meters west of the entrance to an inlet that lies back of a high islandlike ridge at the foot of which stations "Denby" and "Drone" are situated. It is on a large bowlder about 2 meters from the shore line.

Station mark: A bronze disk set in the bowlder.

Denby (Minnesota, Cook County; W. B. Fairfield, 1911).—On the south shore of Gunflint Lake, about 2¼ miles west of the mouth of the stream flowing from Little Gunflint Lake. At this point there is an islandlike ridge about one-half mile long, parallel to the general shore line, that stands out from the mainland and is only connected thereto by a low marshy isthmus. The station is on the north shore of this ridge about 200 meters from the west end. It is on a large rock, about 2 meters from the shore line, and 1 meter above the lake level.

Station mark: A bronze disk set in the rock.

Cult (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the north shore of Gunflint Lake, on a prominent rounding point, 1¾ miles west of the stream entering the lake from Little Gunflint Lake. The station is on a large rock, 1.5 meters from the water's edge and 0.7 meter above the lake level.

Station mark: A bronze disk set in the rock.

Drone (Minnesota, Cook County; W. B. Fairfield, 1911).—On the south shore of Gunflint Lake, about 2 miles west of the mouth of the stream from Little Gunflint Lake. There is an islandlike ridge about one-half mile long, parallel to the general shore line, that stands out from the mainland and is only connected thereto by a low marshy isthmus. The station is on the north shore of this ridge midway between its ends, on a large rock, about 1 meter from the shore line and 0.5 meter above the lake level.

Station mark: A bronze disk set in the rock.

Cutts. (See description of reference monument 1125.)

Card (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—On the south side of North Lake, on the high rock cliff 150 meters back from the shore line and 200 meters east of Height-of-Land Portage. The station is 2 meters back from the edge of the most western cliff, on a solid ledge of rock.

Station mark: A drill hole within a triangle cut in the rock.

Dally (Minnesota, Cook County; W. B. Fairfield, 1911).—On the divide between the west end of North Lake and Little Gunflint Lake. The station is on the summit of a high rocky knoll that has cliffs on its north and west sides. It is about 700 meters northeast of the west end of North Lake and about 500 meters north of the shore of North Lake.

Station mark: A drill hole within a triangle cut in the solid ledge.

Double (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the south side of South Lake, about 400 meters east of the west end of the lake and about 400 meters south of the shore line. The station is on the highest one of the first line of cliffs on the top of the ridge.

Station mark: A bronze disk set in a solid granite ledge.

Divide (Minnesota, Cook County; W. B. Fairfield, 1911).—On the highest point of the height of land between North and South Lakes, west of Height-of-Land Portage. The station is three-fourths mile west of Height-of-Land Portage. It is on the smooth rock ledge.

Station mark: A drill hole within a triangle cut in the ledge.

Dime (Minnesota, Cook County; W. B. Fairfield, 1911).—On the top of the high ridge on the south side of South Lake, directly opposite Height-of-Land Portage. The station is on a large rock about 150 meters west of the highest part of the ridge.

Station mark: A drill hole within a triangle cut in the rock.

Crane (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the north shore of South Lake, almost midway between the ends of the lake, on the fourth prominent point from the east end. The station is on a large rock, about 2 meters from the water's edge and 1 meter above the level of the lake.

Station mark: A drill hole in the rock.

Dandy (Minnesota, Cook County; W. B. Fairfield, 1911).—On the north side of South Lake, just west of the second point west of Height-of-Land Portage. The station is west of the little bay, which is west of the point, on the summit of a rock cliff about 150 meters back from the lake shore, and about 40 meters above the level of the lake. A deep canyon to the north of the station cuts it off from the higher cliffs to the north.

Station mark: A bronze disk set in the smooth granite ledge.

Dade (Minnesota, Cook County; W. B. Fairfield, 1911).—On the south shore of South Lake, about midway between the ends of the lake. The station is on a prominent point one-half mile west of a gorge and small stream breaking through the regular steep hillside along the lake. It is on a large rock, on the most northern part of the point, 1.5 meters from the water's edge, and 0.7 meter above the lake level.

Station mark: A drill hole within a triangle cut in the rock.

Back (Minnesota, Cook County; W. B. Fairfield, 1911).—On the south side of Rose Lake, one-half mile east of Rat Portage, and 400 meters south of the lake, on the high bluff overlooking the lake. The station is on the first wooded ridge west of station "Blatz," about 100 meters below the top of the ridge. There is a high cliff near the top of the ridge.

Station mark: A drill hole within a triangle cut in the rock.

Blatz (Minnesota, Cook County; W. B. Fairfield, 1911).—On the south side of Rose Lake, on the summit of the high rock cliff 1 mile east of Rat Portage, and about 350 meters south of the lake shore. The station is on the smooth rock ledge about 7.5 meters back from the edge of the cliff.

Station mark: A drill hole within a triangle cut in the ledge. Station "Bully" is on the same ridge about 120 meters east of the station.

Cap. (See description of reference monument 1183.)

Agile (Ontario, Thunder Bay District; W. B. Fairfield, 1910).—On the north side of Rose Lake. The station is on the spur ridge, 400 meters north of the Bishop Lumber Co.'s camp, which is on the narrowest part of that portion of the lake known as Mud Lake. It is on a large, white rock on the ridge or crest of the spur.

Station mark: A drill hole within a triangle cut in the rock.

Bully (Minnesota, Cook County; W. B. Fairfield, 1911; 1917).—On the south side of Rose Lake, on the summit of the high rock cliff 1 mile east of Rat Portage and 300 meters south of the lake shore. The station is on the same ridge as station "Blatz" and about 120 meters east of "Blatz." A line was cleared between the two stations.

Station mark: A drill hole within a triangle cut in the rock.

Bold (Minnesota, Cook County; W. B. Fairfield, 1910; 1917).—On the south side of Rose Lake just after entering the narrow part of the lake known as Mud Lake. The station is 200 meters south of the shore at its nearest point, and is on the summit of the high ridge that breaks into cliffs and bluffs toward the lake. It is at the east end of the ridge, about 2 meters back from the edge of the cliff.

Station mark: A drill hole within a triangle cut in the rock.

Balsam (Minnesota, Cook County; W. B. Fairfield, 1910).—On the south side of Rose Lake, 1⅜ miles west of the east end of the lake, and about 300 meters back from the shore line. The station is on the summit of a high ridge, on a ledge just back from the edge of a cliff.

Station mark: A drill hole within a triangle cut in the ledge.

Arthur (Ontario, Thunder Bay District; W. B. Fairfield, 1910).—On the north shore of Rose Lake, about 200 meters west of the prominent point at the entrance to the narrow part of the lake. The station is on a large rock about 2 meters from the water's edge and 0.7 meter above the lake level.

Station mark: A bronze disk set in the rock. Reference monument 1197 bears north 9° west, 1.64 meters distant from the station.

Antrim. (See description of reference monument 1201.)

Atom (Ontario, Thunder Bay District; W. B. Fairfield, 1910).—On the north side of Rose Lake, three-fourths mile west of the east end of the lake and about one-fourth mile east of the stream that flows into Arrow Lake. The station is on the high rock cliff just back from the concave bend of the shore line. It is on the highest part of the cliff, about 4 meters back from the edge.

Station mark: A drill hole within a triangle cut in the rock.

Belt (Minnesota, Cook County; W. B. Fairfield, 1910).—On the south shore of Rose Lake, 1,100 meters from the east end of the lake. The station is on the most western of several small points of the rounding shore line. The shore is a mass of large irregularly shaped bowlders. The station is on a large flat bowlder, near the water's edge, and 0.5 meter above the lake level.

Station mark: A drill hole within a triangle cut in the rock. Reference monument 1196 bears south 17° west, 7.5 meters distant from the station.

Argot (Ontario, Thunder Bay District; W. B. Fairfield, 1910).—On the east end of Rose Lake, on the high rocky point, 750 meters north of the mouth of the boundary stream from Watap Lake and 150 meters east of the lake shore. There is a very high cliff about 400 meters north of the station on the same ridge. The station is on a ledge on a projecting spur about 75 meters above the lake level.

Station mark: A drill hole within a triangle.

West Bone (Minnesota, Cook County; Jesse Hill, 1917).—On the south side of Rose Lake, nearly due south of the east end of the lake, about 750 meters southeast of the mouth of the stream from Watap Lake to Rose Lake, and about 400 meters south of the portage trail where it passes through a small marshy place. The station is on a ridge on a small summit. A higher point of the ridge, heavily timbered, is southwest of the station. Lines of sight were cleared through heavy timber in four directions.

Station mark: A drill hole within a triangle cut in the rock.

Bay (Minnesota, Cook County; W. B. Fairfield, 1910; 1917).—On the south side of Watap or Rove Lake, about 400 meters east of the west end of the lake and about 300 meters from the lake shore, on the summit of the high wooded hill above reference monument 1206.

Station mark: A drill hole within a triangle cut in a solid ledge of rock.

Best (Minnesota, Cook County; W. B. Fairfield, 1910; 1917).—On the south side of Watap or Rove Lake, 1½ miles west of the east end of the lake, on the summit of the high rock cliff that is abreast of the narrows. Reference monument 1220 is on the same cliff some 300 meters to the east. The station is on the smooth rock ledge of the summit.

Station mark: A bronze disk set in the ledge.

Angus (Ontario, Thunder Bay District; W. B. Fairfield, 1910).—On the north side of Watap or Rove Lake, 1½ miles west of the east end of the lake, one-half mile back from the shore line, on the first high timbered ridge. The station is on the south slope of the ridge near the summit, on a smooth flat rock ledge.

Station mark: A drill hole within a triangle cut in the ledge.

Aborn (Ontario, Thunder Bay District; W. B. Fairfield, 1910).—About 750 meters northeast of the east end of Watap or Rove Lake, on the southern slope of the first high wooded ridge very near the top of the ridge. The station is on a large, smooth, flat ledge.

Station mark: A drill hole within a triangle cut in the ledge.

Blow (Minnesota, Cook County; W. B. Fairfield, 1910).—Four hundred meters south of the east end of Rove Lake, on the high wooded bluff and cliff. The station is on the slope, back from the cliff on the point that

projects out to the north, and is almost on top. It is on a flat, smooth ledge. A drill hole within a triangle was cut in the ledge about 50 meters to the east, and then abandoned for this station.

Station mark: A bronze disk set in the ledge.

Bronx (Minnesota, Cook County; W. B. Fairfield, 1910).—On the south side of Mountain Lake, 2 miles east of the west end of the lake, on the summit of the high rocky bluff point that is opposite two small adjoining bays on the north shore. The station is on the solid rock ledge above the cliff on the lake side of the point.

Station mark: A drill hole within a triangle cut in the rock.

Abner (Ontario, Thunder Bay District; W. B. Fairfield, 1910).—On the north side of Mountain Lake, on the summit of the ridge about 400 meters north of the large bay that indents the north shore about 2½ miles east of the west end of the lake. The station is about 400 meters from the lake, on a large, flat, smooth ledge.

Station mark: A drill hole within a triangle cut in the ledge.

Burke (Minnesota, Cook County; W. B. Fairfield, 1910; 1918).—On the south side of Mountain Lake, on the summit of the high rounding knoll with a cliff face toward the lake and is just opposite the narrows. The station is on a large, flat, smooth ledge.

Station mark: A drill hole within a triangle cut in the ledge.

Amber (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1918).—On the north side of Mountain Lake, on the second ridge back from the first large bay from the east on the north side of the lake. The ridge is high and covered with a dense growth of jack pine. The station is on the end of the ridge near the highest part, and is on a large smooth ledge.

Station mark: A drill hole within a triangle cut in the ledge.

Nell (Minnesota Cook County; Jesse Hill, 1918).—Near the east end of Mountain Lake, about 450 meters due south of the outlet of the lake. The station is on the summit of the high flat-topped ridge, about 20 meters east of the slope toward Mountain Lake.

Station mark: A bronze disk set in a granite outcrop.

Bluffer (Minnesota, Cook County; W. B. Fairfield, 1910; 1918).—On the south side of Mountain Lake, 1¼ miles distant and on the third high rocky cliff from the east end of the lake. The station is on the solid rock summit of the cliff-like ridge.

Station mark: A drill hole within a triangle cut in the solid rock.

Alfred (Ontario, Thunder Bay District; Jesse Hill, 1918).—About 1 mile due north of the Moose Portage trail where it leaves Moose Lake for North Fowl Lake. The station is on the west end of the summit of the high ridge.

Station mark: A bronze disk set in solid rock.

Arrow (Ontario, Thunder Bay District; Jesse Hill, 1918).—About one-half mile north of Moose Lake and about northwest of the east end of the lake. The station is near the west end of the summit of a high hill. There is a small peak or shoulder on the east side of the hill and a high ridge about three-eighths mile to the west.

Station mark: A bronze disk set in solid rock.

Alta (Ontario, Thunder Bay District; W. B. Fairfield; 1910; 1918).—On the south side of South Fowl Lake, on the first high rock cliff east of the dam, and just east of the place where the portage leaves the lake. The station is on the highest part of the cliff, about 2 meters back from the edge of the west face.

Station mark: A bronze disk set in the solid ledge. A ¾-inch steel drill driven in a crack in the rock and marking station "Alta ecc. 1918" is 9.64 meters south of the station.

Seven (Ontario, Thunder Bay District; Jesse Hill, 1918).—About 2½ miles east of South Fowl Lake and about one-third mile north of the tote road between Camp Seven and the slide at South Fowl Lake. The station is on the south side of a high pine-covered ridge about one-half mile west of a small lake that lies on the north side of the tote road. A bowlder 1.5 meters high lies 6 meters northwest of the station.

Station mark: A bronze disk set in a rock outcrop.

Pete (Ontario, Thunder Bay District; Jesse Hill, 1918).—Between Pigeon and Arrow Rivers, about 1½ miles northwest of The Cascades of Pigeon River. The station is on a high bluff, which overlooks the Arrow River Valley to the north and east, and is about one-half mile north of the ridge that parallels Pigeon River. It is on the southeast corner of the top of the bluff, where there is an abrupt slope to the edge of the bluff about 8 meters east of the station.

Station mark: A bronze disk set in the rock.

Spike (Minnesota, Cook County; Jesse Hill, 1918).—On the south side of Pigeon River and the west side of Swamp River, about 300 meters from Swamp River and about 600 meters from the junction of the two rivers. The station is on the highest point of the first high peak on the west side of Swamp River.

Station mark: A bronze disk set in solid rock.

Partridge (Minnesota, Cook County; Jesse Hill, 1918).—On the south side of Pigeon River, about 1 mile west of Partridge Falls. The station is on the summit of the high, timbered bluff 300 meters south of the river.

Station mark: A bronze disk set in solid rock.

Butte (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north side of Pigeon River and in the forks of Pigeon and Arrow Rivers, about 2 miles northwest of the forks. The station is on a high burnt peak with precipitous rocky slopes on all sides but the eastern, which has a moderate slope. The peak is on a straight east-and-west ridge of some extent through which the Arrow River has cut a deep gap.

Station mark: A bronze disk set in solid rock.

Auto (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north side of Pigeon River, about one-half mile north of Little Falls. The station is on the southwest end of the high bluff ridge west-northwest of the sharp bend in the river where the Scott Highway leaves the river.

Station mark: A drill hole in rock.

Mt. Josephine (Minnesota, Cook County; U. S. Lake Survey, 1869; Department of Marine and Fisheries of Canada, 1902; Jesse Hill, 1918).—About 1½ miles northeast of the village of Grand Portage, on the shore of Lake Superior. The station is on the summit of the hill known as Mount Josephine. It is on the eastern side of a bare rock top overlooking Wauswaugoning Bay to the east. The station was first established by the lakes survey in 1869, but no permanent mark was left. It was reestablished in 1902 by W. J. Stewart, a hydrographer for the Dominion Government, Mr. Stewart thinks within 10 feet of the original position. M. J. Graves, of the United States Engineers, occupied it in 1906 and further marked the station.

Station mark: The marks as described by Mr. Graves are: A ⅜-inch brass bolt cemented into the bare rock. The letters "U. S. 1906" are scribed on a cement pat adjoining the bolt on the west. Twenty-eight feet west of the geodetic point a sixtypenny iron spike is set in a cement pat with the point of the spike toward the station. This pat is scribed $\frac{\text{"R M"}}{28.0}$.

W. B. Fairfield occupied the station for the International Boundary Commission in 1908 and reports finding the marks of 1906 intact. Jesse Hill occupied the station for the boundary commission in 1918 and records "a ⅜-inch steel rod set in the rock" as the station mark he found. He also reports finding a triangle cut in the rock 180 feet a little north of west from the station. He says the mark might have been corroded copper, and that he might have mistaken it for steel without careful examination. He did not observe the cement pats and the lettering described in 1906, but did not look for them, as he had no copy of the former description with him. He verified Mr. Fairfield's station by duplicating his angles to distant stations.

Morris (Minnesota, Cook County; Jesse Hill, 1918).—On the south side of Pigeon River, about one-fourth mile up the river from its mouth and about southwest of the Pigeon River Lumber Co.'s old camp buildings, which are on the north side of the mouth of the river. The station is on a small peak which overlooks the river bottom, though the bluff rises to a higher level southeast of the station.

Station mark: A bronze disk set in solid rock.

Between (Ontario, Thunder Bay District; W. B. Fairfield, 1908; 1918).—On the Canadian side of Pigeon Bay of Lake Superior. The station is on the west peak of the range of rocky hills that lies between the north and south arms of Pigeon Bay. It is on the highest point of the peak, which is very rocky and rises to a height of about 60 meters above the lake.

Station mark: A drill hole within a triangle cut in the rock.

West End (Ontario, Thunder Bay District; W. B. Fairfield, 1908).—On the sharp, rocky western peak of the range of hills that extends west from Pine Bay of Lake Superior. The peak is about 1 mile north of the head of North Arm Bay and it shows prominently as the first one from the head of the bay. The summit of the peak is rocky with cliffs on the north and on the south sides. The station is on the solid rock of the highest point of the hill, about 120 meters above the lake level.

Station mark: A drill hole within a triangle cut in the rock.

Danger (Minnesota, Cook County; Jesse Hill, 1918).—On the south side of Pigeon River, about 1 mile southwest of High Falls and about one-half mile northwest of the head of Wauswaugoning Bay of the Lake Superior coast line. The bay is visible from the station. The station is on the highest point of a rock knob about one-fourth mile northeast of a higher peak.

Station mark: A bronze disk set in solid rock.

Mollie (Ontario, Thunder Bay District; W. B. Fairfield, 1908).—About one-half mile northwest of Big Trout Bay of Lake Superior. The station is on the summit of the high, rocky hill known as Mount Mollie. This station had been previously used by some Canadian survey, and the signal was found still standing and used by Mr. Fairfield.

Station mark: No record available.

N. W. Royal (Michigan, Keweenaw County; U. S. Engineers, 1906; W. B. Fairfield, 1908).—On Isle Royal, Lake Superior. The station is on the summit of the narrow ridge along the west shore of the island just north of Washington Harbor. It is reached by a trail leading up from the little bay northeast from an isolated rock, which is about three-fourths mile north of the channel between the mainland and the island just north of the entrance to Washington Harbor. About 27 meters of the ridge summit was cleared. The station is about 4.8 meters from the northeast end of the ridge and about 2.5 meters from the bold north edge of the ridge.

Station mark: A ⅝-inch drift bolt driven into hard pan until its top is 0.5 meter below the surface of the ground. The surface mark is a ⅞-inch steel boiler tube. An 8-inch blazed balsam tree, marked with nails and spikes driven in the blaze in the form of a triangle, bears east 7.9 meters distant from the mark.

Knob (Ontario, Thunder Bay District; U. S. Lake Survey, 1869; Canadian Department of Marine and Fisheries, 1902; U. S. Engineers, 1906; W. B. Fairfield, 1908).—On Lake Superior on Victoria Island, just south of Victoria Cove. The station is on the high knob on the south side of the bare and rocky island. No permanent mark was left in 1869. In 1902 a signal was built and determined to be within 2 feet of the position of 1869. A Canadian penny, placed under the center pole of the signal in 1902, was recovered in 1906, at which time the permanent mark was set.

Station mark: A ⅜-inch brass bolt leaded into the rock.

LAKE OF THE WOODS AND RAINY RIVER, MINOR SCHEMES

Center (Ontario; Kenora District; J. J. McArthur, 1912).—On the highest part of the island between Oak and Cyclone Islands, in Lake of the Woods, about 36 miles northeast of Warroad, Minn., and 35 miles southwest of Kenora, Ontario. Reference monument 33 is about 800 feet south on the same island.

Station mark: Drill hole in rock.

Brush (Minnesota, Lake of the Woods County; J. J. McArthur, 1912).—On the west end of Brush Island, in Lake of the Woods, near Northwest Angle Inlet, about 35 miles southwest of Kenora, Ontario, and the same distance northeast of Warroad, Minn.; on a ledge 10 feet from shore about 300 feet south of the western end of the island. Reference monument 26 is on the northeast end of the same island.

Station mark: Bolt driven at intersection of two crevices.

Mass (Ontario, Kenora District; J. J. McArthur, 1912).—On the highest part of Massacre Island, in Lake of the Woods, about 36 miles northeast of Warroad, Minn., and 36 miles southwest of Kenora, Ontario.

Station mark: Drill hole in rock.

Target (Minnesota, Lake of the Woods County; J. J. McArthur, 1912).—On a small island, in Lake of the Woods, about 31 miles northeast of Warroad, Minn., and 39 miles southwest of Kenora, Ontario, on the highest part of the middle one of three small islands about 1½ miles northwest of Little Oak Island.

Station mark: Drill hole in rock.

Furman (Minnesota, Lake of the Woods County; Jesse Hill, 1914).—On the south bank of Rainy River, at Spooner, Minn., about 300 meters east of the mouth of Baudette River, about 6 meters above and 6 meters back from the water. The station is 2 meters back from the edge of the river bank, in the Spooner lumber-mill yard, about 120 meters west of the steam hoist, and 200 meters east of the mill.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Creamery (Minnesota, Lake of the Woods County; Jesse Hill, 1914).—In Spooner, Minn., on the east bank of the Baudette River, about 8 meters above and 55 meters back from the water. The station is about 17 meters southeast of a red ice-house, 40 meters east of the creamery building, and 210 meters west-southwest of Spooner water tank.

Station mark: A bronze disk set in concrete.

Empress (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about one-half mile west of the town of Rainy River, Ontario, and about 500 meters east of the Canadian National Railway bridge. The station is about 1 meter above and 5 meters back from the water; 2 meters south of the south rail of the railroad; 2 meters east of a switch block; and 80 meters east of the barrel-stave factory.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Emma (Minnesota, Lake of the Woods County; Jesse Hill, 1914).—On the south bank of Rainy River, near Spooner, Minn., about one-half mile east of the mouth of Baudette River. The station is about 6 meters above and 11 meters back from the water, 13 meters north of the northwest corner of a small red building, and 24 meters east of a skidway.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Ashes (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about one-third mile west of the town of Rainy River, Ontario. The station is about 1 meter above and 2 meters back

from the water, 1.5 meters south of the south rail of the railroad, at a point just east of the east switch of the Y and 21 meters east-southeast of a small frame house.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Brooks (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about one-third mile west of the center of the town of Rainy River, Ontario. The station is about 75 meters back from the river's edge, 27 meters east of an old incinerator, and 22 meters north of a small frame building.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Rydberg (Minnesota, Lake of the Woods County; Jesse Hill, 1914).—On the south bank of Rainy River, opposite and about one-third mile downstream from the town of Rainy River, Ontario. The station is about 90 meters south of the river's edge, and about 18 meters south and 1.3 meters west of Rydberg's house.

Station mark: No surface mark. Subsurface mark is a bottle and a ball of wire.

Baraba (Minnesota, Lake of the Woods County; Jesse Hill, 1914).—On the south bank of Rainy River, opposite the town of Rainy River, Ontario. The station is about 8 meters above and 37 meters back from the river, 9 meters west of the line of an old north-and-south fence, and 15 meters west of the line of Fourth Street produced of the town of Rainy River.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Pounder. (See description of reference monument 90.)

Carson (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, in the town of Rainy River, Ontario. The station is about 2 meters west of the center of the north-and-south street passing the school building, 1 meter above and 12 meters back from the river's edge, 8 meters south of the prolongation of the line of the south rail of a bridge, which is 100 meters west of the station.

Station mark: A bronze disk set in concrete.

Bachtel. (See description of reference monument 91.)

Fuzzy (Minnesota, Lake of the Woods County; Jesse Hill, 1914).—On the south bank of Rainy River about 1½ miles east of Spooner, Minn., and about two-thirds mile east of the Rainy River dock. The station is about 5 meters above and 15 meters back from the river, and 13 meters west of the corner of a house.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Phone (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 1 mile east of Fourth Street, Rainy River, Ontario. The station is about 5 meters above and 15 meters back from the river's edge, about 100 meters east of a large slough inlet, 12 meters southeast of a small slough, and 4 meters southeast of a telephone pole.

Station mark: No surface mark. Subsurface mark is a stone and a ball of wire.

Steam (Minnesota, Lake of the Woods County; Jesse Hill, 1914).—On the south bank of Rainy River, about seven-eighths mile above the dock at the foot of Fourth Street, Rainy River, Ontario. The station is opposite the mouth of a wide slough, about 4 meters above and 6 meters back from the river, in front of a house with blue trim, and 21 meters east of a root house.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Crow (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 1¼ miles from the foot of Fourth Street, Rainy River, Ontario. The station is about 5 meters above and 20 meters back from the river's edge, 58 meters east of a fence, on the west side of a slough inlet, and opposite the boom crew's boarding house.

Station mark: A cross cut in a stone. Subsurface mark is a stone and a ball of wire.

Tunnel (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 1½ miles southeast of the town of Rainy River, Ontario. The station is in a hay field, about 14 meters west of a section-line fence and 73 meters south of the fence corner. It is about 4 meters above and 41 meters back from the river's edge.

Station mark: No surface mark. Subsurface mark is a stone and a ball of wire.

Tent (Minnesota, Lake of the Woods County; Jesse Hill, 1914).—On the south bank of Rainy River, about 1¼ miles southeast of the town of Rainy River, Ontario. The station is in a field of stumps, about 80 meters north of a house, and is 5 meters above and 6 meters back from the river's edge.

Station mark: A cross cut in outcropping rock.

Branch (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 1⅝ miles southeast of the town of Rainy River, Ontario. The station is on the edge of a grain field, and is opposite and about 30 meters north of the south end of a long, narrow island. A 20-inch oak bears west-southwest 6 meters distant, and a triple oak bears west-northwest from the station.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Object (Minnesota, Lake of the Woods County; Jesse Hill, 1914).—On the south bank of Rainy River, about 2 miles southeast of the town of Rainy River, Ontario. The station is about 46 meters southeast of a small house, 91 meters north-northeast of a barn, and about 300 meters due east of the northwest corner of section 8, township 160 north, range 30 west. It is 8 meters above and 11 meters back from the river's edge.

Station mark: A bronze disk set in concrete.

Level. (See description of reference monument 95.)

Palm (Minnesota, Lake of the Woods County; Jesse Hill, 1914).—On the south bank of Rainy River, about 2¼ miles southeast of the town of Rainy River, Ontario, opposite a long, narrow island, and between two small streams. The station is about 5 meters above and 9 meters back from the river's edge, and 5 meters north-northwest of a 12-inch oak tree.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Arrow (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 2¼ miles southeast of the town of Rainy River, Ontario. The station is about 46 meters southwest of a house. It is about 1 meter above and 4 meters back from the river's edge, and just behind a pile of rocks. An 18-inch oak tree is about 24 meters east of the station.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Derrick. (See description of reference monument 96.)

Five Roses (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 2½ miles east of the town of Rainy River, Ontario, at Cedar Pole Landing. The station is about 5 meters above and 18 meters back from the river's edge and is 12 meters north of two 14-inch elm trees.

Station mark: A cross cut in outcropping granite.

Stewart (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 2¾ miles east of the town of Rainy River, Ontario, and about 200 meters east of Stewart's house and 280 meters west of the mouth of a creek. The station is about 2 meters above and 6 meters back from the river's edge. A 3-foot bowlder is west-southwest 23 meters distant, and a large rock is southwest 5 meters distant from the station.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Picnic (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 3⅛ miles east of the town of Rainy River, Ontario, 180 meters east of the pier which is near the mouth of a creek. The station is on the edge of the bank, about 1 meter above and 6 meters back from the river's edge. Three piles bear southwest 45 meters from the station.

Station mark: No surface mark. Subsurface mark is a cross cut in a buried granite bowlder.

Roof (Minnesota, Lake of the Woods County; Jesse Hill, 1914).—On the south shore of Rainy River, about 3¼ miles west of Clementson, Minn. The station is about 4 meters south of a trail, 36 meters west of a fence, and 100 meters northwest of a red house. It is about 5 meters above and 12 meters back from the river's edge.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Calf (Minnesota, Lake of the Woods County; Jesse Hill, 1914).—On the south bank of Rainy River, about 3 miles west of Clementson, Minn. The station is southwest of the west end of the lumber company's sorting boom, and is about 12 meters west of the slough. It is about 1 meter above and 4 meters back from the river's edge.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Board (Minnesota, Lake of the Woods County; Jesse Hill, 1914).—On the south bank of Rainy River, about 2½ miles west of Clementson, Minn. The station is in a pasture, about 30 meters west of an old pier and 200 meters west of the lumber company's boarding house at the mouth of Silver Creek. It is about 1 meter above and 4 meters back from the river's edge.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Dean (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 2⅝ miles west of Clementson, Minn. The station is about 14 meters east of Robinson's house and is 3 meters above and 14 meters back from the river's edge.

Station mark: A bronze disk set in concrete.

Company (Minnesota, Lake of the Woods County; Jesse Hill, 1914).—On the south bank of Rainy River, about 2½ miles west of Clementson, Minn. The station is about 75 meters east of the lumber company's boarding house at the mouth of Silver Creek and 30 meters east of a fence.

Station mark: A bronze disk cemented in a granite bowlder.

Walk (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 2⅜ miles west of Clementson, Minn. The station is in a hay field, 30 meters from the river bank and 4 meters above the water. Walk's house bears west-northwest about 125 meters from the station.

Station mark: No surface mark. Subsurface mark is a ball of wire and a cross on a stone. Reference monument 99, an 8-inch manganese-bronze post, is 28.96 meters southwest of the station.

Tassel (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 2 miles west of Clementson, Minn., and about 200 meters east of the mouth of Gormley Creek. The station is on Van Tassel's place, about 14 meters east of a fence, and about 2 meters back from the top of the river bank. It is about 4 meters above and 6 meters back from the river's edge. A white house is due south on the United States shore.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Roberts (Minnesota, Lake of the Woods County; Jesse Hill, 1914).—On the United States shore of Rainy River opposite the mouth of Gormley Creek, about 2 miles west of Clementson, Minn. The station is on the slope of the bank about 3 meters above and 21 meters back from the river's edge. It is about 24 meters north-northwest of a white building and 12 meters due north of a log stable.

Station mark: No surface mark. Subsurface mark is a bottle and a ball of wire.

Ray (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 1⅝ miles west of Clementson, Minn. The station is in a hay field about 3 meters above and 15 meters back from the river's edge, 38 meters east of an old pier and about 100 meters south of a large barn.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Solid. (See description of reference monument 100.)

Buffy. (See description of reference monument 101.)

Lid (Minnesota, Lake of the Woods County; Jesse Hill, 1914).—On the south bank of Rainy River, about 1¼ miles west of Clementson, Minn. The station is in a clearing on the Johnson place, about 3 meters above and 6 meters back from the river's edge and 80 meters east of a fence.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Wilson (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 1 mile west of Clementson, Minn. The station is about 73 meters west of the mouth of a creek and is 3 meters above and 24 meters back from the river's edge. Wilson's house is about 15 meters northeast of the station.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Gus. (See description of reference monument 102.)

Scotch (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about three-fourths mile west of Clementson, Minn. The station is 5 meters south of the edge of a grain field and is about 2 meters above and 21 meters back from the river's edge, on a gentle slope. A house is northeast 100 meters and an old pier is east-southeast 80 meters from the station.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Cane (Minnesota, Lake of the Woods County; Jesse Hill, 1914).—On the south bank of Rainy River, about three-fourths mile west of Clementson, Minn. The station is 6 meters above and 11 meters back from the river's edge, on a narrow ridge between the river and a creek bed to the southeast. It is about 100 meters east of a fence.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Pasture. (See description of reference monument 103.)

Sand (Minnesota, Lake of the Woods County; Jesse Hill, 1914).—On the south bank of Rainy River, about one-fourth mile west of the mouth of Rapid River. The station is opposite the second ice breaker near the boom and is on a slide in the bank, 2 meters above and 4 meters back from the river's edge.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Sutherland (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about one-fourth mile west of the mouth of Rapid River on the opposite side. The station is on the point of a ridge between the river and a swale 6 meters to the west. It is 5 meters above and 5 meters back from the river's edge. A 12-inch birch tree is 3 meters north of the station.

Station mark: A bronze disk set in concrete.

Rapid. (See description of reference monument 104.)

Second (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, opposite the mouth of Rapid River. The station is in a hayfield, 5 meters inside of the fence and 5 meters northwest

by west from a braced post in the fence. It is 11 meters from the edge of the top of the bank and about 45 meters east of Billy Sleeman's house.

Station mark: No surface mark. Subsurface mark is a cross cut in a stone over a ball of wire.

Lucy (Minnesota, Lake of the Woods County; Jesse Hill, 1914).—On the south bank of Rainy River, about one-third mile northeast of the mouth of Rapid River. The station is on a slope about 18 meters south of the top of the bank at a point about 150 meters southwest of the northeast corner of section 12, township 160 north, range 30 west. Lines were cut through the woods to adjacent stations.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Billy (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, opposite and one-fourth mile upriver from the mouth of Rapid River. The station is in a hayfield, property of Billy Sleeman, 4 meters northwest of a fence and 37 meters southwest of the fence corner at a gate. It is 9 meters above the river and 12 meters from the edge of the top of the bank.

Station mark: No surface mark. Subsurface mark is a cross cut in a stone over a ball of wire.

Williams (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River, about three-fourths mile northeast of Clementson, Minn. The station is on the point of a ridge in front of Williams's house and about 280 meters northeast of the intersection of the county line with the river. It is about 6 meters above and 9 meters back from the river's edge. A 24-inch pine tree is 3 meters northwest of the station.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Mill (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about seven-eighths mile northeast of Clementson, Minn. The station is near the section line and in the edge of a field, the property of George Sleeman. It is about 50 meters east of a small creek, 8 meters above and 9 meters back from the river's edge. A 10-inch oak tree is about 5 meters southeast of the station.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Lunch (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River about 1 mile northeast of Clementson, Minn. The station is about 6 meters above and 9 meters back from the river's edge, on the slope of the bank about 1 meter below the top. It is 2 meters north of the ridge between the river and a creek 12 meters wide.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

McCutcheon (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River about 1½ miles northeast of Clementson, Minn. The station is on top of the bank about 9 meters above and 15 meters back from the river's edge. It is about 4 meters east of an old fence and about 35 meters east of McCutcheon's house.

Station mark: A bronze disk set in concrete.

Milne. (See description of reference monument 106.)

Kearney. (See description of reference monument 107.)

Fender (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River about 1¾ miles northeast of Clementson, Minn. The station is 2 meters south of a wire fence, 4 meters above, and 9 meters back from the river's edge. There is a pile of rock 8 meters northwest of the station and Milne's house is 100 meters west.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Pitch (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River about 220 meters west of the mouth of Hanson Creek and about 2 miles east of Clementson, Minn. The station is about 8 meters above and 15 meters back from the river's edge. A small washout is 9 meters east of the station and a house is 100 meters south.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Steffenson (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River about 2⅛ miles east of Clementson, Minn. The station is in a pasture about 80 meters from the river, 100 meters northeast of a house, 23 meters west of a fence corner, and 6 meters south of the top of a ridge.

Station mark: No surface mark. Subsurface mark is a cross cut in a stone over a ball of wire.

Clean (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River about 2½ miles east of Clementson, Minn. The station is in the center of a clearing, on the slope of the bank, about 4 meters above and 6 meters back from the river's edge. The mouth of Bunting Creek, on the opposite side of the river, is about 400 meters northeast of the station.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Broad (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 2½ miles east of Clementson, Minn., and 200 meters west of the mouth of Bunting Creek. The station is on the

summit of a ridge in a hayfield on Armstrong's property, about 75 meters west of a road and 55 meters north of the east-and-west part of the same road.

Station mark: No surface mark. Subsurface mark is a cross cut in a stone over a ball of wire.

Lipkie. (See description of reference monument 109.)

Turnquist (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River about 2⅝ miles east of Clementson, Minn. The station is about 8 meters above and 21 meters back from the river's edge at the east end of a timber landing. It is about 30 meters east of the section line between sections 5 and 6, township 160 north, range 29 west.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Robinson. (See description of reference monument 110.)

Straw (Ontario, Rainy River District; Jesse Hill, 1914).—On the north shore of Rainy River about 3¼ miles east of Clementson, Minn. The station is about 9 meters above and 15 meters back from the river's edge, on a small point of bank opposite the west end of a boom. It is about 300 meters east of the mouth of Budrow Creek.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Horse (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River about 3⅜ miles east of Clementson, Minn. The station is about 9 meters above and 45 meters back from the river's edge. It is about 5 meters south of the southeast corner of a small hewed-log shack.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Trap (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River, about 2 miles west of Central, Minn. The station is about 3 meters above and 3 meters back from the river's edge in the timber. A skidway is about 30 meters west of station and an old log cabin is across the river.

Station mark: No surface mark. Subsurface mark is a bottle and a ball of wire.

Limb (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River, about 1⅝ miles west of Central, Minn. The station is about 1 meter above and 3 meters back from the river's edge on a small, flat projection below a house which is about 45 meters distant.

Station mark: No surface mark. Subsurface mark is a bottle and a ball of wire.

Reef (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River, about 1¼ miles west of Central, Minn. The station is on the point of land on the west side of the entrance to a bay and creek. It is about 1 meter above and 2 meters back from the river's edge.

Station mark: No surface mark. Subsurface mark is a ball of wire.

Smart. (See description of reference monument 113.)

King (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River, about seven-eights mile west of Central, Minn. The station is about 2 meters above and 9 meters back from the river's edge on a little bench, and is about 11 meters east of King's boat landing.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

McGee (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 1¾ miles west of Pinewood, Ontario, and 650 meters west-northwest of Central, Minn. The station is on the slope of the bank about 3 meters above and 8 meters back from the river's edge. It is about 17 meters west of a fence, 11 meters southeast of a 24-inch oak tree, and 11 meters east of 3 12-inch oak trees.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Central (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River, about 9 meters northeast of the corner of the Central (Minn.) post office and store. The station is about 9 meters above the river.

Station mark: A bronze disk set in concrete.

Shade (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 1½ miles west of Pinewood, Ontario, and opposite Central, Minn. The station is about 2 meters above and 6 meters back from the river's edge and about 15 meters west of the mouth of a creek. It is about 5 meters west of a fence.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Colvin (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 1¼ miles west of Pinewood, Ontario. The station is on a bench about 2 meters above and 11 meters back from the river's edge. It is about 8 meters east of a fence corner and 45 meters south by east from Colvin's house.

Station mark: A bronze disk set in concrete.

Bee (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River, about seven-eighths mile southwest of Pinewood, Ontario. The station is about 5 meters above and 18 meters back from the river's edge, on a small ridge between the river and a slough. The slough is about 18 meters east of the station.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Treau (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about seven-eighths mile west of Pinewood, Ontario. The station is on top of the bank about 5 meters above and 8 meters back from the river's edge. There is a swale about 8 meters northeast of the station and an old stump about 12 meters west.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Poisson (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about one-half mile west of Pinewood, Ontario, and about 380 meters west of the mouth of Pine Creek. The station is in a hayfield about 8 meters above and 27 meters back from the river's edge. It is about 14 meters from the south side of the field and a scrub oak, and about 50 meters west of a fence.

Station mark: A cross cut in a rock. Subsurface mark is a ball of wire.

Pargie (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River, about one-half mile southwest of Pinewood, Ontario. The station is about 8 meters above and 30 meters back from the river's edge. It is on the edge of a field about 1 meter west of a fence and 9 meters north of a trail.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Camp (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River in the western part of Pinewood, Ontario. The station is south-southwest of the Roman Catholic Church, about 1 meter south of the church-lot fence and 23 meters east of the southwest corner post.

Station mark: A bronze disk set in concrete.

Fuel (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River opposite and southeast of the mouth of Pine Creek and southwest of the Pinewood (Ontario) Roman Catholic Church. The station is about 6 meters above and 11 meters back from the river's edge, and about 30 meters from the east side of a small clearing.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Pine. (See description of reference monument 116.)

Tank (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 250 meters east of the Pinewood (Ontario) pier. The station is about 2 meters above and 3 meters back from the river's edge. It is about 30 meters west of an old pier, 45 meters southwest of an old cabin, and 75 meters southwest of a barn.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Stoltze (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River, about one-third mile south-southeast of Pinewood, Ontario. The station is on the edge of a bank, about 8 meters above and 45 meters back from the river's edge. It is about 45 meters northwest of a house and about 40 meters east of the road on the range line between ranges 28 and 29.

Station mark: A bronze disk set in concrete.

Bend (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about one-half mile east of Pinewood, Ontario, and about 300 meters east of a small creek. The station is about 2 meters above and 3 meters back from the river's edge, behind the old piling of a pier.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

John. (See description of reference monument 117.)

Gilson (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about three-fourths mile east of Pinewood, Ontario. The station is about 5 meters above and 11 meters back from the river's edge, and is about 1.5 meters from the corner of a fence and 12 meters from an old slide in the bank. Gilson's house is about 18 meters east of the station.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Flynn (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River, about seven-eighths mile east of Pinewood, Ontario. The station is on the top of the river bank at the north side of an old road, about 12 meters above and about 45 meters back from the edge of the river. Flynn's house is about 50 meters west of the station.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Terrace (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 1⅜ miles east of Pinewood, Ontario. The station is about 8 meters above and 17 meters back from the river and about 40 meters west of an old building.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Trail (Minnesota, Koochiching County; Jesse Hill, 1914).—On the United States shore of Rainy River, about 1½ miles southeast of Pinewood, Ontario, and one-fourth mile east of Border, Minn. The station is on a trail, at the top of the bank, about 9 meters above and 24 meters back from the river's edge. The station is about 9 meters south of the center of an east-and-west road.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Kerosene (Minnesota, Koochiching County; Jesse Hill, 1914).—On the United States shore of Rainy River, about 1⅞ miles southeast of Pinewood, Ontario. The station is on a low wooded flat about one-third meter above and 5 meters back form the river's edge. It is nearly due south of Snyder's barn on the opposite side of the river.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Norland (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 1¾ miles southeast of Pinewood, Ontario. The station is in a hayfield, about 1 meter inside a fence, 8 meters north of the top edge of the river bank, and 35 meters east of another fence.

Station mark: A bronze disk set in concrete.

Albert (Minnesota, Koochiching County; Jesse Hill, 1914).—On the United States shore of Rainy River, about 2 miles southeast of Pinewood, Ontario. The station is about two-thirds meter above and 5 meters back from the river's edge, and west of a timbered point north of Kavanagh's house.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Birch (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 2⅛ miles southeast of Pinewood, Ontario. The station is on a slope of the bank, about 2 meters above and 3 meters back from the river's edge. It is opposite Kavanagh's Point.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Kavanagh (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River, about 1⅞ miles north of the Frontier (Minn.) school. The station is about 12 meters above and 18 meters back from the river's edge. It is about 150 meters south-southeast of Kavanagh's house.

Station mark: A bronze disk set in concrete. Subsurface mark is a buried bottle.

Craigen. (See description of reference monument 122.)

Trulson (Minnesota; Koochiching County; Jesse Hill, 1914).—On the west bank of Rainy River, about 1⅜ miles north of the Frontier (Minn.) schoolhouse. The station is in the brush near the top of the bank, about 11 meters above and 23 meters back from the river's edge. It is about 20 meters north of the edge of some cleared land.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Hart (Ontario, Rainy River District; Jesse Hill, 1914).—On the east bank of Rainy River, about 1⅜ miles north of the Frontier (Minn.) schoolhouse. The station is in a pasture about 15 meters east of the edge of the bank and is about 6 meters above and 24 meters back from the river's edge. Lockhart's house is about 175 meters south of the station.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Lock (Ontario, Rainy River District; Jesse Hill, 1914).—On the east bank of Rainy River, about 1¼ miles north of the Frontier (Minn.) schoolhouse and about 400 meters north of the mouth of Clement Creek. The station is in front of Lockhart's house, about 2 meters south of the line of the south side of the house and 11 meters from its southwest corner. It is about 5 meters above and 6 meters back from the river's edge.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Pearson. (See description of reference monument 124.)

End (Minnesota, Koochiching County; Jesse Hill, 1914).—On the west bank of Rainy River, about 1 mile north of the Frontier (Minn.) schoolhouse and opposite Pearson's house on the Canadian side. The station is about 8 meters north of a trail up the ridge, and is on a bench about 4 meters above and 9 meters back from the river's edge.

Station mark: A bronze disk set in concrete.

Window (Minnesota, Koochiching County; Jesse Hill, 1914).—On the west bank of Rainy River, about two-thirds mile north of the Frontier (Minn.) schoolhouse. The station is near the edge of a field, about 5 meters above and 6 meters back from the river's edge. It is about 30 meters south of a fence in a swale.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Earl (Ontario, Rainy River District; Jesse Hill, 1914).—On the east bank of Rainy River, about three-eighths mile northeast of the Frontier (Minn.) schoolhouse. The station is on a low bench about 2 meters above and 8 meters back from the river's edge. An old log cabin is south-southeast about 40 meters from the station and a large barn bears southeast about 90 meters distant.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Leave (Minnesota, Koochiching County; Jesse Hill, 1914).—On the west bank of Rainy River, about one-half mile north of the Frontier (Minn.) schoolhouse. The station is on a slope of the bank about 5 meters above and 9 meters back from the river's edge. A large barn across the river bears southeast from the station.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Loyd (Minnesota, Koochiching County; Jesse Hill, 1914).—On the west bank of Rainy River, about one-fourth mile northeast of the Frontier (Minn.) schoolhouse. The station is on a slope of the bank about 1 meter above and 6 meters back from the river's edge. An 18-inch oak tree is about 3 meters east of the station.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Raft (Ontario, Rainy River District; Jesse Hill, 1914).—On the east bank about one-fourth mile east by north of the Frontier (Minn.) schoolhouse. The station is on a bench about 6 meters above and 9 meters back from the river's edge. It is about 40 meters north of an old pier.

Station mark: A bronze disk set in concrete.

Cut. (See description of reference monument 126).

Wave (Ontario, Rainy River District; Jesse Hill, 1914).—On the east bank of Rainy River, about three-eighths mile southeast of the Frontier (Minn.) schoolhouse. The station is about 40 meters south of a swampy lake and is on a slope of the bank about 6 meters above and 18 meters back from the water's edge. There is an old log house about 20 meters east of the station and a barn about 30 meters to the south.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Bark (Minnesota, Koochiching County; Jesse Hill, 1914).—On the west bank of Rainy River, about five-eighths mile north of the Frontier (Minn.) store. The station is about 80 meters north of a fence and about 6 meters east of a north-and-south road. It is about 8 meters above and 11 meters back from the river's edge.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Malone (Minnesota, Koochiching County; Jesse Hill, 1914).—On the west bank of Rainy River, about one-half mile north of the Frontier (Minn.) store. The station is about 125 meters north of the mouth of Whitefish Creek, in a hayfield on Malone's place. It is about 6 meters from the top of the bank and 7 meters above the river's edge.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Arnold (Ontario, Rainy River District; Jesse Hill, 1914).—On the east bank of Rainy River, about three-eighths mile north of the Frontier (Minn.) store. The station is in a hayfield, about 8 meters east of the top of the bank. It is about 50 meters north of Arnold's house and about 15 meters north of a small creek.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Vacant (Ontario, Rainy River District; Jesse Hill, 1914).—On the east bank of Rainy River, about one-fourth mile northeast of the Frontier (Minn.) store. The station is on the edge of a hayfield about 8 meters above and 12 meters back from the river's edge. An old barn bears south by east about 40 meters from the station.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Slough (Ontario, Rainy River District; Jesse Hill, 1914).—On the east bank of Rainy River, about one-fourth mile east of the Frontier (Minn.) store. The station is on the low grassy bank about 1 meter above and 2 meters back from the river's edge.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Spruce (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River, about one-third mile southeast of the Frontier (Minn.) store. The station is on the west side of the top of a round bench about 5 meters above and 6 meters back from the river's edge.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Son (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River, about three-fourths mile southeast of the Frontier (Minn.) store and about 90 meters east of the mouth of a small creek. The station is on a low bench about 2 meters above and 6 meters back from the river's edge.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Hugh (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about three-fifths mile east of the Frontier (Minn.) store. The station is near the south edge of a grainfield, about 30 meters from its east end. It is about 3 meters above and 5 meters back from the river's edge.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Meadow. (See description of reference monument 132.)

Clear. (See description of reference monument 133.)

Arbor (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 1⅝ miles east of the Frontier (Minn.) store. The station is on a point between the river and a creek, about 30 meters east of the creek. It is about 8 meters above and 12 meters back from the river's edge.

Station mark: A bronze disk set in concrete.

Tie (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River, about 1¾ miles east of the Frontier (Minn.) store. The station is on a bluff about 15 meters above and 24 meters back from the river's edge, and about 50 meters east of the mouth of a creek.

Station mark: A bronze disk set in concrete.

Nose (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 1⅞ miles east of the Frontier (Minn.) store. The station is on the east end of a small ridge, about 5 meters above, and 11 meters back from the river's edge. A 20-inch oak tree is about 8 meters south of the station.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Snag (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River, about 2 miles east of the Frontier (Minn.) store. The station is on the first bench of the bank about 6 meters above and 15 meters back from the river's edge. An old barn is about 200 meters east of the station.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Hay (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 2⅛ miles east of the Frontier (Minn.) store and just east of a section line. The station is about 8 meters above and 24 meters back from the river's edge, and is about 5 meters from the top of the slope. An old large barn is nearly due south, across the river from the station.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Blossom (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River, about 2⅜ miles east of the Frontier (Minn.) store. The station is on a low bench about 2 meters above and 6 meters back from the river's edge. An old large barn bears west by south about 200 meters from the station.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Cameron (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 1⅜ miles west of the Boucherville (Ontario) post office. The station is on a slope of the bank about 5 meters above and 6 meters back from the river's edge, and about 3 meters below a pile of rock. Cameron's house bears east-northeast about 90 meters from the station.

Station mark: A bronze disk set in concrete.

Blank (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River, about 1¼ miles west of the Boucherville (Ontario) post office. The station is about 8 meters above and 18 meters back from the river's edge and about 50 meters east of a section line. Cameron's house bears north-northwest across the river from the station.

Station mark: A bronze disk set in concrete.

Joe (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about seven-eighths mile west of the Boucherville (Ontario) post office. The station is on a small bench about 3 meters square, about 3 meters above, and 4 meters back from the river's edge.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Weed (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River, about 1 mile west of the Boucherville (Ontario) post office and about 200 meters west of the mouth of McCloud Creek. The station is on the top of a slope about 9 meters above and 21 meters back from the river's edge. A house is about 140 meters east of the station.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Fire (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River, about threes fourths mile west of the Boucherville (Ontario) post office. The station is about 8 meters above and 11 meter-back from the river's edge, and about 15 meters west of a small creek.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Farm (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about five-eighths mile west of the Boucherville (Ontario) post office. The station is on a bench about 2 meters above and 5 meters back from the river's edge. An old farm-implement shed is about 12 meters east of the station.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Brindle (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River, about one-half mile west of the Boucherville (Ontario) post office. The station is about 9 meters above and 18 meters back from the river's edge and about 200 meters west of Brindle's house.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Mullen (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 500 meters west of the Boucherville (Ontario) post office. The station is about 1 meter above and 2 meters back from the river's edge, and about 6 meters west of a small creek.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Bilyew. (See description of reference monument 137.)

Vipont (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 175 meters east of the Boucherville (Ontario) post office, which is Vipont's house. The station is on a bench about 3 meters above and 5 meters back from the river's edge. It is about 8 meters west of a small gulch.

Station mark: A bronze disk set in concrete.

Charlie (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River, opposite Boucherville, Ontario, and about 30 meters east of Charlie Kennedy's store. The station is about 11 meters above and 18 meters back from the river's edge.

Station mark: A bronze disk set in concrete.

Bare (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River, about three-eighths mile southwest of the Boucherville (Ontario) post office. The station is about 2 meters above and 3 meters back from the river's edge and is in a swale in the bank.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Del. (See description of reference monument 138.)

Muldoon (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about one-half mile east of the Boucherville (Ontario) post office and about one-fourth mile west of an island. The station is at the base of an 8-meter bank and south of a small cabin belonging to Mr. Muldoon. It is about 2 meters above and 2 meters back from the river's edge.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Oster (Ontario, Rainy River District; Jesse Hill, 1914).—On the south side near the west end of an island in Rainy River, about two-thirds mile east of the Boucherville (Ontario) post office. The station is about one-third meter above and 2 meters back from the river's edge, between a willow and an oak tree.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Obil (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River, about 1⅝ miles west of Birchdale Landing, Minn. The station is a little west of a rounded point and about 15 meters west of a fence running to the river. McLoud's house bears north by west across the river from the station.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Isle (Ontario, Rainy River District; Jesse Hill, 1914).—On a sandy projection on the west end of a large island in Rainy River, about 1 mile east of the Boucherville (Ontario) post office. The station is about one-third meter above the water.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire. Reference monument 140 is 39.79 meters east of the station.

McLoud (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 1¾ miles west of Birchdale Landing, Minn., and about one-fourth mile east of the east end of a large island in the river. It is on a low bank about 2 meters above and 2 meters back from the river's edge. McLoud's house is about 150 meters northeast of the station.

Station mark: A bronze disk set in concrete.

Boy (Ontario, Rainy River District; Jesse Hill, 1914).—On the north bank of Rainy River, about 1⅜ miles west of Birchdale Landing, Minn., and about one-half mile east of a large island in the river. The station is on the Indian reserve about 150 meters east of the southwest corner.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Curve. (See description of reference monument 141.)

Peal (Minnesota, Koochiching County; Jesse Hill, 1914).—On the south bank of Rainy River, about 1 mile west of Birchdale Landing, Minn. The station is at a cedar-pole landing about 70 meters west of the line between sections 32 and 33, township 160 north, range 27 west, about 1 meter above and 2 meters back from the river's edge.

Station mark: A cross cut in a stone. Subsurface mark is a ball of wire.

Storm. (See description of reference monument 142.)

Break. (See description of reference monument 143.)

Nito (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about one-half mile west of Birchdale Landing, Minn., and about 70 meters west of the mouth of a small creek. The station is at the edge of a clearing, about 2 meters above and 3 meters back from the river's edge. A house occupied by an Indian named Nito is about 275 meters distant from the station.

Station mark: A bronze disk set in concrete.

Howard. (See description of reference monument 144.)

Birchdale West Base (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River 253 meters west of the northwest corner of the old Birchdale (Minn.) post office. The station is about 3 meters from the river's edge and about 3 meters from several ash trees.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in a concrete post 1 foot square.

Parson. (See description of reference monument 145.)

Birchdale East Base (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about 2 meters north of the northwest corner of the old Birchdale (Minn.) post office and about 6 meters from the river's edge.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in concrete.

Tar (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about one-half mile east of Birchdale Landing, Minn., and just opposite the west end of a wooded island. The station is about 3 meters above and 5 meters back from the river's edge and about 2 meters from a fence line. It is about 60 meters southwest of an Indian house covered with tar paper.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Cave. (See description of reference monument 146.)

Spawn (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about four-fifths mile east of Birchdale Landing, Minn. The station is on a projecting point of the shore line on a large rock, about 3 meters from the river's edge. It is about 15 meters east of a fish house and 9 meters from a breakwater.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" cemented in the rock.

Lean. (See description of reference monument 148.)

Rough (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about 1½ miles east of Birchdale Landing, Minn., and about one-half mile below the head of Long Sault Rapids. The station is on a projecting point of a rocky bluff about 8 meters above the water.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" cemented in the rock.

Cochran (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about 1⅜ miles east of Birchdale Landing, Minn. The station is on a rocky point about 180 meters west of the west end of an island about 140 meters long near the United States shore.

Station mark: A cross cut in the rock.

Tom. (See description of reference monument 150.)

Muck. (See description of reference monument 152.)

Right. (See description of reference monument 153.)

Left. (See description of reference monument 154.)

Cat. (See description of reference monument 156.)

Dog. (See description of reference monument 155.)

Colt. (See description of reference monument 157.)

Frame (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about one-half mile east of the head of Long Sault Rapids. The station is on a small, low, prominent rocky point, just above high-water mark.

Station mark: A cross cut in a rock.

Rod (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about three-fourths mile east of the head of Long Sault Rapids and about 60 meters west of the mouth of Sturgeon River. A leaning ash tree is about 9 meters east of the station.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Ogren. (See description of reference monument 158.)

Plumb. (See description of reference monument 159.)

Olsen. (See description of reference monument 160.)

Gun (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about 1⅓ miles east of the head of Long Sault Rapids. The station is near high-water mark on one of several large rocks imbedded in the sand.

Station mark: A cross cut in the rock.

Pistol. (See description of reference monument 161.)

Muir (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about 2 miles east of the head of Long Sault Rapids and 1½ miles west of Barwick, Ontario. The station is about 2 meters northeast of a frame house owned by William Muir. It is about 6 meters above the water.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Square. (See description of reference monument 162.)

Dan (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about 1 mile west of Barwick, Ontario. The station is across the river from D. Smith's house and is about one-half meter above the water level.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Westover (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about three-fourths mile west of Barwick, Ontario, in a field on the farm of W. J. Westover about 140 meters west of his house. The station is about 6 meters above the water and about 2 meters from a field fence, near a gate.

Station mark: A cross cut in a solid rock.

Hansen. (See description of reference monument 163.)

Hartley. (See description of reference monument 164.)

Rondo (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about one-half mile west of the Manitou (Minn.) post office, and opposite the west end of a long sandy island. The station is at the edge of the woods, about 1 meter above high-water mark and about 28 meters east of the section-line road.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Watts. (See description of reference monument 166.)

Office. (See description of reference monument 165.)

Bat (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about 300 meters east of the Manitou (Minn.) post office. The station is near high-water mark.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Feron (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about five-eighths mile east of Barwick, Ontario. The station is on the upper bank of the river, next to a field, and about 7 meters above the water.

Station mark: A cross cut in a stone.

Wick. (See description of reference monument 167.)

Bar (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about three-fourths mile east of Barwick, Ontario. The station is on the property of Mr. Feron, near a field fence, and about 100 meters east of his house. It is about 2 meters above the water.

Station mark: A cross cut in solid granite rock.

Fern (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about 1⅛ miles east of Barwick, Ontario. The station is in the edge of the brush and about 45 meters south from a log house. It is near high-water level.

Station mark: A cross cut in a granite outcrop, near a larger black rock. Reference monument 168, an 8-inch manganese-bronze post, is 39.44 meters northeast of the station.

Bow (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about 1 mile east of the Manitou (Minn.) post office. The station is in the brush and burnt timber and about 2 meters above the water. A log house on the Canadian shore is opposite the station.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in concrete.

Lock (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about 1 mile east of the Manitou (Minn.) post office. The station is at high-water mark and will probably be lost during a high stage of the river.

Station mark: A cross cut in a stone. Subsurface mark is a bottle. Reference monument 169, an 8-inch manganese-bronze post set in concrete, is 34.37 meters south of the station.

Beaver (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about 1½ miles east of Barwick, Ontario, and about 150 meters east of the mouth of Sims Creek. The station is at the edge of the timber and about 2 meters above high-water mark.

Station mark: A cross cut in a stone. Subsurface mark is a bottle. Reference monument 170, an 8-inch manganese-bronze post set in concrete, is 20.12 meters north of the station.

Know (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about 1⅜ miles east of the Manitou (Minn.) post office and about 325 meters east of the mouth of Burton Creek. The station is nearly on a level with the water, at a place where the river bank is steep. There is a log roll near the station.

Station mark: A cross cut in a stone. Subsurface mark is a bottle. Reference monument 171, an 8-inch manganese-bronze post set in a concrete base, is 31.96 meters southwest of the station.

Stimson (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about 1¾ miles east of Barwick, Minn., and about 425 meters east of the mouth of Sims Creek. The station is on the property of Mr. Stimson, about 120 meters west of his house. It is on a slope about 1 meter above the water.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in concrete.

Woodward (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about 1 mile west of Manitou Rapids. The station is on a sandy stretch of the shore and about 45 meters from a clearing on the property of Mr. Woodward.

Station mark: A cross cut in a stone.

Lewis. (See description of reference monument 173.)

Paddle (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about three-eighths mile west of Manitou Rapids. The station is on a grassy flat about two-thirds meter above the water.

Station mark: A cross cut in a large flat-topped rock.

Over. (See description of reference monument 175.)

Canoe. (See description of reference monument 176.)

Mound (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, overlooking Manitou Rapids and an Indian village. The station is on top of an old Indian mound.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Rapid. (See description of reference monument 177.)

McGauley (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about five-eighths mile east of Manitou Rapids. The station is on a flat covered by water at flood stages, on the property of Mr. McGauley and about 15 meters east of a fence.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Hunt (Ontario, Rainy River District; E. R. Martin, 1913) —On the north shore of Rainy River, about three-fourths mile east of Manitou Rapids. The station is at the river's edge near high-water mark.

Station mark: A cross cut in a round-topped rock.

Flat. (See description of reference monument 179.)

Donovan (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about 1 mile east of Manitou Rapids, about 1½ miles west of the Indus (Minn.) school, and opposite a long narrow island lying near the shore. The station is on the property of Mr. Donavan, at the edge of a field, about 8 meters above and 30 meters back from the river's edge. The ruins of an old sawmill are just east of the station and a new sawmill is about one-eighth mile west. A fence is about 18 meters west of the station.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Lang (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about 1⅜ miles east of Manitou Rapids and about 1 mile west of the Indus (Minn.) school. The station is on the property of George Lang, about 50 meters east of the section line between sections 5 and 6, township 160 north, range 25 west, and just above high-water mark.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Spring. (See description of reference monument 180.)

Yellow (Ontario, Rainy River District; E. R. Martin, 1913).—On the Canadian shore of Rainy River, about seventh-eighths mile west of the Indus (Minn.) school and about 200 meters west of the southeast corner of the Indian reservation. The station is near the water's edge.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

George. (See description of reference monument 181.)

Shut (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about three-eighths mile northwest of the Indus (Minn.) school. The station is in front of Benjamin Wilcox's house, near high-water mark, and about 10 meters from a very large rock.

Station mark: A cross cut in a flat rock nearly level with the ground. Reference monument 182, an 8-inch manganese-bronze post set in a concrete base, is 30.70 meters north of the station.

Steel (Minnesota, Koochiching County; E. R. Martin, 1913.)—On the south bank of Rainy River, about 550 meters west of the Indus (Minn.) school and about 270 meters east of the mouth of a small creek. The station is near the river's edge.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Sunder. (See description of reference monument 183.)

Rail (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about 450 meters northeast of the Indus (Minn.) school and about one-half mile west of the mouth of Rice's Creek. The station is near the river's edge and about 45 meters east of a fence line.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in a large rock.

Thompson (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about five-eighths mile west of the hotel in Emo, Ontario, and about one-fourth mile west of a sawmill owned by W. J. Thompson. The station is near the river's edge and is about 120 meters west of the mouth of Rice Creek.

Station mark: A cross cut in a round-topped rock.

Ash (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about one-half mile west of the Indus (Minn.) store. The station is opposite the sawmill of W. J. Thompson and is near the northeast corner of a clearing in front of Alex Snyder's house.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Emo West Base (Ontario, Rainy River District; E. R. Martin, 1913; 1925).—On the north shore of Rainy River in the western part of Emo, Ontario. The station is about 10 meters above the water, back of the Canadian National Railways pump house. It is distant from the pump house 17.68 meters from the northeast corner, 14.70 meters from the northwest corner, and 18.35 meters from the southwest corner.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" cemented in the rock. Reference monument 184, an 8-inch manganese-bronze post set in concrete, is 1.49 meters southwest of the station.

Land (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about one-half mile west of the Indus (Minn.) store. The station is on a sand bank opposite the pump house of the Canadian National Railways.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Emo East Base (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, on the main street of Emo, Ontario, near the post office. The station is 30 meters from the southwest corner of the post office, 21.77 meters from the southeast corner of the adjoining building, and 20.05 meters from the southeast corner of the adjacent building.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in a rock nearly level with the ground.

Crook. (See description of reference monument 186.)

Boucher. (See description of reference monument 187.)

Shanks (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about 90 meters southeast of the Indus (Minn.) wharf.

Station mark: A cross cut in a rock ledge near the water's edge.

Durand (Minnesota, Koochiching County; E. R. Martin; 1913).—On a small island in Rainy River near the west shore and about five-eighths mile southeast of Indus, Minn. The station is on the northeastern part of the island, on the property of John Durand. It is just above the water and about 5 meters southwest of a large flat rock.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Extra (Ontario, Rainy River District; E. R. Martin, 1913; 1918).—On the east bank of Rainy River about 1½ miles downstream from the Emo (Ontario) hotel. The station is near the shore line on the property of Thomas Shortrede about 90 meters northwest of his house.

Station mark: A bottle buried in the ground with a rock marked with a cross placed over it.

Vega. (See description of reference monument 189.)

Shortrede (Ontario, Rainy River District; E. R. Martin, 1913).—On the east bank of Rainy River, about 1½ miles downstream from Emo, Ontario. The station is on the bank below high-water mark, and is a little upstream from Smoot Island. It is on the property of Thomas Shortrede.

Station mark: A bottle buried in the ground and a rock, marked with a cross, placed over it.

Steer (Ontario, Rainy River District; E. R. Martin, 1913).—On the east bank of Rainy River, about 2 miles below the Emo (Ontario) hotel, about three-fourths mile south of Smoot Island, and about three-fourths mile north of Conmee Island. The station is on a grassy slope on the property of Alex Luttrell, about 4 meters above the river.

Station mark: A cross cut in a stone. Subsurface mark is a bottle

McComb. (See description of reference monument 190.)

Boat. (See description of reference monument 191.)

Taylor (Minnesota, Koochiching County; E. R. Martin, 1913).—On the west bank of Rainy River, about 2¾ miles south of the Emo (Ontario) hotel and opposite the north end of Conmee Island. The station is about 40 meters north of the mouth of a small stream on the property of Mr. Taylor, near the river's edge, and is submerged at high water.

Station mark: A cross cut in a stone measuring about 0.6 by 1 meter in cross section.

Brown (Ontario, Rainy River District; E. R. Martin, 1913).—On the east bank of Rainy River, about 2¾ miles south of the Emo (Ontario) hotel and opposite the north end of Conmee Island. The station is on a hillside on the property of Frank Brown. It is about 6 meters above and 18 meters back from the river's edge.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Dock (Ontario, Rainy River District; E. R. Martin, 1913).—On the east bank of Rainy River, about 3½ miles south of the Emo (Ontario) store and about one-fourth mile south of the south end of Conmee Island. The station is below high-water mark and on the property of Mr. Redden.

Station mark: A cross cut in a granite rock about 1 by 0.6 by 0.5 meter in size.

Green (Minnesota, Koochiching County; E. R. Martin, 1913).—On the west bank of Rainy River, about 3⅝ miles south of the Emo (Ontario) hotel and about 530 meters south of the south end of Conmee Island. The station is about 1 meter above and 2 meters back from the river's edge, on the property of Mr. Morceau. It is about 150 meters south of the mouth of a small stream.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in a concrete block 1 foot square.

Cow (Minnesota, Koochiching County; E. R. Martin, 1913).—On the west bank of Rainy River, about 4 miles south of the Emo (Ontario) hotel and about three-fourths mile south of the south end of Conmee Island. The station is about 9 meters above and 30 meters back from the river's edge, on top of the bank at the northeast corner of a clearing.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Uncle. (See description of reference monument 194.)

Paul (Minnesota, Koochiching County; E. R. Martin, 1913).—On the United States shore of Rainy River, about 4½ miles south of the Emo (Ontario) hotel. The station is near the top of the river bank, about 9 meters above and 30 meters back from the river's edge. It is in a cultivated field, the property of Mr. Morceau, and near the end of the east-and-west section-line road between sections 23 and 26.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Francois. (See description of reference monument 195.)

Edge (Ontario, Rainy River District; E. R. Martin, 1913).—On the east bank of Rainy River, about 1 mile north of the Aylesworth (Ontario) post office. The station is at the river's edge, about opposite a rock in the middle of the river and about 120 meters north of a section line.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Hard (Minnesota, Koochiching County; E. R. Martin, 1913).—On the west bank of Rainy River, about three-fourths mile north of the Aylesworth (Ontario) post office. The station is near the river's edge, about 300 meters north of the south line of section 26.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Swan. (See description of reference monument 197.)

Leaf (Minnesota, Koochiching County; E. R. Martin, 1913).—On the west bank of Rainy River, about one-eighth mile south of the Aylesworth (Ontario) post office and about 60 meters south of the mouth of a small stream. The station is near the river's edge.

Station mark: A cross cut in a stone.

Linquist. (See description of reference monument 198.)

Red (Minnesota, Koochiching County; E. R. Martin, 1913).—On the west shore of Rainy River, about one-fourth mile south of the Aylesworth (Ontario) post office. The station is at the river's edge, below high-water mark, on the property of Mr. Degraw. It is about 175 meters south of the mouth of a small stream and about 250 meters north of the line between townships 158 and 159 north.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Luttrell (Ontario, Rainy River District; E. R. Martin, 1913).—On the east bank of Rainy River, about three-eighth mile south of the Aylesworth (Ontario) post office and about 100 meters north of the mouth of a small stream. The station is on the edge of a bank about 7 meters above and 40 meters back from the river's edge, in a meadow. A large jack pine tree is about 90 meters south of the station.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in a concrete block about 1 foot square.

Degraw. (See description of reference monument 199.)

Tree (Ontario, Rainy River District; E. R. Martin, 1913).—On the east bank of Rainy River, about one-half mile north of the Loman (Minn.) school. The station is about 2 meters above the river, on the property of H. W. Ogden, and southwest of a small house.

Station mark: A cross cut in a flat stone. Subsurface mark is a bottle.

Kennedy (Minnesota, Koochiching County; E. R. Martin, 1913).—On the west bank of Rainy River, about three-eighths mile north of the Loman (Minn.) school. The station is about 3 meters above the river, on F. W. Kennedy's property.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in concrete.

Tip. (See description of reference monument 200.)

School. (See description of reference monument 201.)

Pass (Ontario, Rainy River District; E. R. Martin, 1913).—On the east bank of Rainy River, opposite the Loman (Minn.) school. The station is about 8 meters above and 30 meters back from the river's edge on a high bank on the property of H. J. Ogden.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

McIntosh. (See description of reference monument 202.)

Ogden (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about three-fourths mile northwest of the mouth of Black River, at Loman, Minn. The station is about 250 meters southeast of Mr. Ogden's house and about 70 meters west of the edge of the woods. It is about 8 meters above and 15 meters back from the river's edge.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in concrete.

Shore. (See description of reference monument 203.)

Mistake (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, opposite and slightly west of the hoisting plant at Loman Station, Minn. The station is about 30 meters southeast of an old log house and near a path parallel to the river. It is about 5 meters above the river.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Metcalf. (See description of reference monument 204.)

Tepee. (See description of reference monument 205.)

Armstrong. (See description of reference monument 206.)

Simp. (See description of reference monument 207.)

Lumber (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about 1¼ miles east of the mouth of Black River, at Loman, Minn., and opposite the lower part of Watrous Island. The station is on lot 17, River Range, and at the river's edge below high-water mark.

Station mark: A cross cut in a flat rock. Subsurface mark is a bottle.

Lamb (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about 1¾ miles east of the mouth of Black River, at Loman, Minn. The station is about 7 meters above the river and

about 5 meters north of the top of the bank. It is about 90 meters west of the line between lots 14 and 15, River Range, and about 20 meters southwest of a house.

Station mark: A cross cut in a rock about 1 foot square.

Field (Minnesota, Koochiching County; E. R. Martin, 1913).—On Watrous Island, in Rainy River, about 1¾ miles east of the mouth of Black River, at Loman, Minn. The station is about 270 meters west of the eastern end of the island, about 1 meter from the edge of the bank and 3 meters above high-water mark.

Station mark: A cross cut in a flat stone.

Clark. (See description of reference monument 208.)

Main (Minnesota, Koochiching County; E. R. Martin, 1913).—In the southern part of the channel of Rainy River, about 1½ miles west of the mouth of Big Fork River. The station is on the most eastern of four piers in the river, on a 50-pound stone placed about 1 meter from the northwest corner.

Station mark: A cross cut in the stone.

Slope (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about three-fourths mile west of the mouth of Big Fork River. The station is about halfway up the river bank, about 4 meters above the water. It is about 30 meters west of the line between lots 7 and 8, River Range, on the property of Mr. Aylesworth.

Station mark: A cross cut on a reddish stone about the size of a loaf of bread.

High. (See description of reference monument 209.)

Sand (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, on the point at the east side of the mouth of Big Fork River. The station is below high-water mark, on a round stone about 7 inches in diameter—the only stone found on the point.

Station mark: A cross cut in the stone.

Fence. (See description of reference monument 210.)

Vine (Ontario, Rainy River District; E. R. Martin, 1913; 1926).—On the north bank of Rainy River, about three-fourths mile east of the mouth of Big Fork River, opposite and about 100 meters upstream from the dock at Laurel, Minn. The station is about 6 meters above and 20 meters back from the river's edge and about 3 meters south of a fence

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in a concrete block about 1 foot square.

Fred. (See description of reference monument 213.)

Henry (Ontario, Rainy River District; E. R. Martin, 1913; 1926).—On the north bank of Rainy River, about three-fourths mile west of Big Fork, Ontario. The station is on the property of Alex Henry, about 50 meters west of his house and just outside his field fence. It is about 8 meters above and 20 meters back from the river's edge.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in a concrete block about 1 foot square.

Bull (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about one-half mile west of Big Fork, Ontario, and about 1 mile east of the Laurel (Minn.) wharf. The station is at the edge of the timber, just above high-water mark.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Hotel, 1913 (Ontario, Rainy River District; E. R. Martin, 1913).—On the Canadian shore of Rainy River in the town of Big Fork, Ontario. The station is on top of the hotel owned by Patrick O'Connell.

Station mark: The top of the flagpole on the roof.

Anderson (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, across from Big Fork, Ontario. The station is on a high bank about 9 meters above and 20 meters back from the river's edge. A black poplar tree is about 1 meter northwest of the station.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Spencer. (See description of reference monument 215.)

Mac (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about three-fourths mile east of Big Fork, Ontario. The station is on the property of Thomas McKinstry, about 65 meters northeast of his house. It is about 4 meters above the water.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Burnt. (See description of reference monument 216.)

Frasier (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about 1¼ miles east of Big Fork, Ontario, and about 150 meters east of a north-and-south section-line road. The station is in a field on the property of Duncan Frazier, about 50 meters east of an old wharf. It is about 1 meter above and 10 meters back from the river's edge.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Law (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about 1½ miles east of Big Fork, Ontario, about one-half mile southwest of the mouth of La Vallee River, and about 130 meters southwest of the mouth of a small creek. The station is about 2 meters above and 6 meters back from the river's edge.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in concrete.

Dun. (See description of reference monument 217.)

Plain. (See description of reference monument 218.)

Walton (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about 320 meters northeast of the mouth of La Vallee River. The station is on the property of Mr. Walton, at the south edge of the woods. It is about 7 meters above and 10 meters back from the river's edge.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Clay (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about three-eighths mile east of the mouth of La Vallee River. The station is at the edge of the timber, near the river's edge and about 3 meters above the water.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Ward. (See description of reference monument 219.)

Point. (See description of reference monument 220.)

Cad (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River about five-eighths mile upstream from the mouth of La Vallee River. The station is in George Ward's barnyard, directly south of his house. It is about 2 meters above and 10 meters back from the river's edge.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Move. (See description of reference monument 222.)

Certes (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River about 1¼ miles downstream from the mouth of Little Fork River. The station is on the edge of a field on the property of John Certes. It is about 3 meters above the water.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in concrete.

Cadden (Minnesota, Koochiching County; E. R. Martin, 1913; 1926).—On the south bank of Rainy River, about seven-eighths mile downstream from the mouth of Little Fork River and about 420 meters east of the line between range 25 and range 26 west. The station is on the property of W. R. Cascadden, in the northeast corner of his field along the river. It is about 3 meters above the water.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in concrete.

Peter. (See description of reference monument 223.)

Cass. (See description of reference monument 224.)

Reserve (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about three-fourths mile downstream from the mouth of Little Fork River and about one-half mile east of the west line of an Indian reservation. The station is about 35 meters south of a house and nearly at the water's edge.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Boom (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about three-fifths mile downstream from the mouth of Little Fork River. The station is near some bushes and below high-water mark.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Indian. (See description of reference monument 225.)

Ran (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about one-fourth mile downstream from the mouth of Little Fork River. The station is about 280 meters west of the section line between sections 29 and 30, near some timber at the edge of the river and below high-water mark.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

96030—31——35

Turn (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about one-fourth mile downstream from the mouth of Little Fork River. The station is at the river's edge, below high-water mark.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Chief (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, opposite the west end of a small sandy island lying off the mouth of Little Fork River. The station is about 8 meters above and 18 meters back from the river's edge. Several Indian graves are about 20 meters northwest of the station.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Run (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about one-third mile downstream from the mouth of Little Fork River. The station is below high-water mark, near some timber.

Station mark: A cross cut in a rock with a bottle buried under it.

Fork (Minnesota, Koochiching County; E. R. Martin 1913).—On the south bank of Rainy River a short way downstream from a small sandy island lying off the mouth of Little Fork River. The station is near the edge of the river below high-water mark.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Little. (See description of reference monument 226.)

Hathway (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, opposite and about 300 meters east of the mouth of Little Fork River, about 130 meters west of the east line of Indian Reservation No. 10 and about 100 meters east of the mouth of a small creek. The station is about 9 meters above and 30 meters back from the river's edge.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Watrous. (See description of reference monument 227.)

Bowen. (See description of reference monument 228.)

Stick (Minnesota, Koochiching County; E. R. Martin, 1913; 1926).—On the south bank of Rainy River, about 1 mile east of the mouth of Little Fork River. The station is at the river's edge, below high-water mark.

Station mark: A cross cut in the solid rock.

Hammer (Minnesota, Koochiching County; E. R. Martin, 1913; 1926).—On the south bank of Rainy River, about 1⅛ miles east of the mouth of Little Fork River. The station is at the river's edge, below high-water mark.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in solid rock.

Grove. (See description of reference monument 229.)

Roll (Minnesota, Koochiching County; E. R. Martin, 1913; 1926).—On the south bank of Rainy River, about 1¼ miles east of the mouth of Little Fork River. The station is about 150 meters west of a clearing on which there is a house. It is at the river's edge, below high-water mark.

Station mark: A cross cut in the solid rock.

Axe. (See description of reference monument 230.)

Sheep (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about three-fourths mile west of the Isherwood (Ontario) post office, and about three-eights mile west of Wilson Creek. The station is in a pasture on the property of Alfred McPhee, about 40 meters east of the section line and about 8 meters above and 20 meters back from the river's edge. It is 61.6 meters from the southwest corner of a house, 64.1 meters from the northwest corner, and 66.4 meters from the southeast corner.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in a concrete block about 1 foot square.

Saw. (See description of reference monument 231.)

Drill (Minnesota, Koochiching County; E. R. Martin, 1913; 1926).—On the United States shore of Rainy River, about five-eighths mile west of the Isherwood (Ontario) post office. The station is at the river's edge, below high-water mark, at a point about 50 meters west of the mouth of a small stream.

Station mark: A drill hole within a triangle cut in a large, round-topped rock.

Small. (See description of reference monument 233.)

Isherwood. (See description of reference monument 232.)

Stiller (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about 1 mile east of the Isherwood (Ontario) post office. The station is on a lawn in front of John Stiller's house, about 9 meters above and 30 meters back from the river's edge. It is 5.6 meters from the northwest corner of Stiller's house, 12.6 meters from the southwest corner, 9.4 meters from the northeast corner.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in a concrete block about 1 foot square.

Beach. (See description of reference monument 234.)

Twig. (See description of reference monument 235.)

Jackson (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about 1¾ miles east of the Isherwood (Ontario) post office, and about 60 meters west of a small creek that flows into the river at the termination of the line between range 25 and range 24. The station is on the property of George Shaw, about one-fourth mile up the river from his house. It is near the river's edge, about 3 meters above the water.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in a concrete block about 1 foot square.

Berry. (See description of reference monument 238.)

Elm (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about 6½ miles downstream from the dam at Fort Frances, Ontario, and just west of where the river turns from a southerly to a westerly course. The station is about 150 meters west and 300 meters south of the angle of the river road, where it turns from south to west. It is in a field on Mr. Lowe's property, about 200 meters west of the mouth of a small stream. It is about 6 meters above and 40 meters back from the river's edge. Four elm trees are near the station, as follows: One 36.9 meters southwest, one 34.5 meters southwest, one 30.8 meters southeast, and one 31.0 meters southeast. Station "Timothy" is about 80 meters east of it.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Timothy (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about 6½ miles downstream from the dam at Fort Frances, Ontario. The station is in a field on the property of Mr. Lowe, about 100 meters west of the mouth of a small stream. It is about 6 meters above and 50 meters back from the river's edge. Two elm trees are southeast of the station, one 44 meters and the other 58 meters distant. Station "Elm" is about 80 meters west of it.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Woods (Ontario, Rainy River District; E. R. Martin, 1913).—On the west bank of Rainy River, about 6¼ miles downstream from the dam at Fort Frances, Ontario, and about 360 meters east of the turn of the river road from south to west. The station is at the northeast end of a timber tract, on the property of Alfred Wilson. It is about 9 meters above and 25 meters back from the river's edge.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Rasp. (See description of reference monument 239.)

Bush. (See description of reference monument 241.)

Wilson. (See description of reference monument 240.)

Clover (Ontario, Rainy River District; E. R. Martin, 1913).—On the west shore of Rainy River, about 5½ miles downstream from the dam at Fort Frances, Ontario, and about 330 meters north of the mouth of a small creek. The station is in a field about 100 meters south of the township line. It is about 10 meters above and 40 meters back from the river's edge.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Creek (Minnesota, Koochiching County; E. R. Martin, 1913).—On the east bank of Rainy River, about 5⅛ miles downstream from the dam at International Falls, Minn., about 330 meters north of the south line of section 8, township 70 north, range 24 west, and about 30 meters south of the mouth of a small stream. The station is at the edge of the timber on a high bank about 5 meters above and 10 meters back from the river's edge.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in a concrete block about 1 foot square.

Hole. (See description of reference monument 242.)

Cut (Ontario, Rainy River District; E. R. Martin, 1913).—On the west bank of Rainy River, about 5⅛ miles downstream from the dam at Fort Frances, Ontario, and about 300 meters south of the mouth of a small creek. The station is in the woods, about 5 meters above and 20 meters back from the river's edge.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Open. (See description of reference monument 243.)

Log (Minnesota, Koochiching County; E. R. Martin, 1913).—On the United States shore of Rainy River, about 4 miles downstream from the dam at International Falls, Minn., about 380 meters north of the south line of section 5, township 70 north, range 24 west, and about 80 meters south of the mouth of a small creek. The station is near the river's edge, about 1 meter above the water.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

Swede (Ontario, Rainy River District; E. R. Martin, 1913; 1926).—On the west bank of Rainy River, about 4 miles downstream from the dam at Fort Frances, Ontario. The station is on the property of Albert Haney, 27.9 meters from the southeast corner and 34.4 meters from the southwest corner of Angelo Marlson's house. It is about 12 meters above and 40 meters back from the river's edge.

Station mark: A drill hole within a triangle cut in solid rock.

Third. (See description of reference monument 245.)

Short. (See description of reference monument 246.)

Gillian (Ontario, Rainy River District; E. R. Martin, 1913; 1926.)—On the north bank of Rainy River, on the big bend of the river 3 miles downstream from the dam at Fort Frances, Ontario, and about midway between a small wharf to the west and the mouth of a small stream to the east. The station is near a grove of trees and about 100 meters southeast of Mr. Gillian's house. It is near the river's edge, about 1 meter above the water.

Station mark: A cross cut in a stone. Subsurface mark is a glass jar.

Wire (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, in the big bend of the river 3 miles downstream from the dam at International Falls, Minn. The station is about 30 meters northeast of the northwest corner of section 5, township 70 north, range 24 west, near the river's edge and about 4 meters above the water. It is between two large red oak trees.

Station mark: A cross cut in a stone. Subsurface mark is a bottle.

English. (See description of reference monument 247.)

Cedar (Minnesota, Koochiching County; E. R. Martin, 1913).—On the south bank of Rainy River, about 2½ miles downstream from the dam at at International Falls, Minn. The station is near several cedar trees and about 2 meters above high-water mark.

Station mark: A cross cut in a granite stone. Subsurface mark is a glass jar.

Dump. (See description of reference monument 249.)

Stone (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about 1⅞ miles downstream from Fort Frances, Ontario, and about 170 meters below the mouth of a creek. The station is about 3 meters above and 10 meters back from the river's edge. A dumping ground on the United States shore is nearly opposite the station.

Station mark: A drill hole in a stone. Subsurface mark is a bottle.

Pop (Ontario, Rainy River District; E. R. Martin, 1913).—On the north bank of Rainy River, about 1⅞ miles downstream from the dam at Fort Frances, Ontario, and about 90 meters below the mouth of a creek. The station is on the last point of the north bank of the river visible from the first rocky island below Fort Frances. It is about 1 meter above the water.

Station mark: A drill hole in a rock about 8 by 10 inches in size.

Fish. (See description of reference monument 250.)

National. (See description of reference monument 252.)

Falls. (See description of reference monument 251.)

Rock. (See description of reference monument 257.)

Koochiching Court House (Minnesota, Koochiching County; F. E. Ryus, 1913).—In the town of International Falls.

Station mark: The flagpole on the tower of the Koochiching County court house.

U. S. G. S. Bench Mark. (See description of reference monument 254.)

River. (See description of reference monument 255.)

Bridge. (See description of reference monument 256.)

Cabin. (See description of reference monument 258.)

Transformer. (See description of reference monument 260.)

Jamison. (See description of reference monument 261.)

Muskrat. (See description of reference monument 263.)

Canoe. (See description of reference monument 262.)

Hubbard. (See description of reference monument 264.)

RANIER, MINN., TO CURTAIN FALLS, MINOR SCHEMES

Rainy Lake 2. (See description of reference monument 268.)

Rainy Lake 3. (See description of reference momument 267.)

Rainy Lake 1. (See description of reference monument 266.)

Rainy Lake 5 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, about 2¼ miles northeast of Rainer, Minn., on the south side of the most southern of the group of islands to the southeast of Squall Point. It is about 1.5 meters above the level of the lake and about 3 meters from the water's edge.
Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 6 (Minnesota, Koochiching County; James H. Van Wagenen, 1913).—On Rainy Lake, about 3 miles east of Rainer, Minn., on the north end of the long narrow island which lies just north of Crystal Beach. It is about 3 meters above the lake level and about 6 meters from the north shore.
Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 7 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, about 3½ miles northeast of Ranier, Minn., on the southwest point of Lost Island. It is about 1 meter above the lake level and about the same distance from the water's edge.
Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 12. (See description of reference monument 272.)

Rainy Lake 10 (Minnesota, Koochiching County; James H. Van Wagenen, 1913).—On Rainy Lake, about 6 miles east of Ranier, Minn., on the small bare rocky island which is about 1 mile northeast of the Fransen Islands, about 220 meters south of a small timbered island and about 60 meters east of a small rocky island. The island on which the station is located measures about 60 meters from north to south and about 10 meters from east to west. The station is on the highest point of the island, about 2 meters above the water and 1.5 meters west of a pine stump.
Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in the ledge.

Rainy Lake 8. (See description of reference monument 269.)

Rainy Lake 11 (Minnesota, Koochiching County; James H. Van Wagenen, 1913; 1925).—On Rainy Lake, about 6½ miles east of Ranier, Minn., on the small high island just north of the middle of Jackfish Island. It is on the highest part of the north end of the island, about 7 meters above the lake level, about 30 meters from the west shore, 45 meters from the north shore, and 15 meters from the east shore.
Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in concrete in the sandstone ledge.

Rainy Lake 9. (See description of reference monument 270.)

Rainy Lake 29 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, about 6½ miles east of Rainer, Minn., on the southern point of a large island about one-half mile northwest of Eightmile Island and about 1½ miles west of Dunsmore Island. The station is about 45 meters due west of a very small island; is about 3 meters above the water, about 6 meters from the east shore, 15 meters from the south shore, and 12 meters from the west shore of the point.
Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 31 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, about 6 miles east of Ranier, Minn., on the southern end of Scott Island. It is about 2.5 meters above the lake level and about 5 meters from the south shore.
Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 28. (See description of reference monument 271.)

Rainy Lake 30 (Minnesota, Koochiching County; James H. Van Wagenen, 1913).—On Rainy Lake, about 6 miles east of Ranier, Minn., on the most northern of a group of 3 small islands which are about three-quarters mile north of the steamboat channel. It is on a rock projecting from the northern end of the island. It is about

15 meters north of a blazed tree which is marked "91225." It is about 1 meter above the lake level, 2 meters from the west shore, 3 meters from the north shore, and 1.5 meters from the east shore of the point.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in the ledge.

Rainy Lake 32 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, about 5½ miles east of Ranier, Minn., on a small, low, timber-covered island which is just north of the boundary line and 1¼ miles nearly due north of the Fransen Islands, with no other islands between. It is on the eastern end of the island, about 5 meters from the east shore and 1.5 meters from the north and south shores. The island is about 60 meters long and has an average width of about 30 meters.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in the ledge.

Rainy Lake 33 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, about 5½ miles east of Rainer, Minn., on a small, high, timber-covered island which is 1½ miles nearly due north of the Fransen Islands, with only one small, low island between. It is on the south end of the island, about 1.5 meters above the lake level and about 9 meters from the south shore.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in the ledge.

Rainy Lake 13 (Minnesota, Koochiching County; James H. Van Wagenen, 1913).—On Rainy Lake, on Red Sucker Island, on a timbered point on the north shore. It is about 2.5 meters above the lake level, about 15 meters from the end of the point, and 8 meters from the water on either side.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 14. (See description of "Raney (U. S. C. & G. S.)."

Rainy Lake 35. (See description of reference monument 273.)

Rainy Lake 34. (See description of reference monument 274.)

Rainy Lake 37. (See description of "Water (U. S. C. & G. S.)."

Rainy Lake 36. (See description of reference monument 275.)

Rainy Lake 17 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, on the extreme western tip of Angling Island and on the east side of the steamboat channel through Pine Narrows. It is on a rock whose dimensions are 1 by 1 by 2 meters, about 1.5 meters above the water surface, and about 2.5 meters from the water's edge.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in the rock.

Rainy Lake 16 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, on the south end of the timbered island which lies about one half mile north of Pine Narrows. It is about 1.5 meters above the lake level, about 45 meters from the east shore, 1.5 meters from the south shore, and 15 meters from the west shore of the point.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 15 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, on the northeast point of Red Pine Island and on the west side of Pine Narrows. It is about 2 meters above the lake level and about 6 meters from the north, east, and south shores of the point.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 18 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, on a point on the east end of Red Pine Island on the west side of Pine Narrows, about 330 meters south of the end of the long narrow point on which "Rainy Lake 15" is located. It is on the first point south of the one on which there is an old cabin. The station is about 6 meters from the end of the point and about 2.5 meters from the shore on either side.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 38 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, on the extreme southern point of Red Pine Island. It is on the middle of the end of the flat rocky point which extends into the lake and is at the edge of some small pines. It is about 0.7 meter above the lake level and about 9 meters north of the shore line.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 39. (See description of reference monument 276.)

Rainy Lake 19 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, on the most southern point of Angling Island. It is about 6 meters from the south shore and 1.5 meters north of a 10-inch pine stump.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 20 (Minnesota, Koochiching County; James H. Van Wagenen, 1913).—On Rainy Lake, on a small narrow island which lies about 110 meters north of the northeast part of Grindstone Island and about 1¼ miles north of the entrance to Black Bay. It is on the highest point of the east end of the island, about 5 meters above the lake level, about 30 meters from the east shore and 15 meters from the north and south shores.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Grindstone (Minnesota, Koochiching County; James H. Van Wagenen, 1913).—On Rainy Lake, on the east end of Grindstone Island, 1¼ miles south of Pine Narrows and 1 mile north of the entrance to Black Bay. It is on approximately the highest part of the east end of the island, about 23 meters above the lake level, about 380 meters from the extreme eastern point of the island, and about 150 meters from the north shore.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Dryweeds (Minnesota, Koochiching County; James H. Van Wagenen, 1913).—On Rainy Lake, on the southwest end of Dryweeds Island about one half mile north of the entrance to Black Bay. It is about 12 meters above the lake level, about 49 meters from the end of the point, about 38 meters from the shore on either side, and about 114 meters southwest of an old mine shaft.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Dove (Minnesota, Koochiching County; James H. Van Wagenen, 1913).—On Rainy Lake, at the west side of the entrance to Black Bay, about 250 meters northwest of Mr. Dove's house on Dove Point. It is about 11 meters above the lake level, about 45 meters from the water's edge on the north and 60 meters from the water's edge on the east.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in bare ledge rock.

City (Minnesota, Koochiching County; James H. Van Wagenen, 1913).—On Rainy Lake, on the east side of the entrance to Black Bay, about 420 meters southeast of Mr. Dove's house on Dove Point. It is on a high bald nose, about 11 meters above the lake level and about 45 meters east of the water's edge.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Pick (Minnesota, Koochiching County; James H. Van Wagenen, 1913).—On Rainy Lake, on the west side of the entrance to Black Bay, on the point about 330 meters southwest of Mr. Dove's house on Dove Point. It is about 9 meters above the lake level, about 38 meters from the water's edge on the east and 120 meters from the water's edge on the south.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Black Bay 1 (Minnesota, Koochiching County; F. S. Ryus, 1913).—On Rainy Lake, on the east side of the entrance to Black Bay, at a narrow place in the channel about three-fourths mile south of Mr. Dove's house on Dove Point. It is about 1 meter above high-water mark and about 2.5 meters east of the shore line.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Black Bay 2 (Minnesota, Koochiching County; F. S. Ryus, 1913).—On Rainy Lake, on the peninsula on the west side of the entrance to Black Bay, about three-fourths mile south of Mr. Dove's house on Dove Point. It is on a high, sparsely timbered knoll and is about 9 meters above the lake level and about 150 meters from the shore line at the end of the peninsula.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Black Bay 3 (Minnesota, Koochiching County; F. S. Ryus, 1913).—On Rainy Lake, on the west end of a small, timbered island at the south end of the narrow entrance to Black Bay near the east shore. It is about 1 meter above high water and about 5 meters east of the west shore of the island.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Black Bay 4 (Minnesota, Koochiching County; F. S. Ryus, 1913).—On Rainy Lake, on a small, low, bare island on the west side of Black Bay just inside the narrow entrance and at the tip of a marshy point. The station is about 1 meter above high water.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Black Bay 5 (Minnesota, Koochiching County; F. S. Ryus, 1913).—On Rainy Lake, on the highest bare part of a large, timbered island on the east side of Black Bay, about 2⅛ miles south of Mr. Dove's house on Dove Point. It is about 15 meters southwest of the head of a small bay on the northwest side of the island and is about 5 meters above high water.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Black Bay 6 (Minnesota, Koochiching County; F. S. Ryus, 1913).—On Rainy Lake, on the northwest point of a small, timbered island which measures about 60 meters northeast and southwest and about 30 meters northwest and southeast and which is about 2¼ miles south of Mr. Dove's house on Dove Point. It is about 0.6 meter above high water.

Station mark: A 2-inch bronze disk marked"U. S. & C. B. Survey" set in ledge rock

West (Minnesota, Koochiching County; F. S. Ryus, 1913).—On Rainy Lake, on the bare southeast point of a large heavily timbered island just north of the mouth of Rat Root River. It is about 1.5 meters above high water and about 5 meters west of the shore line.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Black Bay 7 (Minnesota, Koochiching County; F. S. Ryus, 1913).—On Rainy Lake, on a small brushy island about 3 meters in diameter at the end of a sharp point of reeds on the south shore of Black Bay. It is about 0.3 meter above high water.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Black Bay 8 (Minnesota, Koochiching County; F. S. Ryus, 1913).—On Rainy Lake, on a small, timbered island about 90 meters from the south shore of Black Bay, nearly due south of Dove Point. The island measures about 30 meters northwest and southeast and about 12 meters northeast and southwest. The station is about 0.8 meter above high water.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Black Bay 9 (Minnesota, Koochiching County; F. S. Ryus, 1913).—On Rainy Lake, off the north shore of the east arm of Black Bay, on the southwest point of a sparsely timbered island about 30 meters in diameter which is about 40 meters southeast of a narrow, timbered island about 260 meters long. The station is about 1 meter above high water.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Black Bay 10 (Minnesota, Koochiching County; F. S. Ryus, 1913).—On Rainy Lake, on the cleared west end of a heavily timbered point on the south shore of the east arm of Black Bay. The station is about 0.3 meter above high water.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Interior (Minnesota, Koochiching County; F. S. Ryus, 1913).—On Rainy Lake, near the middle of the east arm of Black Bay, on the highest point of a heavily timbered island which measures about 180 meters northwest and southeast and about 120 meters northeast and southwest. The station is about 4.5 meters above high water.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Tall (Minnesota, Koochiching County; F. S. Ryus, 1913).—On Rainy Lake, on the highest point of the most western of a group of islands which are off the point between the two prongs of the eastern arm of Black Bay. It is on the cleared end of a timbered point on the south shore of the island, about 3.5 meters from the shore and about 5 meters above high water.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Southeast (Minnesota, Koochiching County; F. S. Ryus, 1913).—On Rainy Lake, on the cleared end of a timbered point on the south side of a long narrow channel through the marsh in the southeast corner of Black Bay. The station is about 1 meter above high water and about 3.5 meters east of the shore line at the end of the point.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 21 (Minnesota, Koochiching County; James H. Van Wagenen, 1913).—On Rainy Lake, about 240 meters north of the west end of Dryweed Island, on the nearest small rock island to the south of Capstan Rock from which it is distant about one-half mile. The rock is about 6 meters wide and 18 meters long, and the station is on the highest point of the east end of the rock.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in a soft, vertically stratified ledge.

Rainy Lake 23 (Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, on a small rocky island about 2 miles east of American Narrows, about 300 meters south of Sand Point Island and about 350 meters north of Capstan Rock. The island is the nearest to Capstan Rock of a group of islands, and the station is near the highest point.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in the ledge.

Rainy Lake 22 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, on Capstan Rock, about 2 miles east of American Narrows and about 600 meters south of Sand Point Island. The rock is about 45 meters long and the station on its highest part.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in the ledge.

Rainy Lake 24 (Minnesota, Koochiching County; James H. Van Wagenen, 1913).—On Rainy Lake, on a small island about 2½ miles east of American Narrows and about 50 meters from the middle of the north shore of Dryweed Island. The island is about 80 meters wide and 100 meters long and rises about 3.5 meters above the lake level. The station is on the highest point of the island, about 38 meters from the east shore, 15 meters from the north shore, 12 meters east of the concrete foundation of an old engine bed, and 38 meters northeast of a mine shaft.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 25 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, on the most southern point of Sand Point Island, about 1 mile east of Capstan Rock. It is in the timber about 5.5 meters above the lake level and about 9 meters from the shore.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 26. (See description of reference monument 278.)

Rainy Lake 27. (See description of reference monument 277.)

Rainy Lake 40 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, on a small island about three-fourths mile south of the extreme eastern tip of Sand Point Island, about 1 mile north of the steamboat channel and about 1¾ miles northeast of Powder Island. The island is the most southeastern of the islands in this vicinity and is about 50 meters wide and 180 meters long. The station is about 10 meters east of the highest point of the island, about 3 meters above the lake level, about 12 meters from the north shore, 45 meters from the east shore, and 30 meters from the south shore.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 41. (See description of reference monument 279.)

Rainy Lake 42. (See description of reference monument 285.)

Rainy Lake 44. (See description of reference monument 281.)

Rainy Lake 43 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, on a bare, flat rock about 600 meters north of the western entrance to Brule Narrows and about 70 meters west of the island which is just west of Mackenzie Island. The rock is about 30 meters long and the station is on the eastern end, 0.5 meter above the normal lake level, 3 meters from the east end of the rock and 4.5 meters from the north and south sides.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 45. (See description of reference monument 282.)

Rainy Lake 46 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, on a small, high, timbered island, one of the northern islands of the group northwest of the west entrance to Brule Narrows. It is about one-half mile southwest of Bald Island, a high barren island, and about 2¼ miles northwest of the west entrance to Brule Narrows. The station is on the southeastern part of the island, on the highest point, about 6 meters above the lake level, about 30 meters from the east shore and 15 meters from the south shore.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 47. (See description of reference monument 280.)

Rainy Lake 48. (See description of reference monument 284.)

Rainy Lake 49 (Minnesota, St. Louis County; James H. Van Wagenen, 1913).—On Rainy Lake, on a rock about 3 meters in diameter just west of the group of islands which are northwest of the west entrance to Brule Narrows. It is about one-half mile due south of Bald Island a high, bold, barren island on which reference monument 283 is located. The station is about 0.7 meter above the normal lake level.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 50. (See description of reference monument 286.)

Rainy Lake 51 (Minnesota, St. Louis County; James H. Van Wagenen, 1913).—On Rainy Lake, on the mainland near the west entrance to Brule Narrows and about 1 mile southwest of Mackenzie Island. It is about 45 meters south of the shore line and about 4.5 meters above the lake level on a smooth rocky knoll surrounded by dead jack-pine timber.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 52 (Minnesota, St. Louis County; James H. Van Wagenen, 1913; 1925).—On Rainy Lake, on a point of the mainland near the west entrance to Brule Narrows, northwest of a fisherman's cabin and due south of the west side of the island just west of Mackenzie Island. It is about 1 meter above the lake level, about 6 meters from the north shore of the point, and 36 meters from the west shore.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 53 (Minnesota, St. Louis County; James H. Van Wagenen, 1913).—On Rainy Lake, in Brule Narrows, near the west entrance, on the north shore of the mainland, about one-half mile south of Mackenzie Island and about one-half mile northwest of the lone tree in the narrows. It is about 1 meter above the lake level, about 6 meters from the north shore of the point, and about 24 meters from the east shore.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 54. (See description of reference monument 287.)

Rainy Lake 55 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, on the north side and near the middle of Brule Narrows, on an island which is about one-fourth mile north of the lone tree used as a range by steamboat pilots. It is on the southwest side of the island, on its highest point, about 3.5 meters above the lake level, about 45 meters from the north shore, 60 meters from the west shore, and 15 meters from the south shore.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 56. (See description of reference monument 288.)

Rainy Lake 57 (Minnesota, St. Louis County; James H. Van Wagenen, 1913).—On Rainy Lake, on the east end of a long narrow island which is on the south side of Brule Narrows, about 600 meters south of the lone tree which is used as a range by steamboat pilots. It is on the highest part of the ridge, about 3 meters above the lake level and about 30 meters from the east end of the island.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 58 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, on the west end of a small island on the north side of Brule Narrows and about one-fourth mile east of the lone tree used as a range mark by steamboat pilots. It is about 2 meters above the lake level, about 21 meters from the south shore of the island, 36 meters from the west shore, and 6 meters from the north shore.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 59. (See description of reference monument 290.)

Rainy Lake 61. (See description of reference monument 289.)

Rainy Lake 62. (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, on the large island on the north side of the east entrance to Brule Narrows, at the end of a point projecting toward the west—the most southern point of the island. It is about three-fourth mile southeast of Lone Tree Island, about 1 meter above the lake level, and about 15 meters from the west end of the point.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 60. (See description of reference monument 291.)

Rainy Lake 66. (See description of reference monument 292.)

Rainy Lake 63 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, on the west point of a small, low, timbered island near the north shore of the lake, about 1½ miles east of the east entrance to Brule Narrows. It is about 0.4 meter above the lake level, northeast of two jack-pine stumps, and northwest of a single stump.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 64 (Ontario, Rainy River District; James H. Van Wagenen, 1913).—On Rainy Lake, on a small, low, bowlder-covered island, about 1 mile east of the east entrance to Brule Narrows and about 300 meters southeast of Pater Noster Island. The station is near the center of the island and about 0.3 meter above the lake level.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 65. (See description of reference monument 293.)

Rainy Lake 67 (Minnesota, St. Louis County; James H. Van Wagenen, 1914; 1925).—On Rainy Lake, about 5 miles southeast of the east entrance to Brule Narrows, on the northeast end of Blueberry Island. It is about 3 meters above the lake level, about 30 meters from the northeast point of the island, and about 6 meters from the north shore.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 73 (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Rainy Lake, about 6 miles east of the eastern entrance to Brule Narrows, on a rocky island covered with loose bowlders, the southwest island of a group of three called Gull Rocks, which are near the middle of the lake. The station is about 1.5 meters above the lake level and is on the eastern end of the island.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock and surrounded by loose bowlders.

Rainy Lake 69 (Minnesota, St. Louis County; James H. Van Wagenen, 1914).—On Rainy Lake, about 7 miles southeast of the east entrance to Brule Narrows, about 2 miles south of Gull Rocks, on a point of the mainland about 1 mile east of Browns Bay. The station is about 4 meters above the lake level.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 72 (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Rainy Lake, about 8 miles southeast of the east entrance to Brule Narrows, on the south end of a small, lone island lying in the

open lake about due south of the west extremity of Deer Horn Point. The island is covered with small jack pines. The station is about 2 meters above the lake level, about 15 meters from the west shore, 15 meters from the south shore, and 23 meters from the east shore.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 77 (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Rainy Lake, about 9 miles east of the eastern entrance to Brule Narrows, about 5 miles northwest of Kettle Falls, and about 1,000 meters southwest of Blackpoint Island; on the most eastern of the small islands in this vicinity. The island is a white rock about 30 meters in diameter, bare for the greater part of its area and with one tall white pine and a few smaller trees on it. The station is on the highest point near the center of the island.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Vague (Ontario, Rainy River District; Jesse Hill, 1914).—On Rainy Lake, on Vague Point, about 12 miles east of the eastern entrance to Brule Narrows, about 1¼ miles northwest of Breezy Island, and about 1¾ miles northeast of Sand Narrows. It is in burnt jack-pine timber, about 3 meters above the lake level, about 45 meters north of the south shore of the point, and about 340 meters east of the southwest extremity of the point.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock. An iron reference bolt is set in ledge rock 4.85 meters northwest of the station and a second bolt is set 5.60 meters southwest. Boundary reference monument 300 is set in the same ledge at a distance of 0.31 meter.

Stokes (Ontario, Rainy River District; Jesse Hill, 1914).—On Rainy Lake, about 3 miles northeast of Kettle Falls. on the second small bay south of the entrance to Stokes Bay and east of the northern end of the Canadian Channel and the northern end of Oak Point Island. It is on the top of a ridge, about 20 meters above the lake level, and about 100 meters southwest of the head of the long narrow bay. A native-timber tower was erected over the station.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in concrete. An iron reference bolt is set in ledge rock 5.28 meters north of the station, and a second bolt is set in ledge rock 6.52 meters east.

Oak (Ontario, Rainy River District; Jesse Hill,1914).—On Rainy Lake, about 1¼ miles northeast of Kettle Falls, on Oak Point Island. It is near the highest point on the island, about 40 meters above the lake level, about 360 meters west of the west shore of the Canadian Channel, and 600 meters north of the most northern islands in the channel. A native-timber tower was erected over the station.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock. An iron reference bolt is 2.39 meters south and a second bolt is 3.25 meters east of the station, both set in ledge rock.

Rainy Lake 82 (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Rainy Lake, about 2 miles north of American Kettle Falls, on the north shore of Oak Point Island, about midway between the Canadian and American channels, on the most prominent point along this side of the island. It is about 4 meters above the lake level, about 15 meters from the end of the point, 6 meters from the northeast shore, and 24 meters from the southwest shore.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 90 (Ontario, Rainy River District; James H. Van Wagenen, 1914; 1925).—On Kettle River, on the Oak Point Island shore, about 750 meters south of Surveyors Island and of the mouth of the river. It is on the hillside about 20 meters above the water surface of the river, about 100 meters from the shore, and nearly due east of the first narrow place in the river above its mouth.

Station mark: A 2-inch bronze disk set in ledge rock. Triangulation station "Dog," marked by a United States Coast Survey bronze triangulation disk, is 16.29 meters from the station in azimuth 324° 31′, and a bronze disk with an arrow pointing toward "Dog" is 10 meters from the station in azimuth 322° 44′, and 6.30 meters from "Dog" in azimuth 147° 21′.

Rainy Lake 92 (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Kettle River, on Oak Point Island, about three-fourths mile northeast of American Kettle Falls and about one-half mile south of Surveyors Island and the mouth of the river. It is on a high bare rock on the point where the channel makes a big bend to the left coming up the river. It is about 215 meters from the end of the point, about 130 meters from the south shore, about the same distance from the northwest shore of the point, and about 22 meters above the water surface.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 94 (Minnesota, St. Louis County; James H. Van Wagenen, 1914).—On Kettle River, on the mainland, about one-half mile south of Surveyors Island and the mouth of the river and about three-fourths mile north of American Kettle Falls. It is on the southeast end of a rocky ridge which runs parallel with the river and is about 90 meters from the shore. There is a deep canyon running along the west side of this ridge and another canyon cuts across the ridge just south of the station. The station is about 15 meters above the water surface.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 96 (Minnesota, St. Louis County; James H. Van Wagenen, 1914).—On Kettle River, on the mainland, about three-fourths mile south of Surveyors Island and the mouth of the river and about one-half mile north of American Kettle Falls. It is northwest of two islands between which the boundary runs and also northwest of a sharp bend in the boundary channel. It is about 9 meters above the water surface.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 98 (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Kettle River, on the Oak Point Island shore, about three-fourths mile south of Surveyors Island and the mouth of Kettle River and about one-half mile northeast of American Kettle Falls, and about 120 meters north of the nearer of the two small islands between which the boundary passes. It is on the east side of a small point, on the highest part of the rock, about 3 meters above the water surface and about 3 meters from shore.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in the rock.

River (Minnesota, St. Louis County; James H. Van Wagenen, 1914).—On Kettle River, on the long high peninsula which extends northeast from the mainland, and about 560 meters northeast of Kettle Falls (American Falls). It is about 70 meters from the north shore of the point, about 100 meters from the south shore, about 250 meters from the end of the point, and about 14 meters above the lake level. It is on the highest ground in this vicinity with the exception of a ledge which runs northeast and southwest about 30 meters south of the station.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Knox (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Rainy Lake, on a high, rocky point about one-half mile east of the Canadian Kettle Falls, and about 500 meters northeast of Randolph's House. It is on the central one of the three most prominent ledges on the highest ground on the point, about 18 meters above the lake level.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 113 (Ontario, Rainy River District; James H. Van Wagenen, 1914).—On Kettle River, at the outlet of Namakan Lake, on the steep, timber-covered hillside and near the top of the slope. It is about 180 meters upstream from the south end of the dam in the boundary channel at Kettle Falls. It is about 15 meters from the shore and about 10 meters above the water surface in the river above the falls.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

Rainy Lake 114 (Minnesota, St. Louis County; James H. Van Wagenen, 1914).—On Kettle River, at the outlet of Namakan Lake, on the highest part of a high point of the mainland, about 190 meters upstream from the north end of the dam in the boundary channel at Kettle Falls. It is on a rock which slopes in all directions from the station. It is about 15 meters from the south shore of the point, about 40 meters from the west shore, and about 11 meters above the water surface above the dam.

Station mark: A 2-inch bronze disk marked "U. S. & C. B. Survey" set in ledge rock.

CURTAIN FALLS TO PIGEON RIVER, MINOR SCHEMES

Johnny (Minnesota, St. Louis County; W. B. Fairfield, 1914).—On the west shore of Crooked Lake, about three-fourths mile southeast of Curtain Falls. The station is on the northeast point of the third headland above Curtain Falls. It is on top of the white granite cliff about 12 meters above the water.

Station mark: A bronze disk set in the rock.

Ipse (Ontario, Rainy River District; W. B. Fairfield, 1914).—On the north shore of Crooked Lake, about 1⅞ miles southeast of Curtain Falls. The station is on the western tip of the rocky point on the south side of the narrow entrance to a bay extending eastward from the lake for about three-fourths mile, with an extreme breadth of about three-eighths mile. It is on the smooth granite ledge, about 18 meters from the tip of the point, and about 6 meters west of the highest part.

Station mark: A drill hole within a triangle cut in the ledge.

Jingle (Minnesota, St. Louis County; W. B. Fairfield, 1914).—In Crooked Lake, about 1¾ miles southeast of Curtain Falls. The station is on the northern one of two small rocky islands lying in the entrance to the great southwest bay of the lake. There are some outlying rocks to the northwest of the station, about in line with the west end of the large island in the center of the large open body of water. The station is on the north end of the island, on top of the sloping granite ledge, about 9 meters from the water.

Station mark: A drill hole within a triangle cut in the ledge.

Knit (Ontario, Rainy River District; W. B. Fairfield, 1914).—On the north shore of Crooked Lake, about 2¾ miles southeast of Curtain Falls. The station is on the extreme southwest point of the shore where the lake turns from a westerly course to a northwesterly course into the last open body of water before reaching Curtain Falls. It is on a large fixed rock on the sloping hillside, about 15 meters back from the water. There is a forest ranger's cabin on the slope just above the station.

Station mark: A bronze disk set in the rock. A drill hole within a triangle cut in the rock, marking triangulation station "Mutt," is about 100 meters northeast of the station.

Jerry (Ontario, Rainy River District; W. B. Fairfield, 1914).—In Crooked Lake, about 3 miles southeast of Curtain Falls. The station is on the east end of an island, about 600 meters long, lying in the main channel of the lake going east. South of and parallel to this island is another much longer and larger island. The international boundary passes between the two islands. The station is on the top of the highest part of the ledge and at the edge of the young pine growth. The shore line extends farther out to the south and east, but is not so high as at the station.

Station mark: A bronze disk set in the rock.

India (Ontario, Rainy River District; W. B. Fairfield, 1914).—On the north shore of Crooked Lake, about 3 miles southeast of Curtain Falls. The station is on the first point east of the point, around which the lake makes the last turn from west to north into the open water of the west end of the lake. It is on a little rock knob surrounded by muskeg, about 250 meters east of the most southwest point of the turn of the shore line.

Station mark: A drill hole within a triangle cut in the rock.

Luck (Minnesota, St. Louis County; W. B. Fairfield, 1914).—In Crooked Lake, about 3½ miles southeast of Curtain Falls. The station is on the most eastern point of the very large long island that lies in the main channel of the lake just east of the most southwestern great bay of the lake. It is on the granite ledge, about 6 meters from the water's edge and about 3 meters above the lake level.

Station mark: A bronze disk set in the rock.

Lofty (Minnesota, St. Louis County; W. B. Fairfield, 1914).—On the south side of Crooked Lake, about 4¼ miles southeast along the boundary channel from Curtain Falls. The station is on the high and steep pine-covered hill on the west end of the peninsula, which lies at the east side of the entrance to the second great southern bay of the lake as counted from Curtain Falls. The hill is not on the extreme end of the peninsula, but it is the highest one. The top of the hill is a bare ledge of considerable extent. The station is on this bare ledge.

Station mark: A drill hole within a triangle cut in the ledge.

Yet (Minnesota, St. Louis County; W. B. Fairfield, 1915).—On the south side of Crooked Lake. The station is on the summit of the very high isolated hill that rises from the lake shore at the southeast side of the great southwestern bay of the lake. It is about 300 meters back from the lake shore and about 50 meters above the lake level.

Station mark: A drill hole within a triangle cut in the rock.

Not (Minnesota, St. Louis County; W. B. Fairfield, 1915).—On the south side and about the middle of Crooked Lake. The station is on the summit of the high hill on the west side of the entrance to the third from the west (and largest) of the great southern bays of the lake. It is about 400 meters back from the shore and almost due west of the large island lying in the entrance to the bay.

Station mark: A drill hole within a triangle cut in the rock.

Trouble (Minnesota, St. Louis County; W. B. Fairfield, 1915).—On the south side and near the middle of Crooked Lake. The station is on the summit of a rocky-topped hill about three-fourths mile southwest of the head of the third from the west (and the largest) of the great southern bays of the lake.

Station mark: A drill hole within a triangle cut in the rock.

Lady (Minnesota, St. Louis County; W. B. Fairfield, 1914).—In Crooked Lake, about 4¾ miles east along the boundary channel from Curtain Falls. The station is on a small double island, the east and west parts of which are connected by a low rock ridge that lies just north of a little bay near the middle of the east and west shore line of this part of the lake. It is on the highest point of the eastern part of the island, on the solid ledge, about 6 meters from the water and about 4 meters above the lake level.

Station mark: A bronze disk set in the ledge.

Lander (Minnesota, St. Louis County; W. B. Fairfield, 1914).—In Crooked Lake, about 4¾ miles east along the boundary channel from Curtain Falls. The station is on the north point of a small island lying close offshore to the west of the high northern headland of the south shore.

Station mark: A bronze disk set in the rock just above high-water mark.

Lash (Minnesota, St. Louis County; W. B. Fairfield, 1914; 1921).—In Crooked Lake, about 5 miles southeast along the main channel of the lake from Curtain Falls. The station is on a small island about 100 meters west across the boundary channel from the west end of a very large island, and about 50 meters north from a high headland of the south shore of the lake. It is on the southeast end of the island about 10 meters from the shore and about 3 meters above the water.

Station mark: A bronze disk set in the rock.

Large (Minnesota, St. Louis County; W. B. Fairfield, 1914).—On the south shore of Crooked Lake, about 5 miles southeast along the boundary channel from Curtain Falls. The station is on a projection point of the

shore between two small bays directly opposite reference monument 676, which is on the southwest point of the largest island in this part of the lake.

Station mark: A drill hole within a triangle cut in the rock.

Love (Minnesota, St. Louis County; W. B. Fairfield, 1914).—Near the middle of Crooked Lake and about 3 miles west of the east entrance to the main body of the lake. The station is on the highest point of a small rocky islet about 200 meters off the United States shore at the west side of the entrance to the second great southern bay of the lake, counting from the east.

Station mark: A bronze disk set in the rock.

Knoll (Ontario, Rainy River District; W. B. Fairfield, 1914).—On Crooked Lake, about 6 miles southeast along the main channel of the lake from Curtain Falls. The station is on a small island that lies about 100 meters southeast of a very large island just east of the entrance to the most western east and west channel of the lake. There is a very large bay to the south of the large island and another to the north of it. The station is on the bare rock on the southern end of the island, about 4 meters above the water.

Station mark: A drill hole within a triangle cut in the rock.

Lame (Minnesota, St. Louis County; W. B. Fairfield, 1914).—On the south shore of Crooked Lake, near the middle of the lake, and about 3 miles west of the east entrance to the main body of the lake. The station is at the foot of the bluff on the bold shore line at the west side of the entrance to the second great southern bay of the lake, counting from the east. It is about 300 meters west of the large island lying in the entrance to the bay, on top of a rock about 1 meter across, and 2 meters above the water level.

Station mark: A drill hole within a triangle cut in the rock.

Left (Minnesota, Lake County; W. B. Fairfield, 1914).—On Crooked Lake, about 2 miles west of the east entrance to the large irregular main body of the lake. The station is on the small round island that lies south of and between two large islands in the main east-and-west channel of the lake. It is on the highest point of the island, about 4.5 meters above the water. The second great southern bay, as approached from the east, begins just west of the island.

Station mark: A drill hole within a triangle cut in the rock.

Lamb (Minnesota, Lake County; W. B. Fairfield, 1914).—On the south shore of Crooked Lake, about 1⅝ miles west-southwest of the east entrance to the main body of the lake, and near the north shore of the great headland that separates the two most eastern of the great southern bays of the main body of the lake. The station is on the timbered sidehill just up from the head of a little marshy cove. It is about 18 meters above the lake level.

Station mark: A drill hole within a triangle cut in the rock.

Lax (Minnesota, Lake County; W. B. Fairfield, 1914).—On an island in the eastern part of the main body of Crooked Lake, about 1¾ miles west of the east entrance thereto. The station is on the summit of the hill on the south toe of the large L-shaped island that lies in the main east-and-west channel of the lake.

Station mark: A drill hole within a triangle cut in the rock.

Laddy (Minnesota, Lake County; W. B. Fairfield, 1914).—On the south shore of Crooked Lake, about 1½ miles west-southwest of the east entrance to the main body of the lake and on the north shore of the great headland that separates the two most eastern of the great southern bays of the main body of the lake. The station is on a rock cliff about midway of the headland and just east of a small marshy cove. It is about 12 meters above the water. There is a large island in the channel north of the station.

Station mark: A drill hole within a triangle cut in the rock.

Lagoon (Minnesota, Lake County; W. B. Fairfield, 1914).—On an island in the eastern part of the large and irregular main body of Crooked Lake, about 1½ miles west of the east entrance thereto. The station is on a small rock islet that lies south of and just within the angle of the large L-shaped island in the main east-and-west channel of the lake. It is on the highest part of the islet, less than a meter above the water.

Station mark: A drill hole within a triangle cut in the rock.

Law (Minnesota, Lake County; W. B. Fairfield, 1914).—On an island in the eastern part of the large irregular main body of Crooked Lake, about 1⅝ miles west of the east entrance into this part of the lake. The station is on the southeast point of the large L-shaped island lying in the main channel. It is about 200 meters southwest of station "Jehu," which is on the most eastern point of the island.

Station mark: A drill hole within a triangle cut in the rock.

Jump (Minnesota, Lake County; W. B. Fairfield, 1914).—On the south shore near the east end of the main irregular part of Crooked Lake, about 1¼ miles west of the east entrance. Leaving the east entrance, the main channel of the lake passes west around the north end of a very long narrow peninsula. Just west of this is a shorter and smaller peninsula. The station is on the most western prominent point of this second peninsula,

on a large fixed rock on the bluff, about 6 meters above the water. The east end of a large island bears north 20° west, about 250 meters distant from the station.

Station mark: A drill hole within a triangle cut in the rock.

Lass (Minnesota, Lake County; W. B. Fairfield, 1914).—On the south shore of Crooked Lake, about 1¼ miles west of the east entrance to the large irregular main body of the lake. The station is on the most northwestern point of a high and rugged peninsula that projects into the main channel as one goes west through the lake. The channel divides at the east end of a large L-shaped island about 200 meters northwest of the station. The station is on the extreme point, on a large fixed rock, about 4.5 meters back from the water's edge.

Station mark: A drill hole within a triangle cut in the rock.

Jehu (Minnesota, Lake County; W. B. Fairfield, 1914).—On an island in the eastern part of the main body of Crooked Lake, known as the lower lake, about 1¼ miles west of the east entrance to the main body of the lake. The station is on the east end of a large L-shaped island, the top of the L being to the east, having narrow passages around it both to the north and to the south. The international boundary line runs through the passage to the north and then passes around the west end of the island, between it and another large island. The station is on the highest point of the granite ledge that makes up from the water to a height of about 4.5 meters.

Station mark: A drill hole within a triangle cut in the ledge.

Jasper (Minnesota, Lake County; W. B. Fairfield, 1914).—On Crooked Lake, near the east side. The station is on the double point of the long fingerlike peninsula, that makes up from the south shore, about three-fourths mile west of the east entrance to the main body of the lake. It is on a large fixed rock on the highest part of the north end of the eastern of the two points.

Station mark: A drill hole within a triangle cut in the rock.

Kid (Ontario, Rainy River District; W. B. Fairfield, 1914).—About three-fourths mile northwest of the east entrance to the large irregular main body of Crooked Lake. The station is on the north shore of a little bay on the east side of the entrance to the great northern bay that leads up to the part of the lake known as Gardner Bay. It is beside a large round bowlder on top of the conspicuous white bluff of the north shore of the bay, about 12 meters above the water.

Station mark: A drill hole within a triangle cut in the rock.

Ken (Ontario, Rainy River District; W. B. Fairfield, 1914).—On the east shore of the large irregular main body of Crooked Lake and about one-half mile northwest of its east entrance. The station is on the headland that lies east and opposite, about 300 meters distant across the channel, from the high double point of the long peninsula which forms the west side of the most eastern of the great southern bays of the main body of the lake. There is a small bay to the northeast of the point and a small island lies in the entrance to the bay. The station is on the extreme northwest point of the headland on a fixed rock about 5 meters back from the edge of the water.

Station mark: A bronze disk set in the rock.

Lag (Minnesota, Lake County; W. B. Fairfield, 1914).—About three-fourths mile west of the east entrance to the large irregular main body of Crooked Lake. The station is on the east side of the north end of the long narrow peninsula that reaches up from the south. It is on the granite ledge on top of the rock bluff, about 15 meters above the lake level.

Station mark: A drill hole within a triangle cut in the rock. Reference monument 691, an 8-inch manganese-bronze post, is on top of the hill, about 50 meters west of the station.

King (Ontario, Rainy River District; W. B. Fairfield, 1914).—On the east shore of the large irregular main body of Crooked Lake and about one-half mile northwest of its east entrance. The station is on the headland that lies east and opposite, about 300 meters distant across the channel, from the high double point of the long peninsula which forms the west side of the most eastern of the great southern bays of the main body of the lake. There is a small bay to the northeast of the point and a small island lies in the entrance to the bay. The station is on the most western part of the headland about midway of the length of the channel in front of it. It is on a fixed rock about 1 meter from the shore line.

Station mark: A drill hole within a triangle cut in the rock.

Jar (Minnesota, Lake County; W. B. Fairfield, 1914).—On the east shore of the main body of Crooked Lake, near the east entrance. The station is on the point of the mainland about 350 meters south of the mouth of the channel passing around the north and west sides of the large island lying in the entrance to the lake, and about 200 meters west of the narrow passage at the south end of the same island. There is a small hill on the point. The station is on the highest point of the ledge on the summit of the hill.

Station mark: A drill hole within a triangle cut in the ledge.

Lad (Minnesota, Lake County; W. B. Fairfield, 1914).—On the south side of Crooked Lake. The station is on the bold rocky point about seven-eighths mile southwest across the bay from the east entrance to the large irregular main body of the lake. A rocky wooded island lies about 150 meters off the point to the southeast. The station is on top of the rock point, about 7 meters above the water.

Station mark: A drill hole within a triangle cut in the rock.

Jaxe (Minnesota, Lake County; W. B. Fairfield, 1914).—On the east shore of the eastern south arm of the main body of Crooked Lake. This is about 1½ miles west of the long narrow north and south reaches of the lake which connect it with Basswood River. The station is on a point of the shore about one-half mile south of the south end of the narrow passage with rapids in it that extend around the north and west sides of a large island and through which the international boundary passes.

Station mark: A drill hole within a triangle cut in the rock near the shore line.

Last (Minnesota, Lake County; W. B. Fairfield, 1914).—On Crooked Lake, on the west shore of the large island lying in the east entrance to the large irregular main body of the lake. It is about midway between the ends of the narrow north-and-south part of the boundary channel around the north and west sides of the island. It is on a low point just above high water.

Station mark: A drill hole within a triangle cut in the rock.

Kitty (Ontario, Rainy River District; W. B. Fairfield, 1914).—On the north shore of Crooked Lake, near the east end. The station is on the west side of the narrow boundary channel around the north and west sides of the large island that lies in the east entrance to the large irregular main part of the lake. It is about one-fourth mile below the rapids in the channel and about midway between the ends of the north-and-south section of the channel. It is about 5 meters above the water, on a rock in front of a larger rock.

Station mark: A drill hole within a triangle cut in the rock.

Lamp (Minnesota, Lake County; W. B. Fairfield, 1914; 1921).—On the eastern part of Crooked Lake, on the northwest point of the large island lying in the east entrance to the large irregular main body of the lake. It is on that part of the narrow boundary channel known as the boundary rapids. It is on a bare rock just about the high-water mark, about 50 meters east of the extreme northwest point of the island.

Station mark: A bronze disk set in the rock.

Koble (Ontario, Rainy River District; W. B. Fairfield, 1914).—On the north shore of Crooked Lake. The station is on the north shore of the narrow channel of swift water that passes around the large island lying in the east entrance to the main or lower body of the lake. It is upstream from swift water and about 30 meters upstream from a rock awash at high water. It is on an igneous rock, a little above high-water mark.

Station mark: A drill hole within a triangle cut in the rock.

Jock (Minnesota, Lake County; W. B. Fairfield, 1914).—On the south end of the large island that lies at the east entrance to the main body of Crooked Lake. A narrow channel, through which the boundary line runs, passes around the north and west sides of the island, and there is a very narrow passage, not more than 2 meters wide and 15 meters long, around the south end of the island. There are small rapids in both channels and the part of the lake to the west is often called the lower lake, and the part to the east the upper lake. The station is on the summit of the hill on the south end of the island.

Station mark: A drill hole within a triangle cut in the large granite ledge of the summit.

Jaw (Minnesota, Lake County; W. B. Fairfield, 1914).—On the south shore of the eastern part of Crooked Lake. The station is on the high steep wooded hill that rises on the point just south from the most southern point of the large island lying in the east entrance to the large irregular main body of the lower lake. It is on a bare rock shoulder, on the northwest slope of the hill, some distance below the summit.

Station mark: A drill hole within a triangle cut in the ledge at its highest point.

Jig (Minnesota, Lake County; W. B. Fairfield, 1914).—On the eastern part of Crooked Lake, on the southeast point of the large round island around the north side of which, and the north and west side of the larger island just west, are the narrows leading into the large and lower part of the lake. The station is on the highest part of the point on the granite top.

Station mark: A bronze disk set in the rock.

Jane (Minnesota, Lake County; W. B. Fairfield, 1914).—On the eastern part of Crooked Lake, about 5½ miles north of Lower Basswood Falls. The station is on the summit of the highest point near the center of the largest island in the north end of the long narrow north-and-south part of the lake.

Station mark: A drill hole within a triangle cut in the ledge.

In (Ontario, Rainy River District; W. B. Fairfield, 1914).—On the east shore of Crooked Lake, about 5 miles north of Lower Basswood Falls. The station is on a rocky and wooded bluff, about 350 meters south of the south end of the largest island in the north end of the long narrow north-and-south reach of the eastern part of the lake. It is on a granite point among the pines, about 15 meters above the lake level and directly overlooking the lake.

Station mark: A drill hole within a triangle cut in the rock.

Gum (Ontario, Rainy River District; W. B. Fairfield, 1914).—On the east shore of Crooked Lake, about 4⅞ miles north of Lower Basswood Falls. The station is on the north end of the cliff on the prominent point

about one-half mile south of the largest island in the north end of the long narrow north-and-south reach of the eastern part of the lake. It is on the solid granite top of the highest point on the cliff.

Station mark: A bronze disk set in the rock. A drill hole within a triangle cut in the rock, marking triangulation station "Ice," is about 50 meters south of the station.

Ibex (Ontario, Rainy River District; W. B. Fairfield, 1914).—On the east shore of Crooked Lake, about 4¾ miles north of Lower Basswood Falls. The station is on the high cliff about 300 meters north of the narrows that are just north of where the lake runs west for about 1 mile and then again turns to the north. It is on the north end of the cliff on the lower rock bluff that rises sheer from the water.

Station mark: A drill hole within a triangle cut in the rock.

Ice (Ontario, Rainy River District; W. B. Fairfield, 1914).—On the east shore of Crooked Lake, about 4⅞ miles north of Lower Basswood Falls. The station is on the south end of the cliff on the prominent point about one-half mile south of the largest island in the north end of the long narrow north-and-south reach of the eastern part of the lake. It is on the bare ledge on the summit of the cliff.

Station mark: A drill hole within a triangle cut in the rock. A bronze disk set in the rock, marking triangulation station "Gum," is about 50 meters north of the station.

Genus (Ontario, Rainy River District; W. B. Fairfield, 1914).—On the east shore of Crooked Lake, about 4½ miles north of Lower Basswood Falls. The station is on the north end of the cliffs at the narrows, which are just north of where the lake has made a jog of about a mile to the west and then turned north again. It is on the smooth rock summit of the cliffs.

Station mark: A drill hole within a triangle cut in the rock.

George (Ontario, Rainy River District; W. B. Fairfield, 1914).—On the north shore of Crooked Lake, about 4¼ miles north of Lower Basswood Falls. The station is on the narrow peninsulalike point around which the lake turns into the second and last narrow north reach. It is on the highest part of the bluff, about 100 meters north of the extreme tip of the point.

Station mark: A drill hole within a triangle cut in the rock.

Honk (Minnesota, Lake County; W. B. Fairfield, 1914).—On the south shore of Crooked Lake, about 4 miles north of Lower Basswood Falls. The station is on a prominent point on the west shore of the large bay from which the lake turns into the second and last narrow north reach. About 100 meters northwest of the station, across a small cove, there is another rocky point on which is a large round boulder about 3 meters in diameter. The station is on top of the granite ledge, about 4.5 meters from the water's edge and about 1.5 meters above the lake level.

Station mark: A drill hole within a triangle cut in the ledge.

Hire (Minnesota, Lake County; W. B. Fairfield, 1914).—On the south side of Crooked Lake, about 4 miles north of Lower Basswood Falls. The station is on the summit of the hill on the point around which the lake makes a big bend from the north toward the west. It is about 300 meters back from the rounded shore line of the point.

Station mark: A drill hole within a triangle cut in the rock.

Herd (Minnesota, Lake County; W. B. Fairfield, 1914).—On the south end of a small rocky island, in Crooked Lake, about 4 miles north of Lower Basswood Falls. The island is near the west shore of the wide expanse of the lake just before it turns to the west.

Station mark: A drill hole within a triangle cut in the smooth granite ledge.

Hide (Minnesota, Lake County; W. B. Fairfield, 1914).—On the west shore of Crooked Lake, about 3¾ miles north of Lower Basswood Falls. The station is on a granite point about 300 meters north of the narrows, north of which the lake widens out into an open expanse about 1 mile long and one-half mile wide. It is on the north end of the granite ledge forming the point, and is about 1.5 meters above the lake level.

Station mark: A drill hole within a triangle cut in the rock.

Grog (Ontario, Rainy River District; W. B. Fairfield, 1914).—On the east shore of Crooked Lake, about 3½ miles north of Lower Basswood Falls. The station is on the cliff near the north end of the narrows, north of which the lake widens into an open expanse about 1 mile long and one-half mile wide. It is about 130 meters north of reference monument 728 and on a continuation of the same cliff.

Station mark: A bronze disk set in the rock on the highest part of the cliff.

Hint (Minnesota, Lake County; W. B. Fairfield, 1914; 1915).—On the west side of Crooked Lake, about 3½ miles north of Lower Basswood Falls. The station is on the ridge that extends west from the narrows, north of which the lake widens into an open expanse about 1 mile long and one-half mile wide. It is about 300 meters west of the narrows. Two bays, one to the north and one to the south, extend inland, each to within 200 meters of the station. The station is on the first high rock ledge west from the bluff at the narrows. It is surrounded by timber.

Station mark: A drill hole within a triangle cut in the rock.

Goal (Ontario, Rainy River District; W. B. Fairfield, 1914; 1921).—On the north shore of Crooked Lake, about 2¼ miles north of Lower Basswood Falls. The station is on the point that lies about 70 meters northwest of the western island off the mouth of Moose Bay. It is on a large flat place on top of the high rock on the point.

Station mark: A drill hole within a triangle cut in the rock.

Hall (Minnesota, Lake County; W. B. Fairfield, 1914).—On the west shore of Crooked Lake, about 2 miles north of Lower Basswood Falls. The station is on the point around which the lake turns toward the west. It is about 50 meters southwest of the rocky southern point of an island, on a granite ledge about 1.5 meters from the water's edge, and 1.5 meters above the lake level.

Station mark: A bronze disk set in the ledge.

Hen (Minnesota, Lake County; W. B. Fairfield, 1914).—On the west shore of Crooked Lake, about 1¾ miles north of Lower Basswood Falls. The station is on a low granite point at the foot of the steep rocky bluff, 110 meters north of reference monument 745 on the bluff on the opposite shore of the lake. It is about 3 meters back from the water's edge.

Station mark: A drill hole within a triangle cut in the rock ledge.

Hilt (Minnesota, Lake County; W. B. Fairfield, 1914).—On the west shore of Crooked Lake, about 1½ miles north of Lower Basswood Falls. The station is on the first rocky point north of the rock cliff with drawings on it, known as Indian Rock. It is on the shelflike granite ledge, about 2 meters back from the water's edge and 0.7 meter above the lake level. The bank rises steeply back of the station.

Station mark: A bronze disk set in the ledge.

Hades (Minnesota, Lake County; W. B. Fairfield, 1913; 1915).—At the head of Crooked Lake, about 450 meters west of Lower Basswood Falls. The station is on top of the ridge, about 150 meters west of the lake shore, on the highest point of a large ledge that is partly open towards the east, but heavily timbered in other directions.

Station mark: A bronze disk set in the ledge.

Grab (Ontario, Rainy River District; W. B. Fairfield, 1913).—On the north side of Basswood River, about three-fourths mile northeast of Lower Basswood Falls. The station is on the timbered and rocky ridge that rises from the river, about 300 meters northwest across the little bay from Wheelbarrow Portage. It is on the solid granite ledge on the highest part of the ridge overlooking the river.

Station mark: A drill hole within a triangle cut in the ledge.

Harem (Minnesota, Lake County; W. B. Fairfield, 1913).—On the south side of Basswood River, just south of the first large island above Crooked Lake. The station is about 200 meters south of the river, on a large fixed rock, on the summit of the west end of the ridge.

Station mark: A bronze disk set in the rock.

Halter (Minnesota, Lake County; W. B. Fairfield, 1913).—On the last large island in Basswood River, above Lower Basswood Falls and Crooked Lake. The station is near the center, and on the highest point of the island.

Station mark: A bronze disk set in a large fixed rock.

Girl (Ontario, Rainy River District; W. B. Fairfield, 1913; 1915).—On the north side of Basswood River. The station is on the high hill that lies in the bend of the river between the two wide expansions in the last and lower north-and-south reach. It is across the river and one-half mile north of the lower end of the long portage trail. It is on the highest point of the ledge on the summit of the hill.

Station mark: A bronze disk set in the ledge.

Gout (Ontario, Rainy River District; W. B. Fairfield, 1913; 1915).—On the north side of Basswood River, on the north side of the large bay or wide expanse of the river that is at the north end of the last north reach of the river above Lower Basswood Falls. The station is about 1¾ miles east by north of Lower Basswood Falls, on the summit of the high granite ledge, about 300 meters north from the shore of the river.

Station mark: A drill hole within a triangle cut in the ledge.

Gong (Ontario, Rainy River District; W. B. Fairfield, 1913).—On the north side of Basswood River, about 1 mile below Basswood Lake. The station is on the summit of the high ridge that rises from the north shore of the river along the north side of the first big loop in the river below the lake. It is on the bare granite top on the west end of the ridge.

Station mark: A drill hole within a triangle cut in the rock.

Gift (Ontario, Rainy River District; W. B. Fairfield, 1913).—On the north side of Basswood River, about 1 mile northwest of Basswood Lake. The station is on the high bare granite ridge that rises from the north bank of the river on the north side of the first big loop in the river below Basswood Lake. It is on the highest and second bare point east of the west end of the ridge.

Station mark: A drill hole within a triangle cut in the ledge.

Havoc (Minnesota, Lake County; W. B. Fairfield, 1913).—On the west side of Basswood Lake, southwest of Basswood Falls, and west of the mouth of the bay from which Basswood River flows. The terrain rises from the bay in a succession of granite ridges. The station is on one of the highest of these ridges, on a smooth granite ledge clear of timber, although there is timber on all sides. It is about 600 meters back from the west shore of the bay.

Station mark: A drill hole within a triangle cut in the highest part of the ledge.

Good (Ontario, Rainy River District; W. B. Fairfield, 1913).—On the north side of Basswood River, about 1,400 meters north of Basswood Falls. The station is on the ridge that rises from the north shore of the small bay that lies to the east of the north end of the first north stretch of the river after leaving Basswood Lake. It is on the east end of the ridge, on a granite knoll, about 35 meters above the lake, and about 300 meters back from the edge of the lake.

Station mark: A bronze disk set in the rock.

This (Ontario, Rainy River District; W. B. Fairfield, 1915; 1921).—On the north bank of Basswood River, about 50 meters below the middle of Wheelbarrow Falls. The station is on a large rock about 2.4 meters above the ground, about 22 meters back from the river's edge, and about 6 meters above the water.

Station mark: A bronze disk set in the rock.

Isle (Minnesota, Lake County; W. B. Fairfield, 1915).—On Basswood River. The station is on the highest point of a small island that lies on the west side of the large island just above Wheelbarrow Falls.

Station mark: A drill hole within a triangle cut in a rock.

Little (Minnesota, Lake County, W. B. Fairfield, 1915).—On Basswood River. The station is on a round-topped rock on the west shore of the large island that lies just above Wheelbarrow Falls. There is a small island about 50 meters offshore, just opposite the station.

Station mark: A drill hole within a triangle cut in the rock.

Point (Ontario, Rainy River District; W. B. Fairfield; 1915).—On the north bank of Basswood River, about 220 meters north of Wheelbarrow Falls. The station is on a ledge of rock about 6 meters back from and about 6 meters above the shore line.

Station mark: A bronze disk set in the ledge.

Lefty (Ontario, Rainy River District; W. B. Fairfield, 1915).—On the north bank of Basswood River, about 500 meters upstream from Wheelbarrow Falls. The station is on a sloping ledge about 12 meters back from the shore line and about 7 meters above the water level.

Station mark: A drill hole within a triangle cut in the ledge.

Round (Minnesota, Lake County; W. B. Fairfield, 1915).—On Basswood River, on the north side of the large island that lies just above Wheelbarrow Falls. The station is near the top of the north slope of the hillside, about 50 meters from the shore and about 27 meters above the water level.

Station mark: A drill hole within a triangle cut in the rock.

Up (Minnesota, Lake County; W. B. Fairfield, 1915).—On Basswood River, on the north side of the large island that lies just above Wheelbarrow Falls. The station is on a round-topped rock about 30 meters back from the shore and about 15 meters above the river.

Station mark: A drill hole within a triangle cut in the rock.

Cut (Ontario, Rainy River District; W. B. Fairfield, 1915).—On the north bank of Basswood River opposite the upper end of the large island that lies just above Wheelbarrow Falls. The station is on a ledge about 30 meters back from the shore line.

Station mark: A drill hole within a triangle cut in the ledge.

Log (Ontario, Rainy River District; W. B. Fairfield, 1915).—On the north bank of Basswood River. The station is on the point about 150 meters northeast of the northeast point of the large island that lies immediately above Wheelbarrow Falls. It is on a ledge 3.6 meters back from the shore line and 1 meter above the water.

Station mark: A drill hole within a triangle cut in the ledge.

Black (Ontario, Rainy River District; W. B. Fairfield, 1915).—On the north bank of Basswood River. The station is on the northeast side of the bay or pond that lies above Wheelbarrow Falls. It is on a black, flat, rock point, near the shore line and about 2.4 meters above the water.

Station mark: A drill hole within a triangle cut in the rock.

Fine (Ontario, Rainy River District; W. B. Fairfield, 1915).—On the east bank of Basswood River, about 1 mile upstream from Wheelbarrow Falls. The station is on a rock bluff about 6 meters above the water, about 250 meters north of a sharp turn in the river.

Station mark: A drill hole within a triangle cut in the rock.

Wood (Minnesota, Lake County; W. B. Fairfield, 1915).—On the west bank of Basswood River, about 1 mile upstream from Wheelbarrow Falls. The station is on a rock bluff about 6 meters above the river and about 200 meters north of a sharp bend of the river.

Station mark: A drill hole within a triangle cut in rock.

Jumpy (Ontario, Rainy River District; W. B. Fairfield, 1915).—On the north bank of Basswood River, about 1 mile above Wheelbarrow Falls. The station is on the rock point at the turn of the river from the west to the north. It is about 22 meters back from the river and about 6 meters above the water level.

Station mark: A bronze disk set in the rock.

Hump (Ontario, Rainy River District; W. B. Fairfield, 1915).—On the north bank of Basswood River about 1¼ miles upstream from Wheelbarrow Falls. The station is about 150 meters upstream from a sharp turn of the river from west to north. It is on a large flat rock about 30 meters from the river and about 15 meters above the water.

Station mark: A drill hole within a triangle cut in the rock.

Saw (Minnesota, Lake County; W. B. Fairfield, 1915).—On the south side of Basswood River, on the summit of a knoll between the river and the wagon road known as Horse Portage. It is just below the rapids at the turn of the river, about 80 meters from the river, about 30 meters from the wagon road, and about 12 meters above the water in the river.

Station mark: A drill hole within a triangle cut in the rock.

Near (Minnesota, Lake County; W. B. Fairfield, 1915).—On the south side of Basswood River, about 1 mile downstream from Basswood Falls. The station is on the sloping rock ledge near the top of the ridge, about 80 meters from the river and about 30 meters above the water.

Station mark: A drill hole within a triangle cut in the rock.

Fly (See description of Reference Monument 790).

Bean (Ontario, Rainy River District; W. B. Fairfield, 1915).—On the east bank of Basswood River, about one-half mile north of Basswood Falls. The station is on a point jutting out to the south of a small bay. It is about 9 meters from high-water mark and about 6 meters above it.

Station mark: A bronze disk set in rock.

Birch (Minnesota, Lake County; W. B. Fairfield, 1915).—On the west bank of Basswood River, about 800 meters north of Basswood Falls. The station is about 150 meters west of the rapids in the narrows at the turn of the river. It is on a flat-topped bowlder.

Station mark: A drill hole within a triangle cut in the bowlder.

Big (Minnesota, Lake County; W. B. Fairfield, 1915).—On the west side of Basswood River about 700 meters north of Basswood Falls. The station is on a large bowlder about 4 meters square and 3 meters high, about 36 meters from the water above the rapids in the narrows.

Station mark: A drill hole within a triangle cut in the bowlder.

Burn (Ontario, Rainy River District; W. B. Fairfield, 1915; 1921).—On the east side of Basswood River on the summit of a rock knoll nearly opposite the second rapids north of Basswood Falls. The station is about 25 meters from the river and about 25 meters above the water.

Station mark: A drill hole within a triangle cut in the rock.

Blow (Ontario, Rainy River District; W. B. Fairfield, 1915).—On the east side of Basswood River, on the rocky knoll north across the rapids from the north end of the large island that lies just north of Basswood Falls. The station is about 50 meters from the water.

Station mark: A bronze disk set in rock.

Harpy (Minnesota, Lake County; W. B. Fairfield, 1913).—On the small rocky island in the western part of Basswood Lake, three-fourths mile south of Basswood Falls and just outside the narrow entrance to the bay from which the falls and Basswood River leave the lake. The station is on the solid ledge on the highest part of the island.

Station mark: A drill hole within a triangle cut in the ledge.

Glue (Ontario, Rainy River District; W. B. Fairfield, 1913).—On the north side of Basswood Lake, on the point at the west end and on the north side of the narrow passage that lies along the north side of United States Point. The station is on the summit of the granite knoll about 100 meters back from the lake shore and about 30 meters above the lake level. There is a higher knoll about 150 meters to the north.

Station mark: A drill hole within a triangle cut in the rock.

Gin (Ontario, Rainy River District; W. B. Fairfield, 1913).—On the south end of a high, rocky, timbered island in the northern part of Basswood Lake. The island lies in the west end of the narrow passage around and

north of United States Point, connecting the eastern and western parts of the lake. The island is the most eastern one of the group of islands at the west end of the passage. The station is on the solid-rock point of the south end of the island, about 2.5 meters back from the shore line and about 2.5 meters above the water level.

Station mark: A bronze disk set in the rock.

High (Minnesota, Lake County; W. B. Fairfield, 1913).—On Basswood Lake, on United States Point. The station is about 1 mile distant from and on the second high hill west of the east tip of the point. It is on a bare white rock knoll on the southern brow of the hill.

Station mark: A drill hole within a triangle cut in the rock.

Gown (Minnesota, Lake County; W. B. Fairfield, 1913).—Near the middle of the north stretch of Basswood Lake. The station is on a small rocky islet that has a large, lone Norway pine tree on it. Southeast of this island, about 150 meters distant, is another and larger island. Just north of these islands the lake bends to the northeast toward North Bay. The station is on the east end of the islet, on a large fixed rock southeast of the lone pine tree.

Station mark: A bronze disk set in the rock.

Hold (Minnesota, Lake County; W. B. Fairfield, 1913).—On the west shore of the north reach of Basswood Lake. The station is on a sharp rocky point of the shore line between two small bays just in the angle where the north stretch of the lake turns northeast toward North Bay. The station is on a large, irregularly shaped rock, about 3 meters from the water's edge and 3 meters above the lake level.

Station mark: A bronze disk set in the rock.

Hasp (Minnesota, Lake County; W. B. Fairfield, 1913).—In the north stretch of Basswood Lake. On a small rock islet that is the largest one of a group of rocks and islets in the north stretch of Basswood Lake, lying 250 meters off the big point of the shore seven-eighths mile southwest of the extreme end of United States Point. The station is on the highest point of the smooth rock, about 3 meters above the lake level.

Station mark: A bronze disk set in the rock.

Gore (Ontario, Rainy River District; W. B. Fairfield, 1913; 1921).—On a small island in the southern part of the north stretch of Basswood Lake, about 300 meters southwest of the most southwestern point of Canadian Point. The station is on a large fixed rock near the west end of the island, about 3.5 meters above the lake level.

Station mark: A bronze disk set in the rock.

Halo (Minnesota, Lake County; W. B. Fairfield, 1913).—On the very large island in Basswood Lake lying on the west side of the channel just north of the great bend of the lake from the west to the north. The station is on the most eastern point of the island. This point is a bluff of granite about 15 meters high capped by a solid granite ledge. The station is on the highest point of the ledge. There is an Indian cemetery on the point, about 150 meters west of the station.

Station mark: A bronze disk set in the ledge.

Goat. (See description of reference monument 817.)

Hawk (Minnesota, Lake County; W. B. Fairfield, 1913).—On the shore of Basswood Lake, about 1½ miles south of Basswood Falls. The station is on the point on the south side and at the east end of the narrows leading from the main body of the lake to the large southwest forks of the lake. This point is the north point of a peninsula of considerable size that is connected with the mainland on the south by a long, rocky isthmus about 2 or 3 meters in width. The station is on the top of the high rock point, on a smooth granite ledge.

Station mark: A drill hole within a triangle cut in the ledge.

Haw (Minnesota, Lake County; W. B. Fairfield, 1913).—On the south side of Basswood Lake, about 2 miles south by east and across the lake from Basswood Falls, on the high, bare, rocky hill just east of the first large, timbered island south of the point where the lake turns to the southwest toward Jackfish Bay. The station is on the summit of the hill which rises very steep from the water's edge with a face of almost solid rock. It is about 50 meters back from the water's edge and about 30 meters above the lake level.

Station mark: A drill hole within a triangle cut in the solid ledge.

Haze (Minnesota, Lake County; W. B. Fairfield, 1913).—South of Basswood Lake, about 3 miles south and across the lake from Basswood Falls. The station is on top of the bluff about 300 meters south of the head of the bay that deeply indents this part of the shore. A low swampy pass extends from the head of the bay, between the hills and in front of the station, to the Pipestone Falls branch of the lake. The station is on a bare granite ledge commanding a view from the south around through the west to the north. The hill continues to rise back of the station.

Station mark: A drill hole within a triangle cut in the ledge.

Hunch (Minnesota, Lake County; W. B. Fairfield, 1913).—On the south side of Basswood Lake, on the point on the south side and at the west end of the narrows leading to the two large southwestern arms of the lake.

The eastern of the two arms turns around this point and extends up to Pipestone Falls. The station is on the summit of the high, bare, granite hill on the point, about 4 meters southeast of the highest place.

Station mark: A drill hole within a triangle cut in the smooth ledge.

Hate (Minnesota, Lake County; W. B. Fairfield, 1913; 1914).—On the south side of Basswood Lake. After passing through the narrows from the main body of the lake into the southwest part of the lake, the lake divides into a right and a left arm. The left arm first runs southeast for about 1 mile, then turns to the southwest and extends about 5 miles to Pipestone Falls. The station is on the summit of the hill on the point around which this left arm turns from the southeast to the southwest. It is on the bare ledge on the highest part of the summit.

Station mark: A drill hole within a triangle cut in the ledge.

Hockey (Minnesota, Lake County; W. B. Fairfield, 1913; 1914).—On the south end of Basswood Lake, on the rocky point of the shore 700 meters north across the bay from Hoist Camp and Hoist Portage. This point is on the west side of the bay and is an Indian camp ground. The station is on the highest part of the ledge forming the point and is about 12 meters from the water.

Station mark: A drill hole within a triangle cut in the rock.

Hoist (south base and azimuth station) (Minnesota, Lake County; W. B. Fairfield, 1913).—On the south shore of the long southern arm of Basswood Lake that terminates at Hoist Portage. The station is on the west side of the mouth of the stream flowing from Fall Lake. The portage along this stream is the one known as Hoist Portage. The station is on the smooth granite ledge 15 meters back from the shore, 12 meters west of the north end of the St. Croix Lumber Co.'s cook and bunk house, and about 1.5 meters above the lake level.

Station mark: A bronze disk set in the ledge.

Hoist North Base (Minnesota, Lake County; W. B. Fairfield, 1913).—On the south end of Basswood Lake, on the point on the north shore of the bay 1,100 meters northeast across the bay from Hoist Portage and Hoist Camp. The point is at the west end of the narrow passage going east toward the main body of the lake. The station is on a large fixed rock, about 5 meters back from the shore line and about 1 meter above the lake level. It is about 150 meters east of an old cabin on the shore.

Station mark: A bronze disk set in the rock.

Hale (Minnesota, Lake County; W. B. Fairfield, 1913).—On the southern arm of Basswood Lake leading to Hoist Portage. The station is on the high, rocky bluff point on the south side and at the west end of the narrow east-and-west passage of the arm, and is just south of the large island lying in the passage. It is on the highest part of the granite ledge forming the top of the bluff.

Station mark: A drill hole within a triangle cut in the ledge.

Half (Minnesota, Lake County; W. B. Fairfield, 1913).—On the west side of the southern arm of Basswood Lake leading to Hoist Portage. The station is on the partly bare ridge north of the narrow east-and-west part of the arm and just west and back of the peninsula lying on the north side of the entrance to the narrow part of the arm. It is about 250 meters east of the little bay on the north side of the peninsula and about 250 meters north from the shore of the narrow part of the arm. It is on a large fixed rock about 20 meters south of the highest part of the ridge.

Station mark: A drill hole within a triangle cut in the rock.

Hard (Minnesota, Lake County; W. B. Fairfield, 1913).—On the south shore of the south arm of Basswood Lake which leads to Hoist Portage. The station is on the high rock point just after entering from the east the narrow east-and-west part of the arm. The station is on the bare ledge on the west slope and near the south end of the ridge, and is on the second step or shelf of rock from the top of the ridge.

Station mark: A drill hole within a triangle cut in the ledge.

Hair (Minnesota, Lake County; W. B. Fairfield, 1913).—On Basswood Lake, on the east shore of the arm that extends south to Hoist Portage. The station is at the east end of the narrow part of the arm, on the summit of the first high rock ridge up from the lake, on the bare granite ledge.

Station mark: A drill hole within a triangle cut in the ledge.

Hub (Minnesota, Lake County; W. B. Fairfield, 1913).—On an island in Basswood Lake, about 250 by 350 meters in size, lying a few meters off the mainland on the east side of the entrance to the arm of the lake leading south to Hoist Portage. The island is the third and inner one of those lying along this shore of the entrance. The station is on the southeastern side of the island on a high-rock knoll.

Station mark: A drill hole within a triangle cut in the rock.

Hit (Minnesota, Lake County; W. B. Fairfield, 1913).—On the west shore of the bay of Basswood Lake just before entering the east-and-west narrow passage leading to Hoist Portage. There are three long narrow points on the west shore of the bay. The station is on the extreme tip of the middle point. A small round islet lies about 350 meters due east of the point. The station is on top of a granite ledge that runs up from the water.

Station mark: A drill hole within a triangle cut in the ledge.

Hilda (Minnesota, Lake County; W. B. Fairfield, 1913).—On the west shore of the southern arm of Basswood Lake. The station is on the tip of the long narrow outside point on the west side of the baylike entrance to the south arm of the lake which leads to Hoist Portage. The station is on a solid ledge about 4.5 meters back from the water's edge.

Station mark: A drill hole within a triangle cut in the ledge.

Habit (Minnesota, Lake County; W. B. Fairfield, 1913).—On a small rocky island in the wide part of Basswood Lake just before entering the south arm which leads to Hoist Portage. The island is about 1,700 meters northwest of Wind Bay and about 500 meters due west of the larger and timbered island upon which Leo Chosa had a fish house and several other houses at the time the station was established. The station is on the highest part of the rocky point at the west end of the island.

Station mark: A drill hole within a triangle cut in the rock.

Hat (Minnesota, Lake County; W. B. Fairfield, 1913).—On the large L-shaped island in Basswood Lake just west of the great turn of the lake from the west to the north and about one-half mile north of the entrance to Wind Bay. The station is on the solid ledge on the summit of the high hill on the south end of the island.

Station mark: A bronze disk set in the solid ledge.

Hand (Minnesota, Lake County; W. B. Fairfield, 1913).—On the south side of Basswood Lake, on the point on the west side of the entrance to Wind Bay. The station is on a large fixed rock on the north brow of the high hill on the point.

Station mark: A drill hole within a triangle cut in the rock.

Hardy (Minnesota, Lake County; W. B. Fairfield, 1913).—On a small, timbered island in Basswood Lake 600 meters due north of the entrance to Wind Bay and about 120 meters south of a large L-shaped island. The station is on a granite ledge on the highest part of the island.

Station mark: A drill hole within a triangle cut in the ledge.

Hank (Minnesota, Lake County; W. B. Fairfield, 1913).—On the south shore of Basswood Lake. The station is on the summit of the high rocky hill on the peninsula at the east side of the entrance to Wind Bay. It is on the granite ledge on the highest part of the hill.

Station mark: A drill hole within a triangle cut in the ledge.

Hang (Minnesota, Lake County; W. B. Fairfield, 1913).—On the south side of Basswood Lake, on the point just east of the first bay east of Wind Bay. The station is on the summit of the high, bare, rocky hill 250 meters south of the shore on the north side of the point and 350 meters east of the shore on the west side of the point.

Station mark: A drill hole within a triangle cut in the highest part of the granite ledge that caps the summit.

Grain (Minnesota, Lake County; W. B. Fairfield, 1913).—On the southernmost of the group of three small islands in Basswood Lake lying just south of the very large island around which the lake makes the great bend from west to north. The station is on the east end of the island on a granite ledge just south of the highest point.

Station mark: A drill hole within a triangle cut in the ledge.

Guess (Ontario, Rainy River District; W. B. Fairfield, 1913).—On a small, low, brushy island in Basswood Lake about 20 meters in diameter. The island is the most southern one of the group of islands, large and small, lying in the entrance of Merriam Bay.

Station mark: A drill hole within a triangle cut in the only large fixed rock on the island.

Ham (Minnesota, Lake County; W. B. Fairfield, 1913).—On the south shore of Basswood Lake. The station is on a rocky point 1⅜ miles east of Wind Bay and directly south of the west entrance to Merriam Bay. It is on a granite ledge about 8 meters back from the point. There is another point of the shore, somewhat less prominent, 200 meters to the west of the station.

Station mark: A bronze disk set in the ledge.

Hag (Minnesota, Lake County; W. B. Fairfield, 1913).—On the south shore of Basswood Lake, on the middle one of the three points of the shore line south of the two large islands lying in the entrance to Merriam Bay. It is about 4 meters back from the shore line on a large round fixed rock.

Station mark: A bronze disk set in the rock.

Haft (Minnesota, Lake County; W. B. Fairfield, 1913).—On the south shore of Basswood Lake, south of the two big islands that lie in the entrance to Merriam Bay. The station is a little west of the most northern point of the shore line that is south of the islands. It is almost due south of the east end of the western one of the two large islands. It is on a large fixed rock about 4 meters back from the water's edge.

Station mark: A drill hole within a triangle cut in the rock.

Gas (Ontario, Rainy River District; W. B. Fairfield, 1913).—On the small island in Basswood Lake 100 meters south of the east end of the western one of the two large islands in the entrance to Merriam Bay. It is

on the southwestern part of the island, about 9 meters from the water's edge and about 4 meters above the lake level.

Station mark: A bronze disk set in the rock.

Gap (Ontario, Rainy River District; W. B. Fairfield, 1913; 1915).—On a small low island in Basswood Lake 100 meters south of the south end of the long peninsula between Merriam and Bayley Bays. The station is on a large fixed rock on the highest part of the west end of the island.

Station mark: A drill hole within a triangle cut in the rock.

Game (Ontario, Rainy River District; W. B. Fairfield, 1913).—On the north shore of Bayley Bay of Basswood Lake. There are two pronounced points or peninsulas on the north shore of the bay. The station is on a little rock point of the shore line, across a little bay, 250 meters west of the western one of the two peninsulas. It is on top of a solid granite ledge rising from the water's edge, about 8 meters back from the shore line and about 4 meters above the lake level.

Station mark: A drill hole within a triangle cut in the ledge.

Spin (Ontario, Rainy River District; W. B. Fairfield, 1915).—On an island at the eastern end of Basswood Lake, about 1¾ miles from Prairie Portage. The station is on the south point of the large island that lies just west of the narrows leading into the main body of the lake. It is on a rock outcrop near an old camp ground. No other rock is near it.

Station mark: A drill hole within a triangle cut in the rock.

Top (Ontario, Rainy River District; W. B. Fairfield, 1915).—On an island at the eastern end of Basswood Lake about 1¾ miles west of Prairie Portage. The station is on a small islet that lies just off the southeast tip of the large island just west of the narrows leading into the main body of the lake.

Station mark: A drill hole within a triangle cut in the rock.

Rap (Ontario, Rainy River District; W. B. Fairfield, 1915).—On the north shore near the east end of Basswood Lake. The station is on the point at the entrance to the narrows seven-eighths mile northwest of Prairie Portage.

Station mark: A drill hole within a triangle cut in the rock.

Fire (Minnesota, Lake County; W. B. Fairfield, 1915).—At the east end of Basswood Lake about 1,100 meters northwest of Prairie Portage. The station is on the east end of a small island near the south shore. It is on a small stone about 3 meters back from the water.

Station mark: A drill hole within a triangle cut in the stone.

Till (Ontario, Rainy River District; W. B. Fairfield, 1915).—At the east end of Basswood Lake about 650 meters north of Prairie Portage. The station is on a small rocky islet just off the west point of the large island in the middle of the bay. It is near the center of the islet.

Station mark: A drill hole within a triangle cut in the rock.

Trap (Minnesota, Lake County; W. B. Fairfield, 1915).—On the south shore at the east end of Basswood Lake. The station is on the hill about 300 meters below Prairie Portage and just above the lumber camp.

Station mark: A bronze disk set in the rock.

Rub (Minnesota, Lake County; W. B. Fairfield, 1915).—On the south shore at the lower end of Sucker Lake. The station is on the big point about 250 meters up the lake from the dam at the outlet. It is about 27 meters from the water and about 7 meters above the lake level.

Station mark: A drill hole within a triangle cut in the rock.

Feel (Ontario, Rainy River District; W. B. Fairfield, 1913).—At the west end of Birch Lake, on the very small island lying just inside the narrows from Sucker Lake. The station is on a small rock near the southwest shore, about 1.5 meters west from a large rock and about a meter above the lake level.

Station mark: A bronze disk set in the rock.

Fop (Minnesota, Lake County; W. B. Fairfield, 1913; 1914).—South of the east end of Basswood Lake. The station is on the summit of the high rocky ridge about 540 meters southwest of the dam at Prairie Portage.

Station mark: A drill hole within a triangle cut in the solid rock.

Fent (Minnesota, Lake County; W. B. Fairfield, 1913; 1914).—On the south side of Birch Lake, near the west end of the lake. The station is on the bare rock summit of the high ridge about 300 meters back from the lake shore and 600 meters east of the neck of the peninsula that separates Sucker Lake from Birch Lake.

Station mark: A drill hole within a triangle cut in the rock.

Fourth (Minnesota, Lake County; W. B. Fairfield, 1913).—On the south side of Birch Lake, about 1,900 meters southwest of Carp Portage, and about 700 meters south of the head of a long narrow bay. The station is on the summit of a hill, the highest point in the vicinity. The summit of the hill is a bare white rock.

Station mark: A drill hole within a triangle cut in the rock.

Fitz (Minnesota, Lake County; W. B. Fairfield, 1913).—On the west side of Sucker Lake, about 800 meters due south of Prairie Portage. The station is on the summit of the high bare ridge of white granite, 500 meters back from the lake shore.

Station mark: A drill hole within a triangle cut in the rock.

Fat (Minnesota, Lake County; W. B. Fairfield, 1913).—On the west end of Birch Lake, on the prominent northeast point of the peninsula that separates Sucker Lake from Birch Lake. The station is on the bare rock point about 6 meters west of the extreme point.

Station mark: A bronze disk set in the rock.

Eckley (Ontario, Rainy River District; W. B. Fairfield, 1913).—On a small narrow island in Birch Lake, 1 mile east of the west end of the lake and near the middle of the widest part of the lake. The station is on the west end of the highest part of the island.

Station mark: A bronze disk set in the rock.

Eave (Ontario, Rainy River District; E. R. Martin, 1916).—On the north shore of the eastern narrows of Birch Lake, about three-fourths mile below Carp Portage. The station is on a ledge about 2.5 meters from the shore line and about 1 meter above the lake level.

Station mark: A drill hole in the ledge.

Fit (Minnesota, Lake County; E. R. Martin, 1916).—On the south shore of the eastern narrows of Birch Lake, about three-fourths mile below Carp Portage. The station is on the point of the shore about half way through the narrows. It is about 7 meters back from the water and about 3 meters above the lake level.

Station mark: A drill hole in the ledge.

Erd (Ontario, Rainy River District; W. B. Fairfield, 1913).—About 120 meters north of the extreme west end of Carp Lake, and about 350 meters north of Carp Portage. The station is on the summit at the east end of a ridge about 30 meters above the lake level.

Station mark: A drill hole within a triangle cut in the rock.

First (Minnesota, Lake County; W. B. Fairfield, 1913).—On the high ridge, 650 meters southeast of the mouth of Melon Lake, which discharges into Carp Lake. The station is on the north brow of the ridge, about 90 meters east of the west end of the ridge and about 3 meters below the highest part. It is more than 60 meters above the level of the lake.

Station mark: A drill hole within a triangle cut in the rock.

Econd (Ontario, Rainy River District; W. B. Fairfield, 1913).—On the north side of Carp Lake, about 600 meters northeast of Carp Portage. The station is on a hillside of rough rock near the summit of the east end of a long ridge. It is about 200 meters back from the lake shore and about 30 meters above the lake level.

Station mark: A drill hole within a triangle cut in a rock.

Enough (Ontario, Rainy River District; W. B. Fairfield, 1913).—On the north side of Seed Lake, about 1,250 meters west of the Knife Lake Dam across the outlet of Knife Lake, and about 250 meters northwest from the shore of Seed Lake. The station is on the summit of the high ridge which appears as a round white ledge as seen from the portage.

Station mark: A drill hole within a triangle cut in the ledge.

Faith (Minnesota, Lake County; W. B. Fairfield, 1913).—On the south side of the waterway between Knife and Carp Lakes, about 1,000 meters west of the Knife Lake Dam, and about 400 meters south of the waterway. The station is on the summit of the high ridge directly south of the enlargement of the river known as Portage Lake. The ridge terminates in a sharp rocky point capped with a solid granite ledge.

Station mark: A drill hole within a triangle cut in the ledge.

Flora (Minnesota, Lake County; W. B. Fairfield, 1913).—About 200 meters southeast of the east end of Carp Portage. The station is on the highest point of the east end of the ridge, about 16 meters above the level of the lake.

Station mark: A drill hole within a triangle cut in the rock.

Fest (Minnesota, Lake County; W. B. Fairfield, 1913).—At the second rapids above Carp Lake, at the head of Melon Lake. The station is on the bare hard ledge about 3 meters south of the falls and a little above the water level of the stream above the falls. Extreme high water flows over the station.

Station mark: A bronze disk set in the ledge.

Exit (Ontario, Rainy River District; W. B. Fairfield, 1912).—On the north side of Knife Lake, about 600 meters east of the dam at the outlet of the lake. The station is on the east end of the ridge about 100 meters back from the lake shore.

Station mark: A drill hole within a triangle cut in the solid granite ledge of the summit.

Face (Minnesota, Lake County; W. B. Fairfield, 1912).—On the west end of Knife Lake, on the summit of the bold headland that splits the extreme west end of the lake, and lies just south of the entrance to the outlet and dam.

Station mark: A bronze disk set in the solid granite ledge of the summit.

Egg (Ontario, Rainy River District; W. B. Fairfield, 1912).—On the north shore of Knife Lake, near its west end The station is on the summit of the first high ridge north of the most western wide part of the lake and about 400 meters northwest of the western end of the large anvil-shaped island that chokes the channel of the lake at this point.

Station mark: A drill hole within a triangle cut in the smooth granite ledge of the summit.

Fink (Minnesota, Lake County; W. B. Fairfield, 1912).—On Knife Lake, about 1 mile from the extreme west end of the lake, on the large anvil-shaped island that chokes the channel of the lake. The station is on the summit of the high ridge on the western half of the island.

Station mark: A drill hole within a triangle cut on the smooth granite ledge of the summit.

Flood (Minnesota, Lake County; W. B. Fairfield, 1912).—On Knife Lake, about 1 mile from the extreme west end of the lake. The station is on a small granite islet that lies just off the extreme western tip of the large anvil-shaped island that chokes the channel of the lake. It is on the highest part of the islet, about 3 meters above the lake level.

Station mark: A bronze disk set in the granite ledge.

Early (Ontario, Rainy River District; W. B. Fairfield, 1912).—On the north shore of Knife Lake, near its western end. The station is on the peninsula on the west side of the outside entrance to Back Bay and north of the large anvil-shaped island that cuts the lake down to the narrow channels. It is on the highest point of the rocky peninsula, on a smooth granite ledge. Pulpit Rock is directly opposite the station on the anvil-shaped island across the channel.

Station mark: A drill hole within a triangle cut in the ledge.

Felix (Minnesota, Lake County; W. B. Fairfield, 1912).—On Knife Lake, about 1¼ miles from the extreme west end of the lake. The station is on the north shore of the large anvil-shaped island that chokes the channel of the lake. It is about midway between the east and west ends of the island, on the rock point of striking appearance known as Pulpit Rock. It is about 30 meters above the level of the lake.

Station mark: A drill hole within a triangle cut in the rock.

Ember (Ontario, Rainy River District; W. B. Fairfield, 1912).—On the north shore of Knife Lake, near the west end. The station is on the most southwestern point of the large irregular peninsula that incloses Back Bay. It is on the granite ledge about 3 meters from the water's edge.

Station mark: A bronze disk set in the ledge.

Edna. (See description of reference monument 888.)

Flay (Minnesota, Lake County; W. B. Fairfield, 1912).—On the south shore of Knife Lake, about 1½ miles east of Big Knife Portage. The station is about 550 meters southeast of the eastern end of the large anvil-shaped island that chokes the channel of the lake. It is on the summit of a hill on a rounded point of the shore, about 100 meters back from the shore line, and about 18 meters above the level of the lake.

Station mark: A drill hole within a triangle cut in the ledge of the summit.

Flick (Minnesota, Lake County; W. B. Fairfield, 1912).—On a small low island in Knife Lake, lying in the entrance to a large bay, about 450 meters southwest of a large island, and about 400 meters south of the peninsula that incloses Back Bay. The station is near the center, and on the highest point of the island on a large fixed white rock.

Station mark: A drill hole within a triangle cut in the rock.

Elbow (Ontario, Rainy River District; W. B. Fairfield, 1912).—On the north shore of Knife Lake, on the most southeastern point of the irregular peninsula that incloses Back Bay. The point is opposite and 500 meters west from a large island off the south shore. The station is on the extreme southern end of the point, on an outcropping ledge about 8 meters back from the water's edge, and 8 meters above the lake level.

Station mark: A drill hole within a triangle cut in the ledge.

Eben (Minnesota, Lake County; W. B. Fairfield, 1912).—On the northern of the two small islands that lie in the middle of Knife Lake, opposite the entrance to the most western of the three large southern bays or arms of the lake. The station is about midway between the east and west ends of the island and is on a solid ledge on the highest part of the island.

Station mark: A bronze disk set in the ledge.

Fad (Minnesota, Lake County; W. B. Fairfield, 1912).—On the south shore of Knife Lake, on the southwest point of the promontory that lies between the two large eastern bays of the south side of the main body of the lake. The station is on the highest part of the point on a solid granite ledge.

Station mark: A drill hole within a triangle cut in the ledge.

Earth (Ontario, Rainy River District; W. B. Fairfield, 1912).—On the high rocky, timbered island in Knife Lake about 300 meters in length that lies near the middle of the lake, just west of the easternmost large bay in the south shore of the lake. The station is near the center of the island, on the highest point, on a smooth granite ledge.

Station mark: A bronze disk set in the ledge.

Front (Minnesota, Lake County; W. B. Fairfield, 1912).—On the south shore of Knife Lake, on the high rocky point just west of the entrance to the first large bay after passing west through the narrows separating the eastern part of the lake known as Little Knife Lake from the main body of the lake. A very large island lies in the bay 500 meters east of the point, and there is a small island in the channel 300 meters west of the point. The station is on top of the cliff, about 2.5 meters from the edge.

Station mark: A drill hole within a triangle cut in the rock.

Fain (Minnesota, Lake County; W. B. Fairfield, 1912).—On the south shore of Knife Lake, on the point 700 meters southwest of the narrows separating the eastern part, known as Little Knife Lake, from the main body of the lake. The point is on the east side of the entrance to a very large southern bay or arm of the lake. The station is on the top of the bluff about 100 meters east of the extreme end of the point. It is about 2 meters back from the face of the bluff.

Station mark: A drill hole within a triangle cut in the rock.

Earn (Ontario, Rainy River District; W. B. Fairfield, 1912).—On an island in Knife Lake that lies at the entrance to a bay, about 1,100 meters due west of the narrows separating the eastern section of the lake, known as little Knife Lake, from the main body of the lake. The station is on a granite ledge that extends into the lake on the east side of the island. It is back about 3.5 meters from the water's edge.

Station mark: A bronze disk set in the ledge.

Ear (Ontario, Rainy River District; W. B. Fairfield, 1912).—On the north shore of Knife Lake, on the low rocky point just north of the east end of the island that lies in the middle of the lake, about 1 mile west of the narrows that separates the eastern part of the lake, known as Little Knife Lake, from the main body of the lake. The station is on the granite ledge, about 3 meters from the water's edge.

Station mark: A drill hole within a triangle cut in the ledge.

Fall (Minnesota, Lake County; W. B. Fairfield, 1912; 1916).—On the south shore of Knife Lake, on the point on the south side of the narrows separating the eastern portion of the lake, known as little Knife Lake, from the main body of the lake. The station is about 4.5 meters back from the extreme tip of the point, on the highest part of a granite ledge.

Station mark: A bronze disk set in the ledge.

Fail (Minnesota, Lake County; W. B. Fairfield, 1912).—On the south shore of Knife Lake, about 1¼ miles southwest of Little Knife Portage. The station is on the point around which the lake widens out into a large bay. It is about 8 meters from the water's edge, on the highest part of the granite ledge.

Station mark: A drill hole within a triangle cut in the ledge.

Civil (Ontario, Rainy River District; W. B. Fairfield, 1912).—On the north shore of Knife Lake, about midway between the ends of the eastern section of the lake sometimes called Little Knife Lake. The station is on a point of the shore about where the lake begins to widen out. Two small islands lie offshore about 200 meters southwest of the point. The station is on the granite ledge that makes up from the water's edge on the point. It is about 2.4 meters back from the water's edge and 0.7 meter above the level of the lake.

Station mark: A drill hole within a triangle cut in the ledge.

Ease (Ontario, Rainy River District; W. B. Fairfield, 1912).—Near the north shore of Knife Lake and about midway between the ends of the eastern section of the lake sometimes called Little Knife Lake. The station is on the solid granite ledge on the highest part of the western of the two small islands lying in this part of the lake.

Station mark: A bronze disk set in the ledge.

Clerk (Ontario, Rainy River District; W. B. Fairfield, 1912; 1921).—On the north shore of Knife Lake, on the first prominent timbered, granite point west of and about 1,000 meters distant from Little Knife Portage. The station is on a ledge on the first smooth knoll of the point.

Station mark: A bronze disk set in the ledge.

Daddy (Minnesota, Lake County; W. B. Fairfield, 1912).—On the south shore of Knife Lake, on the bold granite point or bluff about 1,150 meters southwest of Little Knife Portage. The station is on the highest part of the granite bluff, about 8 meters above the level of the lake.

Station mark: A bronze disk set in the rock.

Fair (Minnesota, Lake County; W. B. Fairfield, 1912).—On the south side of and near the east end of Knife Lake. The station is on the summit of the high, rocky, timbered ridge 350 meters south from the lake shore and nearly due south from the boundary stream between Cypress and Knife Lakes.

Station mark: A drill hole within a triangle cut in the granite ledge of the summit.

Clayton (Ontario, Rainy River District; W. B. Fairfield, 1912).—On the north side of the east end of Knife Lake. The station is on the summit of the high, timbered hill that rises from and to the west of the boundary stream between Cypress and Knife Lakes.

Station mark: A drill hole within a triangle cut in the solid ledge of the summit.

Duluth (Minnesota, Lake County; W. B. Fairfield, 1912).—On the south side of the west end of Cypress Lake. The station is on top of the cliff about 60 meters east of the eastern portage between Cypress and Knife Lakes.

Station mark: A drill hole within a triangle cut in the rock.

Cinch (Ontario, Rainy River District; W. B. Fairfield, 1912; 1917).—On the north side of Cypress Lake, on the high, rocky, timbered ridge that lies to the west and on the prolongation of the first straight stretch of the lake west of the narrows. The station is on the highest part of the ridge on a rock knoll. It is about 300 meters northwest of the large island lying in the bend of the lake.

Station mark: A drill hole within a triangle cut in the rock.

Dopfer (Minnesota, Lake County; W. B. Fairfield, 1912).—On the south side of Cypress Lake, near the western end of the lake. The station is on top of the high bare granite ledge, about 60 meters back from the lake shore, about 200 meters south of a prominent point of the shore, and about 400 meters south of the large island lying in the bend of the lake.

Station mark: A drill hole within a triangle cut in the ledge.

Claret (Ontario, Rainy River District; W. B. Fairfield, 1912).—On the north side of Cypress Lake. The station is on the summit of the first high, rocky, timbered cliff east of and about 600 meters distant from the place where the lake widens out and takes a turn to the south.

Station mark: A drill hole within a triangle cut in the solid granite ledge of the summit.

Danny (Minnesota, Lake County; W. B. Fairfield, 1912).—On the south side of Cypress Lake, about midway between the ends of the lake and about 1,600 meters west of the most eastern narrows in the lake. The station is back on the side of the poplar-covered ridge about 100 meters south of a little narrow point or tongue of land that juts out from the shore into the lake. It is on a large, smooth, bare granite ledge among the poplars and just at the edge of the jack pines.

Station mark: A drill hole within a triangle cut in the ledge.

Circus (Ontario, Rainy River District; W. B. Fairfield, 1912).—On the north side of Cypress Lake, about midway between the ends of the lake, and about 900 meters east of where the lake widens out and makes a turn to the south. The station is on the second cliff east of the turn of the lake to the south. It is about 50 meters back from the lake shore on top of the cliff, on a solid ledge.

Station mark: A drill hole within a triangle cut in the ledge.

Drub (Minnesota, Lake County; W. B. Fairfield, 1912).—On the south shore of Cypress Lake, about 2 miles northeast of Knife Portage, about 800 meters west of a great cliff facing west and at right angles to the shore line. The station is on a rock outcrop about flush with the ground, 3 meters back from the shore line, and 1.5 meters above the lake level.

Station mark: A drill hole within a triangle cut in the rock.

Casket (Ontario, Rainy River District; W. B. Fairfield, 1912).—On the north shore of Cypress Lake, about 2 miles northeast of Knife Portage, about 2,000 meters southwest of the narrows at the eastern forks of the lake. The station is on a hard rock ledge, about 2.5 meters above the water, about 0.6 meter back from a vertical face of the ledge, and about 3 meters back from another vertical face of the ledge.

Station mark: A drill hole within a trangle cut in the ledge.

Ducat (Minnesota, Lake County; W. B. Fairfield, 1912).—On the south shore of Cypress Lake, about 1½ miles northeast of Little Knife Portage, about 260 meters south of a small island, and about 320 meters northeast of a large island. The station is about 12 meters above the lake level and 6 meters back from the shore line.

Station mark: A drill hole within a triangle cut in the rock.

Duet (Minnesota, Lake County; W. B. Fairfield, 1912; 1917).—On the south shore of Cypress Lake, on the point directly south of the large island, about 1 mile northeast of Little Knife Portage. The station is on a bare ledge, about 6 meters back from the shore and 15 meters above the water.

Station mark: A drill hole within a triangle cut in the ledge. Reference monument 918, an 8-inch bronze post, is south 73° 41′ west, 5.1 meters from the station.

Central (Ontario, Rainy River District; W. B. Fairfield, 1912).—On an island in Cypress Lake, about three-fourths mile northeast of Little Knife Portage. The station is on the first small island in the broad bay of the north shore. It is about 8 meters from the east end of the island, 3 meters from the south side of the island, and 3 meters above the lake level.

Station mark: A bronze disk set in the rock.

Drove (Minnesota, Lake County; W. B. Fairfield, 1912).—On the south shore of Cypress Lake, about five-eighths mile northeast of Little Knife Portage. The station is on a little rock point opposite two small islands lying in the broad bay on the north shore of the lake. It is about 2 meters above the water and 1.2 meters back from the shore.

Station mark: A drill hole within a triangle cut in the rock near its back edge.

Cere. (See description of reference monument 919.)

Chafe. (See description of reference monument 917.)

Dub (Minnesota, Lake County; W. B. Fairfield, 1912; 1916).—At the extreme western end of Cypress Lake, on the eastern and larger of the two islands lying north of the entrance to the stream flowing into Knife Lake. The station is on the rocks, 8 meters back from the extreme western end of the island and about 6 meters above the lake level.

Station mark: A bronze disk set in the rock.

Dungeon (Minnesota, Lake County; W. B. Fairfield, 1912).—On the south side of Cypress Lake. On the rugged peninsula that lies south of the first narrows west of Swamp Portage. The station is on the high bare cliff on the southeast side of the peninsula, about 250 meters south of the narrows and 100 meters west of the shore line of the lake. It is about 6 meters south of the highest point of the ledge.

Station mark: A drill hole within a triangle cut in the ledge.

Doxey (Minnesota, Lake County; W. B. Fairfield, 1912).—On the south side of Cypress Lake, about 500 meters due south of the first narrows west of Swamp Portage. The station is on a high bare granite cliff about 100 meters south of the lake shore. It is on the smooth rock about 3 meters back from the edge of the cliff. A peculiar backbone formation of the rock extends back and upward from the station into the heavy timber.

Station mark: A drill hole within a triangle cut in the rock.

Click (Ontario, Rainy River District; W. B. Fairfield, 1912).—On the north shore of Cypress Lake, about 650 meters east of the first narrows west of Swamp Portage. The station is on a little sharp point of the shore line which is otherwise nearly straight for some distance in either direction. It is on the flat ledge that extends out into the lake about 6 meters beyond the timber line, about a meter from the water's edge, and 0.3 meter above the lake level.

Station mark: A drill hole within a triangle cut in the ledge.

Crupper (Ontario, Thunder Bay District; E. R. Martin, 1917).—On a little knob between Rat and Rose Lakes. The station is on a rock ledge.

Station mark: A drill hole in the ledge.

Cephas (Ontario, Rainy River District; W. B. Fairfield, 1912).—On the north side of the east end of Cypress Lake, on the high rocky hill with a smooth bare granite ledge on the south side, that lies just north of the small pondlike eastern end of the lake. The station is on the bare ledge of the summit, about 8 meters south of the highest point.

Station mark: A drill hole within a triangle cut in the ledge.

Dwarf (Minnesota, Lake County; W. B. Fairfield, 1912).—On the first high ridge south of Swamp Portage, between Swamp and Cypress Lakes. The station is on a solid ledge on the highest point of the ridge.

Station mark: A drill hole within a triangle cut in the ledge.

Cairo (Ontario, Rainy River District; W. B. Fairfield, 1912).—On the summit of the hill just north of the west end of Swamp Lake. The station is about 70 meters back from the lake shore and about 260 meters east of Swamp Portage.

Station mark: A drill hole within a triangle cut in the solid granite ledge of the summit.

Daft (Minnesota, Cook or Lake County; W. B. Fairfield, 1912).—On the summit of the high ridge just southeast of Swamp Lake and about 400 meters southwest of the short portage.

Station mark: A drill hole within a triangle cut in the solid granite ledge of the summit.

Clash (Ontario, Rainy River District; W. B. Fairfield, 1912).—On the summit of the ridge about 100 meters east of Swamp Lake and 300 meters north of the short portage. The station is 30 meters west of the highest point of the summit, where there is a large black bowlder.

Station mark: A drill hole within a triangle cut in the solid granite ledge of the summit.

Cartoon (Ontario, Rainy River District; W. B. Fairfield, 1912; 1921).—On the east side of Swamp Lake, and on the north side of the outlet of the lake into Saganaga Lake. The station is between the short portage trail and the creek, closer to the creek than to the trail, and near Swamp Lake. It is about 0.2 meter above the water.

Station mark: A bronze disk set in rock. Reference monument 945 is north 16° 45′ east, 21 meters from the station.

Captor (Ontario, Rainy River District; W. B. Fairfield, 1912).—On the north shore of Swamp Lake, about 600 meters northeast of the east end of Swamp Portage. The station is on a ledge outcrop about 2 meters back from the shore line and 1.5 meters above the level of the lake.

Station mark: A drill hole within a triangle cut in the ledge.

Depot (Minnesota, Cook County; W. B. Fairfield, 1912).—On the south shore of Saganaga Lake, near the west end of the lake and just opposite the mouth of Cache Bay. A small island lies about 130 meters offshore, directly in front of the station. The station is on a large, smooth, rounded bowlder, about 2 meters from the shore line.

Station mark: A drill hole within a triangle cut in the bowlder.

Cringe (Ontario, Rainy River District; W. B. Fairfield, 1912).—On the north shore of Saganaga Lake, about 300 meters east of the entrance to Cache Bay. The station is on the summit of a point of rock at the shore line; it is on a hard place in the disintegrated rock, about 3 meters south of a sharp rock point.

Station mark: A drill hole within a triangle cut in the rock.

Crusoe (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—On the western one of the west group of islands lying in the main body of open water of Saganaga Lake. The island is hook-shaped, and lies just north of Rocky Point, where the lake narrows down into its western arm. The station is on the point of the hook, which is also the south point of the island.

Station mark: A drill hole within a triangle cut in the solid bare ledge of the point.

Cuyo (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—On the eastern one of two small rocky islands in Saganaga Lake that lie about 100 meters south of the largest island of the western group of islands lying in the western part of the main body of the lake. The station is on the south end of the island, about 15 meters from the water's edge, and about 8 meters above the lake level.

Station mark: A drill hole within a triangle cut in the granite ledge.

Depend (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—Near the middle of Saganaga Lake, on the north side of a small wooded island lying on the south side of the main body of open water of the lake. The island is the most northwestern one of the fringe of islands that lie along the southern side of the main body of the lake. The station is on the north side of the solid granite point that projects beyond the timber line. It is about 4.5 meters from the extreme end of the point, and about 1.5 meters above the lake level.

Station mark: A drill hole within a triangle cut in the ledge.

Clam (Ontario, Thunder Bay District; W. B. Fairfield, 1912; 1917).—On the southern point of a small rocky island near the middle of the main body of open water of Saganaga Lake. The island is the second from the west in the eastern group of islands. The station is on the highest point of the smooth granite ledge that forms the point. It is about 2.5 meters above the lake level.

Station mark: A drill hole within a triangle cut in the ledge.

Cider (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—On the extreme western end of the most western of a group of three small islands lying in the main body of Saganaga Lake, about north 30° west, 1 mile from where the international boundary passes out from among the islands into the open water of the lake. The station is on the granite ledge of the extreme point of the island.

Station mark: A drill hole within a triangle cut in the ledge.

Charles (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—On the north shore of Saganaga Lake, nearly opposite the passage between the islands through which the international boundary enters the main body of the lake. The station is on a point on the east side of a little bay, on the top of a smooth granite bluff.

Station mark: A drill hole within a triangle cut in the rock.

Claw (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—On the most southwestern point of the large island in Saganaga Lake that lies just northeast of the narrow passage through which the international boundary running westward first passes out into the open water of the main body of the lake. The station is on the solid granite ledge, 2 meters back from the water's edge, and 1.5 meters above the lake level.

Station mark: A bronze disk set in the ledge.

Dilke (Minnesota, Cook County; W. B. Fairfield, 1912).—On an island in the eastern part of Saganaga Lake, about 2,300 meters west of the mouth of the stream flowing into the lake from Maraboeuf (Gneiss) Lake. The station is on the southwest point of an island which is about 250 meters in diameter and lies about 350 meters to the southeast of the southwest end of the largest island in the lake. It is on a solid granite ledge, 2.5 meters back from the water's edge, and 1.5 meters above the level of the lake.

Station mark: A drill hole within a triangle cut in the ledge.

Camp (Minnesota, Cook County; W. B. Fairfield, 1912).—On the west point of an island in Saganaga Lake, about 200 meters in diameter and 200 meters west of a very large island. The small island on which the station is located is about 1,750 meters northwest of Saganaga Falls at the entrance to the lake. The station is on a bare flat-topped granite ledge a little above high-water mark.

Station mark: A bronze disk set in the rock.

Doily (Minnesota, Cook County; W. B. Fairfield, 1912).—On the south shore of Saganaga Lake, about 1,500 meters north 80° west of the mouth of the stream flowing into the lake from Maraboeuf (Gneiss) Lake, and south 23° west, 380 meters, from the most western point of the first very large island in the lake. The station is off a point at the west side of the entrance to a small bay. It is on a flat granite rock about 1.5 by 2.5 meters in area, which lies off the mainland about 4.5 meters and whose top is near high-water mark.

Station mark: A drill hole within a triangle cut in the rock.

Calyx (Minnesota, Cook County; W. B. Fairfield, 1912).—On an island in Saganaga Lake, about 1,450 meters north 63° west of the mouth of the stream flowing into the lake from Maraboeuf (Gneiss) Lake. The station is on the northwestern point of the first very large island in the lake. The station is on a flat-topped rock with several broken rocks about it, 8 meters back from the extreme end of the point, and about 2.5 meters above the water.

Station mark: A drill hole within a triangle cut in the rock.

Caboose (Minnesota, Cook County; W. B. Fairfield, 1912).—On an island in Saganaga Lake, about 1,150 meters northwest of the mouth of the stream flowing into the lake from Maraboeuf (Gneiss) Lake. The station is on the southwestern point of the first very large island northwest of the mouth of the stream, and is at the west end of the strait which separates the island from the mainland. The station is on a cliff about 9 meters above the water, 3 meters back from the edge of the cliff, and 1.5 meters in front of a 1-meter rise of the rock.

Station mark: A drill hole within a triangle cut in the rock.

Doff (Minnesota, Cook County; W. B. Fairfield, 1912).—On the south shore of Saganaga Lake, about 1,150 meters north 70° west of the mouth of the stream flowing into the lake from Maraboeuf (Gneiss) Lake, and south 40° east, 300 meters from the most western point of the first very large island in the lake. The station is on a point of the shore just west of a little bay. It is on a cliff, 3 meters above the water, and 1 meter back from the edge of the cliff and the shore line.

Station mark: A drill hole within a triangle cut in the rock.

Dodge (Minnesota, Cook County; W. B. Fairfield, 1912; 1917).—On the south shore of Saganaga Lake, about 950 meters northwest of the mouth of the stream flowing into the lake from Maraboeuf (Gneiss) Lake. The station is on a granite point near the middle of the south shore of the strait separating the first very large island from the mainland. It is about 1.5 meters back from the shore line and 1.5 meters above the level of the lake.

Station mark: A drill hole within a triangle cut in the rock.

Dock (Minnesota, Cook County; W. B. Fairfield, 1912; 1917).—Near the head of Saganaga Lake, about 950 meters northwest of the mouth of the stream flowing from Maraboeuf (Gneiss) Lake. The station is on a point of the mainland on the south shore of the most southern channel or strait leading to the main body of the lake, and about 270 meters west of the most northeastern point of the mainland. It is on the rocky point near high-water mark.

Station mark: A drill hole within a triangle cut in the rock.

Cafe (Minnesota, Cook County; W. B. Fairfield, 1912).—On an island in Saganaga Lake, about 1,000 meters northwest of the mouth of the stream flowing into the lake from Maraboeuf (Gneiss) Lake. The station is on a point of the south shore of the first very large island north of the mouth of the stream. It is near the east end of the strait separating the island from the mainland, and is about 600 meters from the east end of the island. It is on the third point west of a large bay indenting the shore of the island. The station is on the rocky point, about 1.5 meters back from the shore line, and about 1 meter above the level of the lake.

Station mark: A drill hole within a triangle cut in the rock.

Dizzy (Minnesota, Cook County; W. B. Fairfield, 1912).—At the head of Saganaga Lake, on the most northeastern point of the mainland west of the mouth of the stream flowing from Maraboeuf (Gneiss) Lake, and about 750 meters distant in a northwesterly direction from the mouth of the stream. A small island lies directly off the point. The station is on the rocky point about 10 meters above the level of the lake.

Station mark: A drill hole within a triangle cut in the rock.

Center (Minnesota, Cook County; W. B. Fairfield, 1912).—At the head of Saganaga Lake, on the west side of an island which is about 350 meters long north and south and about 150 meters across east and west. The island lies about 200 meters due north of the mouth of the stream flowing into the lake from Maraboeuf (Gneiss) Lake. The station is on a small but conspicuous round peninsula near the middle of the west shore of the island. It is on a granite rock nearly a meter across, whose top is about 2 meters above the lake level.

Station mark: A drill hole within a triangle cut in the rock.

Divan (Minnesota, Cook County; W. B. Fairfield, 1912).—At the head of Saganaga Lake, on the end of a long narrow point on the north side of the bay just northwest of the mouth of the stream flowing into the lake from Maraboeuf (Gneiss) Lake. The tip of the point is about 450 meters northwest of the mouth of the stream. The station is about 2 meters south of the extreme end of the point and about 1 meter above the level of the lake.

Station mark: A drill hole within a triangle cut in the rock.

Candor (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—On an island in Saganaga Lake, about 1,800 meters due northwest of the mouth of the stream flowing from Maraboeuf (Gneiss) Lake. The station is on the south shore of the largest island in the lake, on a rounding point 450 meters west of the strait that separates the island from the mainland. It is on a flat triangular rock measuring about a meter on each side, and is about 0.3 meter below high-water mark.

Station mark: A drill hole within a triangle cut in the rock.

Canton (Minnesota, Cook County; W. B. Fairfield, 1912).—About 1,650 meters northwest of the mouth of the stream flowing into Saganaga Lake from Maraboeuf (Gneiss) Lake, and on the most northwestern point of the first very large island northwest of the mouth of the stream. The station is at the west end of the channel between this island and the island to the north, which is the largest island in the lake. It is on a bare granite ledge, about 4 meters from the extreme point, about 2 meters east of the shore line, and about 0.6 meter above high-water mark.

Station mark: A drill hole within a triangle cut in the rock.

Draft (Minnesota, Cook County, W. B. Fairfield, 1912).—About 2,100 meters north 78° west of the mouth of the stream flowing into Saganaga Lake from Maraboeuf (Gneiss) Lake. The station is on the southeastern point of an island which is about 300 meters in diameter. It is on a flat rock about 0.6 by 1.3 meters in size, 4.3 meters back from the shore line, and 2.4 meters above the water level.

Station mark: A drill hole within a triangle cut in the rock.

Dowel (Minnesota, Cook County; W. B. Fairfield, 1912).—On the south shore of Saganaga Lake, about 1,900 meters west of the mouth of the stream flowing into the lake from Maraboeuf (Gneiss) Lake. The station is on the point at the east side of the entrance to a large bay that deeply indents the shore. It is on a point of broken granite rocks.

Station mark: A drill hole within a triangle cut in a rock.

Draggle (Minnesota, Cook County; W. B. Fairfield, 1912).—On an island in the eastern part of Saganaga Lake, about 2,800 meters north 85° west of the mouth of the stream flowing into the lake from Maraboeuf (Gneiss) Lake. The island is about 1,000 meters long east and west, about 500 meters across north and south, and is nearly split in two by a small inlet on its east shore and a deep inlet on its west shore, the heads of the two inlets nearly meeting. The station is on a little point about 100 meters west of the extreme southeast point of the island, on a rock 0.8 by 1.5 meters in size, on the shore line, and at high-water mark.

Station mark: A drill hole within a triangle cut in the rock.

Detect (Minnesota, Cook County; W. B. Fairfield, 1912).—On the south shore of Saganaga Lake, about 2,700 meters west of the mouth of the stream flowing into the lake from Maraboeuf (Gneiss) Lake. The station is on the bluff point where the shore line turns abruptly from a general southwesterly course to a due southerly course as the lake widens out into the two long southern arms. A group of five small islands lies just off the point to the north and between the point and the large wooded island which is nearly divided in two, east and west. The station is on the solid ledge about 3 meters back from the edge of the bluff.

Station mark: A drill hole within a triangle cut in the ledge.

Dunk (Minnesota, Cook County; W. B. Fairfield, 1912).—On the southwestern point of the large rocky, wooded island in Saganaga Lake that lies on the north side of the passage as one enters from the east into the large body of water from which the two long arms of the lake extend south into Minnesota. The east end of the island is very high and rocky; the west end is not so high but has bluff shores. The island is nearly divided from east to west by inlets on the east and west shores. The station is about 15 meters above the lake level, on top of a solid granite bluff.

Station mark: A drill hole within a triangle cut in the rock.

Dido (Minnesota, Cook County; W. B. Fairfield, 1912).—On a small rocky islet in Saganaga Lake that lies near the center of the open water in the large bay from which the two long arms of the lake extend south into

Minnesota. Another, slightly larger, island lies about 100 meters south of this island; other than this there are no islands within a radius of approximately one-half mile. The station is near the center of the island, on a large rock, about 6 meters above the lake level.

Station mark: A drill hole within a triangle cut in the rock.

Delve (Minnesota, Cook County; W. B. Fairfield, 1912).—On the west point of an irregularly shaped island in the eastern part of Saganaga Lake, about 400 meters long east and west, that lies just off the entrance to a deep bay in the large wooded island to the east. The island upon which the station is located is one of a group of about a dozen small islands lying between the main body of the lake and the large bay from which the two long arms of the lake extend south into Minnesota; there are two small rocky islets about 200 meters south of the station. The station is on the rocky point about 7 meters above the lake level.

Station mark: A drill hole within a triangle cut in the rock.

Dayton (Minnesota, Cook County; W. B. Fairfield, 1912).—On a large rocky, wooded island in Saganaga Lake lying on the northwest side of the large bay from which the two long arms of the lake extend southward into Minnesota. The island is about 1 mile long east and west and about one-half mile wide north and south. It is very irregular in shape, being divided into three irregular lobes by three inlets, one on the east, one on the south, and one on the west side, that nearly meet in the middle of the island. Passages on either side of the island lead from the bay into the main body of the lake. The station is on the most eastern point of the island, on a flat ledge that rises 3 meters sheer from the water. It is about 2 meters back from the edge of the ledge.

Station mark: A bronze disk set in the ledge.

Duplex (Minnesota, Cook County; W. B. Fairfield, 1912).—On a high, rocky, timbered island in Saganaga Lake at the entrance to the eastern of the two long southern arms of the lake. The island is oval with its major axis of about 200 meters lying north and south. Its minor axis is about 100 meters long. Two small rocky islets lie just southeast of the island, about 100 meters distant. The station is on the highest point of the granite-capped summit of the island, about 20 meters above the lake level.

Station mark: A drill hole within a triangle cut in the ledge.

Dunder (Minnesota, Cook County; W. B. Fairfield, 1912).—On a small wooded island in the southern part of Saganaga Lake, north of the point between the two long southern arms of the lake. A large island lying next to the shore of the point is about 300 meters southwest of the island upon which the station is situated. The station is on the southeast point of the island.

Station mark: A drill hole within a triangle cut in the solid granit ledge of the point.

Dinny (Minnesota, Cook County; W. B. Fairfield, 1912).—On the east end of the southern and larger of the two large islands that lie on the south side of the main open body of Saganaga Lake and just south of the boundary line The island is very irregular in shape and is more than a mile long in a northeast and southwest direction. The station is on the outside point on the southwest side of the entrance to a deep bay in the island.

Station mark: A drill hole within a triangle cut in the rock point near the water.

Diggs (Minnesota, Cook County; W. B. Fairfield 1912).—On the south end of an island in Saganaga Lake lying about 800 meters north of the mainland between the two long southern arms of the lake. The island is about 400 meters long north and south and 200 meters wide east and west. It lies just east of the southern of two very large islands. The station is on top of a rock bluff 8 meters high, on the extreme southern point of the island. It is about 3 meters back from the edge of the bluff.

Station mark: A drill hole within a triangle cut in the rock.

Dutch (Minnesota, Cook County; W. B. Fairfield, 1912).—On the south side of Saganaga Lake, on the peninsula on the west side of the entrance to the eastern of the two long southern arms of the lake. The station is on the high granite knoll 800 meters south of the north end of the peninsula. There is another knoll nearly as high 150 meters to the west. The peninsula is cut nearly in two by an inlet from the east at a point 200 meters south of the station. The station is 20 meters southwest of the highest point of the summit.

Station mark: A drill hole within a triangle cut in the bare granite ledge.

Dun (Minnesota, Cook County; W. B. Fairfield, 1912).—On the south shore of Saganaga Lake, on the point between the two long southern arms of the lake, about halfway between the two arms. The station is on a high granite ledge about 150 meters south of the head of a narrow inlet from the channel that lies between the mainland and a large island to the north.

Station mark: A drill hole within a triangle cut in the solid ledge.

Daily (Minnesota, Cook County; W. B. Fairfield, 1912).—On the most northern point of the large island in the southern part of Saganaga Lake that lies adjacent to the shore line of the point between the two long southern arms of the lake, and about midway between the two arms. The station is on the low rocky point, on a large fixed rock, 3.5 meters from the water's edge.

Station mark: A drill hole within a triangle cut in the rock.

Driver (Minnesota, Cook County; W. B. Fairfield, 1912).—On the rocky north point of a small island, in the southern part of Saganaga Lake that lies 200 meters offshore 1,700 meters northeast of the entrance to the western of the two long southern arms of the lake. There is another island of about the same size as this one, about 150 meters to the east, and a group of three small islands about 200 meters to the west. The station is at the extremity of the point on a white flat rock about 4 by 6 meters on top and 1.2 meters high. The point appears white for a long distance.

Station mark: A drill hole within a triangle cut in the rock.

Duff (Minnesota, Cook County; W. B. Fairfield, 1912).—On a small rocky island, in the southern part of Saganaga Lake, that lies in the entrance to a bay on the south shore of the second large island northeast of the entrance to the western of the two long southern arms of the lake. The station is on the western point of the island, about 20 meters from the extreme tip of the point and about 6 meters above the level of the lake.

Station mark: A drill hole within a triangle cut in the rock.

Delhi (Minnesota, Cook County; W. B. Fairfield, 1912).—On Gold Island in the southern part of Saganaga Lake, just north of the entrance to the western of the two long southern arms of the lake. The station is on the southern point of the island, which is so called from an abandoned gold mine.

Station mark: A drill hole within a triangle cut in the rock of the point.

Digit (Minnesota, Cook County; W. B. Fairfield, 1912).—On the south shore of Saganaga Lake, on the point on the east side of the entrance to the western of the two long southern arms of the lake. The station is on top of the rocky bluff of the shore line, about midway of the northwest face of the point. It is on a large fixed rock, about 6 meters above the level of the lake.

Station mark: A drill hole within a triangle cut in the rock.

Define (Minnesota, Cook County; W. B. Fairfield, 1912).—On the north end of the island, in the southern part of Saganaga Lake, that lies in the entrance to the western of the two long southern arms of the lake. It is on the bluff, about 2 meters back from the edge. The bluff appears red as seen from a distance.

Station mark: A drill hole within a triangle cut in the rock.

Cement (Minnesota, Cook County; W. B. Fairfield, 1912).—At the head of Saganaga Lake, on the south end of an island which is about 350 meters long north and south and about 150 meters across east and west. The island lies about 200 meters due north of the mouth of the stream flowing into the lake from Maraboeuf (Gneiss) Lake. The station is about 50 meters from the southern end of the island, about midway between the east and west shores. It is on a rock about 1 meter across and 0.6 meter high.

Station mark: A drill hole within a triangle cut in the rock.

Dire (Minnesota, Cook County; W. B. Fairfield, 1912).—At the head of Saganaga Lake, on the point on the west side of the mouth of the stream flowing from Maraboeuf (Gneiss) Lake. The station is on the smooth granite ledge near high-water mark.

Station mark: A bronze disk set in the ledge.

Cede (Minnesota, Cook County; W. B. Fairfield, 1912).—At the head of Saganaga Lake, on a small, low, timbered island lying 50 meters offshore on the west side of the mouth of the stream flowing from Maraboeuf (Gneiss) Lake. The station is on the highest rock on the south end of the island and about 1 meter above the water level.

Station mark: A bronze disk set in the rock.

Dispel (Minnesota, Cook County; W. B. Fairfield, 1912).—On the west bank of the connecting stream between Maraboeuf (Gneiss) and Saganaga Lakes. The station is about 100 meters below Saganaga Falls and about 200 meters above Saganaga Lake. It is on the middle of a point of the shore line, 10 meters west of the shore, on a rock 0.6 by 0.9 meter in size.

Station mark: A drill hole within a triangle cut in the rock.

Catkin (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—On the east bank of the connecting stream between Maraboeuf (Gneiss) and Saganaga Lakes. The station is about 100 meters below Saganaga Falls, on the first step of the granite ledge, 4 meters back from the shore and 9 meters above the level of the water. A very large white pine tree stands 3 meters south of the station.

Station mark: A drill hole within a triangle cut in the ledge.

Castle (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—On the east shore of the connecting stream between Maraboeuf (Gneiss) and Saganaga Lakes. The station is about 100 meters above Saganaga Falls, on an outcrop of a white granite ledge on the point of the ridge, about 60 meters back from the shore line and about 6 meters above the water level. A Norway pine tree 50 centimeters in diameter stands 2 meters east of the station.

Station mark: A drill hole within a triangle cut in the ledge.

Ding. (See description of reference monument 986.)

Dike. (See description of reference monument 988.)

Case (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—On the east shore of the stream connecting Maraboeuf (Gneiss) and Saganaga Lakes, about 425 meters below Horsetail Rapids, 650 meters above Saganaga Falls, and directly opposite a small bay on the west shore. The station is 1 meter below extreme high-water mark and near the shore line.

Station mark: A drill hole within a triangle cut in the rock.

Dice (Minnesota, Cook County; W. B. Fairfield, 1912).—On the west bank of the stream flowing from Maraboeuf (Gneiss) Lake into Saganaga Lake, 425 meters below Horsetail Rapids. The station is on a well-defined point at the widest place in the river. It is on a large bare granite rock 3 meters from the water and 2 meters above the level of the water.

Station mark: A drill hole within a triangle cut in the rock.

Dense. (See description of reference monument 992.)

Decree (Minnesota, Cook County; W. B. Fairfield, 1912).—On the west shore of Maraboeuf (Gneiss) Lake, on a rounding point 400 meters south of Horsetail Rapids and opposite the bay which lies east of the rapids. The station is on the tip of an irregularly shaped, pointed-topped granite rock about 1 meter across.

Station mark: A bronze disk set in the rock.

Cope (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—On the east shore of Maraboeuf (Gneiss) Lake, near the north end of the lake, about 100 meters south of the entrance to the bay which lies east of Horsetail Rapids. The station is on a trapezoidal rock, about 1.5 meters back from the shore line and 1 meter above the water level.

Station mark: A drill hole within a triangle cut in the rock.

Decoy (Minnesota, Cook County; W. B. Fairfield, 1912).—On the west shore of Maraboeuf (Gneiss) Lake, near the north end of the lake, 600 meters south of Horsetail Rapids. The station is on a prominent rounding point of the shore, on a rock on the shore line near high-water mark.

Station mark: A drill hole within a triangle cut in the rock.

Cant (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—On the east shore of Maraboeuf (Gneiss) Lake, on the point at the entrance to the most northern narrow reach of the lake. The station is five-eighths mile south of Horsetail Rapids, on the west side of the point, on the steep side hill, 3 meters back from the edge of the water and 4 meters above the lake level.

Station mark: A drill hole within a triangle cut in the rock.

Decline (Minnesota, Cook County; W. B. Fairfield, 1912).—On the west shore of Maraboeuf (Gneiss) Lake, five-eighths mile south of Horsetail Rapids and just abreast of a high, pinnacle-like island. The station is on a small stone on the shore line just below high-water mark.

Station mark: A bronze disk set in the stone.

Canter (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—On the high pinnaclelike island that lies at the entrance to the most northern narrow extension of Maraboeuf Lake. The island is about 1,000 meters south of Horsetail Rapids. The station is on the west side of the island, on the steep hillside, on a rock 4 meters above the water.

Station mark: A drill hole within a triangle cut in the rock.

Davis (Minnesota, Cook County; W. B. Fairfield, 1912).—On a rock in the northern part of Maraboeuf (Gneiss) Lake. As approached from the south the station is just off the end of the long narrow point that lies 500 meters west of the narrows where the lake last widens out into a broad expanse. The station is on a large rock that emerges from the water to a height of approximately 6 meters. It is on the highest part of the smooth summit of the rock.

Station mark: A drill hole within a triangle cut in the rock.

Deck (Minnesota, Cook County; W. B. Fairfield, 1912).—On the west shore of Maraboeuf (Gneiss) Lake, on the second point of the shore in the narrows south of the northern expansion of the lake, about 1⅛ miles south of Horsetail Rapids. The station is on a prominent flat point just south of a little half-circle bay, on a rock, about 1 meter from the shore line and 0.7 meter above the lake level.

Station mark: A bronze disk set in the rock.

Dean (Minnesota, Cook County; W. B. Fairfield; 1912).—On the west shore of Maraboeuf (Gneiss) Lake, on the point 325 meters northwest of the second island in the north-and-south reach of the lake as approached from the south. A small granite island lies directly east of the station. The station is on a shattered rock cliff about 8 meters above the water.

Station mark: A bronze disk set in the rock.

Cancil (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—On the east shore of Maraboeuf (Gneiss) Lake, on the middle point between the two long eastern arms of the lake and 250 meters north of the north end of the island lying off the entrance to the southern of the two eastern arms. The station is on top of a ledge with a precipitous face, about 2 meters from the edge of the ledge and about 3 meters above the water.

Station mark: A drill hole within a triangle cut in the ledge.

Daze (Minnesota, Cook County; W. B. Fairfield, 1912).—On the west shore of Maraboeuf (Gneiss) Lake, opposite the north end of the second island in the north-and-south reach of the lake as approached from the south. The island lies off the entrance to the first long eastern arm of the lake. The station is on top of a cliff about 10 meters above the water, at a point where the top of the cliff curves down toward the water.

Station mark: A drill hole within a triangle cut in the rock.

Calm (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—In Maraboeuf (Gneiss) Lake, on the north end of the island lying off the entrance to the first long eastern arm of the north-and-south reach of the lake. The station is on a piece of rough granite, about 5 meters back from the shore line and 5 meters above the lake level.

Station mark: A bronze disk set in rock.

Dawn (Minnesota, Cook County; W. B. Fairfield, 1912).—On the west shore of Maraboeuf (Gneiss) Lake, on the point of the shore opposite the entrance to the first long eastern arm of the lake as approached from the south through the north-and-south reach of the lake. The south end of the island lying off the entrance to the eastern arm bears nearly due east 200 meters distant from the station. The station is on a rock about 0.6 by 1 meter in cross section and 0.3 meter high. It is about 1 meter back from the shore line and 1 meter above the lake level.

Station mark: A drill hole within a triangle cut in the rock.

Daub (Minnesota, Cook County; W. B. Fairfield, 1912).—On the west shore of Maraboeuf (Gneiss) Lake. As approached from the south the station is on a little point of the shore just north of the first prominent bay on the west shore of the long north-and-south reach of the lake. An island lying off the entrance to a large bay on the east shore is about 275 meters southeast of the station, and an island lying off the entrance to the first long eastern arm of the lake is about 275 meters northeast of the station. The station is on a prominent moss-covered granite ledge which has a slope of 30°. It is about 4 meters back from the shore line and 3 meters above the level of the lake.

Station mark: A drill hole within a triangle cut in the rock.

Cake (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—On the first island in the north-and-south reach of Maraboeuf Lake as approached from the south. The island lies off the entrance to the first bay on the east side of the north-and-south reach. The Devil's Portage trail leaves the head of this bay.

Station mark: A bronze disk set in the rock.

Dart (Minnesota, Cook County; W. B. Fairfield, 1912).—On the west shore of Maraboeuf (Gneiss) Lake a little north of the middle of the first narrow north-and-south reach of the lake as approached from the south and about 400 meters south of the island at the north end of the reach. The station is on a sharp point of the shore line, just north of a little cove that lies at the mouth of a canyon in the steep hillside bordering the shore. It is 6 meters back from the shore line and 12 meters above the lake level.

Station mark: A drill hole within a triangle cut in the rock.

Cadet (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—On the east shore of Maraboeuf (Gneiss) Lake, about two-thirds of the way through the first narrow north-and-south reach of the lake as approached from the south. The station is on a granite shelf about 7 meters above the water and about 6 meters back from the shore line.

Station mark: A drill hole within a triangle cut in the rock.

Droop (Minnesota, Cook County; W. B. Fairfield, 1912).—On the west shore of Maraboeuf (Gneiss) Lake, about midway of the first narrow north-and-south reach of the lake from the south. The station is on a sharp rocky point, just south of a little cove that lies at the mouth of a canyon in the steep hillside bordering the shore. It is on a rock about 1 by 1.5 by 2 meters in size, about 18 meters back from the water and 18 meters above the level of the lake.

Station mark: A drill hole within a triangle cut in the rock.

Canal (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—On the east shore of Maraboeuf (Gneiss) Lake, near the middle of the first narrow north-and-south reach of the lake as approached from the south. The station is on the top of a rough-topped cliff, 15 meters above the lake, and 9 meters back from the shore line.

Station mark: A drill hole within a triangle cut in the rock.

Device (Minnesota, Cook County; W. B. Fairfield, 1912).—On the south shore of Maraboeuf (Gneiss) Lake. The station is on the tip of the long narrow bluff point that projects north into the lake from the south

shore, due south of the entrance to the lake, and 450 meters west of the extreme southeastern extremity of the lake. It is about 4.5 meters back from the shore and 4.5 meters above the level of the lake.

Station mark: A drill hole within a triangle cut in the rock.

Crisp (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—On the north side of Maraboeuf (Gneiss) Lake, on the first high, rocky, rounded, wooded hill after passing through the narrows from Round Lake. The station is about 150 meters back from the shore, on the solid rock ledge on the summit of the point. It is abreast of the first small island at the head of the lake.

Station mark: A drill hole within a triangle cut in the ledge.

Chirp (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—On the west shore of the connecting stream (Devils Elbow) between Round and Maraboeuf (Gneiss) Lakes, on the bluff point 200 meters south of the southeast end of Devils Elbow Portage. The station is on top of the granite slope 45 meters back from the water and 10 meters above the water.

Station mark: A drill hole within a triangle cut in the rock.

Cark (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—On the north shore of the stream known as Devils Elbow between Round and Maraboeuf (Gneiss) Lakes. The station is at the southeast end of Devils Elbow Portage, on a large rock near high-water mark.

Station mark: A bronze disk set in the rock. Reference monument 1015 bears north, 68° 51′ west, 29.7 meters from the station.

Climb (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—On the north shore of the connecting stream (Devils Elbow) between Round and Maraboeuf (Gneiss) Lakes. The station is on the rounding point 120 meters east of the southeast end of Devils Elbow Portage. It is on a bare granite point, on a bowlder 0.6 meter in diameter, 2 meters from the water's edge and 1.5 meters above the water.

Station mark: A bronze disk set in the bowlder.

Desk (Minnesota, Cook County; W. B. Fairfield, 1912).—On the south shore of Devils Elbow between Maraboeuf (Gneiss) and Round Lakes. The station is on the most northern point of the peninsula that lies in the crook of the "Elbow." It is on a cleared granite point about 4 meters back from the extreme point of the rock and on the first flat place, about 2.5 meters above the water.

Station mark: A bronze disk set in the rock.

Creek (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—On the north shore of Devils Elbow, 500 meters west of the outlet of Round Lake, on the point in front of the "Camp Ground." The station is near the point of curvature of the granite shore, about 1 meter above high-water mark and 0.8 meter back from the edge of the rock.

Station mark: A drill hole within a triangle cut in the rock. Reference monument 1023 bears north, 16° 47′ west, 26.0 meters distant from the station.

Carve (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—On the north shore of the narrows at the outlet of Round Lake, 230 meters west of the lake. The station is on a prominent point of rock, 1.5 meters above the water, 0.6 meter east of an edge of the rock, and 2.1 meters south of an edge of the rock.

Station mark: A drill hole within a triangle cut in the rock.

Color. (See description of reference monument 1025.)

Cent (Ontario, Thunder Bay District; W. B. Fairfield, 1912).—On the east shore of Round Lake, on the point at the north side of the most eastern bay of the lake, about 200 meters east of the large island in the center of the lake. The station is about 8 meters northeast of the point of the rock and about 3 meters above high-water mark.

Station mark: A drill hole within a triangle cut in the rock.

Dive (Minnesota, Cook County; W. B. Fairfield, 1911; 1912).—On the high ridge about 500 meters west of the Swamp Portage trail on Granite River.

Station mark: A drill hole in the rock.

Dilly (Minnesota, Cook County; W. B. Fairfield, 1911).—On the west side of Granite River, about three-fourths mile below Granite Lake. The station is on the summit of a detached hill, the second one back and west of the river. It is about 230 meters due west of the river, about 310 meters northeast of the north end of the Swamp Portage trail, and about 35 meters above the level of the river. It is on the top of a roughly triangular granite nub 1.5 by 2.5 by 2.5 meters in size.

Station mark: A drill hole within a triangle cut in the rock.

Ditts (Minnesota, Cook County; W. B. Fairfield, 1911).—On the east side of the third and largest pond or lake in Granite River below Granite Lake, about 320 meters north of the north end of the Swamp Portage trail. The station is on a granite nub on a burned-over hillside, 50 meters back from the shore line and about 15

meters above the lake level. There is a small rocky island, abreast the station, about 130 meters offshore that is on line between the outlet of the lake and the station.

Station mark: A drill hole within a triangle cut in the rock.

Chap. (See description of reference monument 1045.)

Damper (Minnesota, Cook County; E. R. Martin, 1917).—On the west side of Granite River, about three-fourths mile above Round Lake. The station is on the southwest side of the islandlike point at the foot of the second rapids above Round Lake.

Station mark: A drill hole in rock.

Cotter (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1921).—On the east side of Granite River, about 300 meters above the rapids and narrows which are at the mouth of the river. The station is on a rocky bluff near the shore line.

Station mark: A drill hole within a triangle cut in the rock. Reference monument 1037 is 8.9 meters southeast of the station.

Dream (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—On the west shore of Granite River, just above the rapids and narrows which are at the mouth of the river. The station is about 45 meters south of the east end of the portage around the rapids into Round Lake.

Station mark: A drill hole in the rock. Reference monument 1026 is 14.6 meters northwest of the station.

Diston (Minnesota, Cook County; W. B. Fairfield, 1911).—On the west bank of Granite River, 1,200 meters below the entrance to Granite Lake and 150 meters upstream from the first rapids below Granite Lake. The station is on the first granite head upstream from the rapids. It is 24 meters above the level of the water and 40 meters back from the shore line of the river.

Station mark: A bronze disk set in a drill hole in the rock.

Cuttle (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the east bank of Granite River, about 200 meters upstream from the first rapids below Granite Lake. The station is on a granite shelf, about 6 meters above the water level and about 4 meters back from the shore line.

Station mark: A bronze disk set in a drill hole in the rock.

Crumb. (See description of reference monument 1055.)

Cutty (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the north shore of the second pond in Granite River below Granite Lake, about 100 meters northwest of the second rapids below Granite Lake and about 130 meters northeast of the third rapids. The station is on the most northern point of the shore line, on a ridge-shaped rock lying in a little niche in the shore.

Station mark: A bronze disk set in the rock. Reference monument 1053 is 18 meters east of the station.

Cabot (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—At the west end of Granite Lake, on the summit of the granite hill on the north side of the entrance to the lake. The station is about 300 meters east of the entrance, about 50 meters north of the shore line, and about 20 meters above the level of the lake. It is 0.3 meter below and 6 meters east of the highest point of the hill.

Station mark: A drill hole within a triangle cut in the rock.

Disco (Minnesota, Cook County; W. B. Fairfield, 1911).—On the west shore of Pine Lake, on the bluff point at the north end of the narrows of the lake. The station is about 30 meters back from the shore line and about 19 meters above the level of the lake.

Station mark: A drill hole within a triangle cut in the rock.

Dragon (Minnesota, Cook County; W. B. Fairfield, 1911; 1921).—On the west shore of Pine Lake, on the rocky point just east of a prominent bay and west of the place where the lake suddenly narrows to about half its former width. A small wooded island (No. 9) lies off the point about 150 meters to the south. The station is on a large rock about 2 meters from the shore line and about 0.5 meter above the lake level.

Station mark: A drill hole within a triangle cut in the rock.

City. (See description of reference monument 1073.)

Dune (Minnesota, Cook County; W. B. Fairfield, 1911).—On the west shore of Pine Lake, opposite and about 470 meters northwest by west of the west end of the Pine Portage trail. The station is about 250 meters east-northeast of the mouth of a creek flowing into Pine Lake from the west. It is 1 meter above the water, on a ledge rising directly from the water's edge.

Station mark: A bronze disk set in the ledge.

Dud (Minnesota, Cook County; W. B. Fairfield, 1911).—On the east shore of Pine Lake, about 35 meters north of the Pine Portage trail.

Station mark: A bronze disk set in the rock.

Dago (Minnesota, Cook County; W. B. Fairfield, 1911).—On the southwest shore of Pine Lake, 520 meters west by south of the west end of the Pine Portage trail, 300 meters north by west of the mouth of the stream immediately south of Pine Island, and 120 meters south of the mouth of a stream flowing in from the west. The station is 50 meters south of the point that lies south of the mouth of the creek. It is on a rock shelf about 8 meters above the water level.

Station mark: A bronze disk set in the solid rock.

Do (Minnesota, Cook County; W. B. Fairfield, 1911).—On the southeast shore of Pine Lake, on the point at the east side of the mouth of the stream immediately south of Pine Island. The station is about 3.5 meters back from and 3.5 meters above the water, on a granite stone whose top is about 0.3 meter above the ground.

Station mark: A bronze disk set in the stone.

Dare (Minnesota, Cook County; W. B. Fairfield, 1911).—On Pine Island, 60 meters south of the Pine Portage trail, at a point 180 meters west of the east end of the trail. The station is on a granite ledge on the summit of the highest hill on the island.

Station mark: A drill hole within a triangle cut in the ledge 5 meters northeast of a pile of granite blocks.

Dead. (See description of reference monument 1104.)

Candy. (See description of reference monument 1111.)

Cave (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the north shore of Magnetic Lake, on the extreme tip of the rocky point between the north and east arms of the lake. The station is on a large rock, close to the water's edge and about 0.3 meter above the lake level.

Station mark: A bronze disk set in the rock.

Deal. (See description of reference monument 1108.)

Damp (Minnesota, Cook County; W. B. Fairfield, 1911).—On the west shore of Magnetic Lake, on the south side of a prominent point, and about 300 meters southwest of a conspicuous island. The station is about 150 meters southwest of the extreme end of the point facing the island and is on a large rock close to the water's edge.

Station mark: A drill hole within a triangle cut in the rock.

Coon (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the east shore of Magnetic Lake, 900 meters northeast of the entrance from Gunflint Lake. The station is on the point on the north side of the first bay to the northeast of the entrance to the lake. It is on a rock on the extreme tip of the point.

Station mark: A drill hole within a triangle cut in the rock.

Cog (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the north shore of Magnetic Lake, on a small point of the shore directly opposite the point which is on the south side of the entrance to the long eastern arm of the lake. The station is 1,050 meters north and 400 meters east of the entrance to the lake from Gunflint Lake. It is on a large rock close to the water's edge.

Station mark: A drill hole within a triangle cut in the rock.

Corn (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the north shore of the long eastern arm of Magnetic Lake, on the rocky point 900 meters west of the east end of the arm. The station is on a large rock close to the water's edge.

Station mark: A drill hole within a triangle cut in the rock.

Dill (Minnesota, Cook County; W. B. Fairfield, 1911).—On the extreme southeast shore of Gunflint Lake, 230 meters south of the most southern building of the old Pigeon River lumber camp. The station is on the summit of a small but prominent bare knoll about 60 meters from the shore line and just south of a stream which drains a swamp and small lake to the east.

Station mark: A bronze disk set in a large white granite rock.

Come (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On a small rocky island in Little Gunflint Lake, near the north shore, 500 meters from the portage from Little North Lake. The station is on the solid outcropping ledge on the south point of the island, 0.7 meter above high-water mark.

Station mark: A bronze disk set in the ledge.

Demon (Minnesota, Cook County; W. B. Fairfield, 1911).—On the south shore of Little Gunflint Lake, 690 meters southwest by west of the portage from North Lake, and on the first prominent point west of the portage. The station is on a granite rock about 0.7 by 1 meter in cross section, about 2 meters from the shore line, and 0.3 meter below high-water mark.

Station mark: A bronze disk set in the rock.

Dooley. (See description of reference monument 1134.)

Canute. (See description of reference monument 1137.)

Cod (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the north shore of Little Gunflint Lake, on the first point west of the small island that lies off the north shore, 500 meters west of the portage at the east end of the lake. The station is on the shore line, on a large rock about 0.7 meter above the lake level.

Station mark: A bronze disk set in the rock.

Doll (Minnesota, Cook County; W. B. Fairfield, 1911).—On the north shore of North Lake, on the prominent point directly north of and opposite Height-of-Land Portage. There is a long peninsulalike point about 500 meters to the northeast. The station is on a large rock about 6 meters back from the shore line. A line from the station to Height-of-Land Portage passes a little east of the three small islands in the middle of the lake.

Station mark: A drill hole in the rock.

Dole (Minnesota, Cook County; W. B. Fairfield, 1911).—On the north shore of the southwest arm of North Lake, opposite and northwest of Height-of-Land Portage. A line drawn from the station to the portage passes between the middle, and the most western, of the three small islands. The station is on a ledge 1 meter by 1.5 meters in size, 1 meter south of high-water mark, and 0.3 meter above the lake level.

Station mark: A drill hole in the rock.

Door (Minnesota, Cook County; W. B. Fairfield, 1911).—On the south shore of the southwest arm of North Lake, about 900 meters west of Height-of-Land Portage. The station is on a rock near the water's edge.

Station mark: A drill hole in the rock.

Dolo (Minnesota, Cook County; W. B. Fairfield, 1911).—On an island in the southwest arm of North Lake, 1,200 meters west of Height-of-Land Portage. The station is on the southwest point of the largest and most western of the four islands in this arm of the lake. It is on a large, flat rock about 1.5 meters from the water's edge and 1 meter above the lake level.

Station mark: A drill hole within a triangle cut in the rock.

Due (Minnesota, Cook County; W. B. Fairfield, 1911).—On the west shore of North Lake, about 700 meters south of the entrance to Little North Lake. The station is on the tip of the long peninsulalike point at the south side of the first bay south of the entrance. It is on a rock about 6 meters from the water line and 1.5 meters above the lake level.

Station mark: A drill hole in the rock.

Crab (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the south shore of North Lake, about 1½ miles east of Height-of-Land Portage. The station is on a large granite bowlder about 1.5 meters from the shore line and 0.3 meter below high-water mark. Another and larger bowlder is on the shore about 4.5 meters east of the station.

Station mark: A drill hole within a triangle cut in the bowlder.

Cruz (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the south shore of North Lake, about seven-eighths mile west of the entrance to Sac Bay. The station is on a large fixed rock on the rounding shore line, about 1.5 meters from the water's edge and 0.3 meter below high-water mark.

Station mark: A drill hole in the rock.

Crit (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the north shore of North Lake, about 1⅛ miles east of the entrance to Little North Lake. The station is on the tip of the rocky point about 200 meters southeast of the east end of the abandoned railway trestle across a deep bay. It is about 4.5 meters from the water's edge and 2.5 meters above the lake level, on an outcropping granite ledge.

Station mark: A bronze disk set in the ledge.

Craw (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the south shore of North Lake, on the northern tip of the point at the west side of the entrance to Sac Bay. The station is on a large fixed rock about 4.5 meters back from the shore line and 2.5 meters above the lake level.

Station mark: A drill hole in the rock.

Crime (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the north shore of North Lake, about 2 miles east of the entrance to Little North Lake. The station is on a prominent, bare, rocky point, opposite and a little west of north of the entrance to Sac Bay. It is on a large rock about 6 meters back from the shore and 2.5 meters above the lake level. The abandoned railroad grade is about 10 meters north of the station.

Station mark: A bronze disk set in the rock.

Crill (Ontario, Thunder Bay District; Fairfield, 1911).—On the north shore of North Lake, on a rocky point, opposite and a little east of north of the entrance to Sac Bay. The station is on the solid ledge on the shore line, about 0.6 meter below high-water mark.

Station mark: A drill hole in the ledge.

Canoe (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the north shore of North Lake, about 1½ miles west of the east end of the lake. The station is on a little point of the shore 200 meters west of a prominent bay. It is on a large rock 3 meters from the shore line and 1.2 meters above high-water mark.

Station mark: A drill hole in the rock.

Croak (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the north side of North Lake, about 1 mile west of the east end of the lake. The station is on the neck that separates the first large bay from the east end of the lake. It is on a small knoll about 60 meters east of the east head of the bay. It is about 6 meters above the level of the lake. The old railroad grade is about 60 meters north of the station.

Station mark: A drill hole in a smooth granite ledge.

Cred (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the south side of North Lake, near the east end. The station is on top of a cliff near the top of the ridge about 500 meters south of the lake shore and about south 30° east of the prominent island in this part of the lake.

Station mark: A drill hole in the solid granite rock.

Carp (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the north side of North Lake, about one-half mile west of the east end of the lake and 230 meters north from the lake shore. The station is on the highest part of a small rocky knoll just south of the railroad track and about 300 meters northeast of the Bishop sawmill.

Station mark: A drill hole in a large fixed rock.

Bishop Saw Mill Stack (Ontario, Thunder Bay District, W. B. Fairfield, 1911).—On the north shore of North Lake, about three-fourths mile west of the east end of the lake.

Station mark: The taller of the two iron stacks on the Bishop sawmill.

Can (Ontario, Thunder Bay District; W. B. Fairfield, 1911; 1917).—North of the east end of North Lake, 130 meters due north of "The Spring" on the shore of North Lake. The station is 20 meters north of the Canadian National Railway at a point about 460 meters west of the railway station at North Lake. It is on a ridge through which a cut has been made for the railway and is about 3 meters above the level of the track.

Station mark: A drill hole in a small stone.

North Lake Longitude Station (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—At the Canadian National Railways station North Lake, on the east end of North Lake. The station is about 21 meters west of the railway station and 12 meters south of the west end of the station platform. It is between the main line of the railroad and the southwest leg of the Y, 83 meters east of the frog of the Y switch.

Station mark: A drill hole in the top of a concrete pier 20 by 30 inches in cross section and 3.5 feet high.

Dux (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the south shore of the narrows between North Lake and Little North Lake, 300 meters east of Little North Lake, and about 100 meters west of the west end of a small island. The station is on a large rock about 0.3 meter below the high-water mark and 1 meter from the water's edge.

Station mark: A drill hole within a triangle cut in the rock.

Cute (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the north shore of the narrows between North Lake and Little North Lake, about 150 meters northwest of the west end of island No. 6. The station is about 1 meter from the water's edge, on a large fixed bowlder, about 0.3 meter below the high-water mark.

Station mark: A drill hole within a triangle cut in the bowlder.

Doc. (See description of reference monument 1146.)

Dod. (See description of reference monument 1144.)

Cita. (See description of reference monument 1147.)

Doke. (See description of reference monument 1140.)

Clem (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the north shore of Little North Lake, directly north of the outlet of the narrows from North Lake. The station is 150 meters east of the mouth of a little draw, on a red stone 0.3 meter from the water's edge.

Station mark: A drill hole in the stone.

Cover. (See description of reference monument 1139.)

Dram (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the south shore of North Lake, 3.5 meters west of the Height-of-Land Portage road. The station is on a large rock set flush with the ground 8 meters from the water's edge.

Station mark: A drill hole within a triangle cut in the rock. Boundary monument 4 bears south 10° 07′ west, 5.4 meters distant from the station.

Dick. (See description of reference monument 1158.)

Dope (Minnesota, Cook County; W. B. Fairfield, 1911).—On the north shore of South Lake, on the first point west of Height-of-Land Portage. The station is on a large rock, 1.2 meters from the water's edge and 0.7 meter above the lake level.

Station mark: A drill hole within a triangle cut in the rock.

Drill (Minnesota, Cook County; W. B. Fairfield, 1911).—On the south shore of South Lake, 1⅜ miles east of the west end of the lake. The station is on the point opposite Height-of-Land Portage, on a large rock at the water's edge and 0.3 meter above the level of the lake.

Station mark: A bronze disk set in the rock. Reference monument 1158 is 250 meters to the east of the station.

Crown (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the north shore of South Lake, in the small bay from which Height-of-Land Portage leaves the lake. The station is about 70 meters east of the end of the portage trail, about 9 meters from the water's edge, and on top of a rock cliff about 10 meters high. It is near the edge of the cliff and just south of two small pine trees. It was used as a bench mark for the level line.

Station mark: A bronze disk set in the rock.

Drip (Minnesota, Cook County; W. B. Fairfield, 1911).—On the north shore of South Lake, about one-half mile from, and on the second rocky point west of Height-of-Land Portage. The station is on a large rock 3 meters from the shore line.

Station mark: A drill hole within a triangle cut in the rock.

Duff (Minnesota, Cook County; W. B. Fairfield, 1911).—On the south shore of South Lake, about 1,400 meters east of the west end of the lake. The shore here is covered with large irregularly shaped bowlders. The station is on a large rock 1.5 meters from the water's edge and 0.3 meter above the lake level.

Station mark: A drill hole within a triangle cut in the rock.

Dont (Minnesota, Cook County; W. B. Fairfield, 1911).—On the south shore of South Lake, about 500 meters from the west end of the lake. The station is on a very large rock, the largest along the shore here, and is 1.5 meters from the water's edge.

Station mark: A drill hole within a triangle cut in the rock.

Chit (Ontario, Thunder Bay District; W. B. Fairfield, 1911).—On the east end of South Lake. The station is on the north shore of the first small bay north of the boundary stream from Rat Lake. It is on a rock at the water's edge, one-fourth mile northwest of the west end of South Lake Portage.

Station mark: A drill hole within a triangle cut in the rock.

Dall (Minnesota, Cook County; W. B. Fairfield, 1911).—At the east end of South Lake, on the rocky reef that connects the two islands that lie 200 meters west of the portage to Rat Lake. The station is on a large rock at the most western point of the reef and is probably submerged at high water.

Station mark: A bronze disk set in the rock.

Carl (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1917).—On the north shore of that portion of Rose Lake known as Mud Lake, and three-eighths mile east of the west end of the lake. The station is on a small island just off the point where the lake bends to the north for the last time. It is on a large rock about 1 meter above the lake level.

Station mark: A drill hole in the rock. Reference monument 1181 on the lake shore bears north 30° 14′ east, 43.6 meters distant from the station.

Duke (Minnesota, Cook County; W. B. Fairfield, 1911).—At the west end of Rose Lake, between the portage and the short rapids from Rat Lake. The station is on a rock 1 meter above the lake level and 0.3 meter from the water line.

Station mark: A bronze disk set in the rock. Reference monuments 1172 and 1173 are, respectively, 5.2 and 16.5 meters distant from the station. Rose Lake bench mark, a bronze disk stamped "1526," is 0.2 meter north of the station.

Colt. (See description of reference monument 1179.)

Drop. (See description of reference monument 1176.)

Dan. (See description of reference monument 1178.)

Clip (Ontario, Thunder Bay District; W. B. Fairfield, 1910).—On the north shore of that portion of Rose Lake known as Mud Lake, one-half mile from the west end of the lake and 300 meters east of the point where the lake makes the last turn to the north. The station is 1 meter from the water's edge and 0.3 meter above the lake level, on a rock.

Station mark: A drill hole in the rock.

Dump. (See description of reference monument 1180.)

Dark. (See description of reference monument 1174.)

Duck (Minnesota, Cook County; W. B. Fairfield, 1910; 1917).—On the south shore of Rose Lake, on the first prominent point five-eighths mile west of the narrows of the Mud Lake portion of the lake. The station is on a rock 1 meter from the water's edge and 0.3 meter above the level of the lake.

Station mark: A drill hole in the rock. Reference monument 1182 bears south 35° 49′ east, 26.6 meters distant from the station.

Club (Ontario, Thunder Bay District; W. B. Fairfield, 1910).—On the north shore of Rose Lake, on the first prominent point west of the narrows of the Mud Lake portion of the lake. This point is about one-half mile west of the narrows. The station is on a rock 0.7 meter from the water's edge and but a few centimeters above the level of the lake.

Station mark: A drill hole in the rock.

Deer (Minnesota, Cook County; W. B. Fairfield, 1910; 1917).—On the south shore of Rose Lake, on the bay just west of the narrows in the narrow part of the lake known as Mud Lake. The station is on the shore just after it turns from the south to an east-and-west shore and is on a rock 1 meter from the water's edge and 0.7 meter above the level of the lake.

Station mark: A drill hole in the rock. Reference monument 1184 bears south, 27° 29′ east, 9.1 meters distant from the station.

Cat. (See description of reference monument 1187.)

Cabin (Ontario, Thunder Bay District; W. B. Fairfield, 1910).—On the north shore of Rose Lake, at the narrowest part of the narrow part of the lake known as Mud Lake. The station is on the rock cliff or knob 9 meters back of the log cabin used for an office by the Bishop Lumber Co.'s camp. It is on top of the rock, which is about 3 meters high.

Station mark: A bronze disk set in the rock.

April (Ontario, Thunder Bay District; W. B. Fairfield, 1910).—On the north shore of Mud Lake (the narrow portion of Rose Lake). The station is three-fourths mile west of the wide part of the lake, on the second point inside the narrow part. It is on a large, flat, solid rock, right at the water's edge and but a few centimeters above the level of the lake.

Station mark: A drill hole within a triangle cut in the rock.

Brand (Minnesota, Cook County; W. B. Fairfield, 1910; 1917).—On the south shore of Rose Lake, about 250 meters west of the first prominent point inside the narrow part of the lake known as Mud Lake. The station is on a solid flat rock, about 1.5 meters from the water's edge and about 0.5 meter above the level of the lake.

Station mark: A bronze disk set in the rock. Reference monument 1190 bears south 79° 51′ west, 20.7 meters distant from the station.

Altoona. (See description of reference monument 1199.)

Bird. (See description of reference monument 1192.)

Book. (See description of reference monument 1194.)

Block (Minnesota, Cook County; W. B. Fairfield, 1910).—On the south shore of Rose Lake, 1⅝ miles west of the east end of the lake and south-southwest of the outlet into Arrow Lake. The station is on a rocky point, about 4.5 meters from the water's edge, on a large rock. A large pine tree with a blaze on it stands 3 meters back of the station, and a large cedar tree leans out over the water just east of the station.

Station mark: A drill hole within a triangle cut in the rock.

Bag. (See description of reference monument 1198.)

Bowie. (See description of reference monument 1200.)

Bone (Minnesota, Cook County; W. B. Fairfield, 1910).—On the south side of Long Portage between Rose and Watap Lakes, 900 meters from Rose Lake and 300 meters south of the portage trail. The station is on a high wooded spur of the ridge and is close to the edge of a rock cliff.

Station mark: A drill hole within a triangle cut in the rock.

Aloe. (See description of reference monument 1213.)

Betwixt. (See description of reference monument 1216.)

Bandy (Minnesota, Cook County; W. B. Fairfield, 1910).—On the south shore of Watap or Rove Lake, about 1⅝ miles west of the east end of the lake and about 200 meters south of the narrows. The station is about 1 meter from the water's edge and about 0.3 meter above the lake level, on a large rock.

Station mark: A drill hole within a triangle cut in the rock. Reference monument 1214 bears north 49° 13′ east, 20.95 meters distant.

Alva (Ontario, Thunder Bay District; W. B. Fairfield, 1910).—On the north shore of Mountain Lake, near the west end of the lake, on the point where the shore line turns northwest toward the portage, and about one-fourth mile west of a small wooded island. The station is on a large rock at the water's edge and about 0.3 meter above the lake level.

Station mark: A drill hole within a triangle cut in the rock.

Bloom (Minnesota, Cook County; W. B. Fairfield, 1910).—On the west end of Mountain Lake, on a rounded point south of the portage. The station is on a rock, a little more than a meter from the water's edge and about 0.7 meter above the lake level.

Station mark: A drill hole within a triangle cut in the rock.

Apple (Ontario, Thunder Bay District; W. B. Fairfield, 1910).—On the north shore of Mountain Lake, about three-fourths mile east of the west end of the lake. The station is about 20 meters east of the first rocky point east of the small wooded island that lies near the Canadian shore one-half mile east of the west end of the lake. It is on a large rock, about 1 meter from the water's edge and about 0.3 meter above the lake level.

Station mark: A drill hole within a triangle cut in the rock.

Andrew (Ontario, Thunder Bay District; W. B. Fairfield, 1910).—On a small bare rocky island in Mountain Lake, about 100 meters offshore from the point on the west side of the entrance to the large bay on the Canadian shore and about 2 miles east of the west end of the lake. The station is on the highest part of the solid ledge about 0.5 meter above the lake level.

Station mark: A drill hole within a triangle cut in the ledge.

Astrid (Ontario, Thunder Bay District; W. B. Fairfield, 1910).—On the north shore of Mountain Lake, about 2 miles from its eastern end, on the first rocky point west of the small island on which monument 1255 is located and at the narrowest place in the lake. The rocky point extends about 15 meters out into the lake, and about 100 meters farther west there is a similar point, beyond which the lake widens again. The station is on a large rock, about 2 meters back from the water's edge and about 0.3 meter above the lake level.

Station mark: A bronze disk set in the rock.

Bard (Minnesota, Cook County; W. B. Fairfield, 1910).—On the south side of Mountain Lake, 1¼ miles distant, on the first prominent rounding timbered point west of Lesser Cherry Portage. The station is on a large rock on the western part of the point, about 2.5 meters back from the water's edge.

Station mark: A drill hole within a triangle.

Banker (Minnesota, Cook County; W. B. Fairfield, 1910).—At the east end of Mountain Lake, on the timbered bluff just above and south of the outlet. The station is about 23 meters back from the edge of the bluff, on a smooth, bare, rocky knoll. The rock runs up higher back of the station.

Station mark: A drill hole within a triangle cut in the solid ledge.

Alert (Ontario, Thunder Bay District; W. B. Fairfield, 1910).—On the north side of Mountain Lake, near the east end, and about 800 meters back from the lake. The station is on the point of the first high, timbered ridge, somewhat below the summit of the ridge.

Station mark: A bronze disk set in a large smooth flat ledge.

Blin (Minnesota, Cook County; W. B. Fairfield, 1910).—On the south side of Vaseux Lake, about midway between the ends of the lake. The station is back on the high wooded bluff on a projecting spur.

Station mark: A drill hole within a triangle cut in the rock.

Alpen (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1921).—On the north side of Fan Lake, close to its east end. The station is on a large rock, about 0.3 meter above the lake level.

Station mark: A bronze disk set in the rock. Reference monument 1265 bears north 17° 35′ east, 26.08 meters distant.

Billie (Minnesota, Cook County; W. B. Fairfield, 1910; 1918).—On the south side of Moose Lake, on the first high, round peak west of the portage from North Fowl Lake and about 1,000 meters from the portage. The summit of the hill was cleared of timber to the north. The station is on a solid rock on the highest part of the hill.

Station mark: A bronze disk set in the rock.

Acme (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1918).—North of the east end of Moose Lake, on the high, timbered ridge about 1,000 meters from the lake. The station bears north 25° east from the first bay

from Moose Portage on the north shore of the lake and is on a smooth rock ledge on the southern brow of the ridge, about 8 meters below the summit.

Station mark: A bronze disk set in the solid rock ledge.

Aunt. (See description of reference monument 1279.)

Black. (See description of reference monument 1262.)

Bear. (See description of reference monument 1260.)

Blue (Minnesota, Cook County; W. B. Fairfield, 1910; 1921).—On the south shore of Moose Lake, three-fourths mile from the west end of the lake, on the prominent rocky point opposite a deep bay on the north side of the lake. The station is on a large rock about 8 meters back from the shore line and about a meter above the lake level.

Station mark: A bronze disk set in the rock.

Bill (Minnesota, Cook County; W. B. Fairfield, 1910; 1917).—On the south shore of Moose Lake, at the head of the lake, in the bight of a small cove about 50 meters below a small point. The station is on a large rock, about 3 meters from the water's edge and less than a meter above the lake level before the dam was built across the outlet of Moose Lake.

Station mark: A bronze disk set in the rock. Reference monument 1258 bears south 56° 44′ west, 15.15 meters distant.

Ate (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1921).—On the shore at the west end of Moose Lake. The station is on a large flat rock, about 8 meters back from the water's edge, 2 meters south of the Great Cherry Portage trail and about 40 meters north of the mouth of the main stream that flows from Vaseux Lake. A very large irregularly shaped bowlder, the largest anywhere along the shore line, lies about a meter lakeward from the station.

Station mark: A bronze disk set in the rock. Reference monument 1273 bears south 75° 04′ west, 24.27 meters distant.

Big. (See description of reference monument 1264.)

Birch (Minnesota, Cook County; W. B. Fairfield, 1910).—Near the head of North Fowl Lake, just back of the east end of Moose Portage. The station is on a rock cliff about 350 meters from the lake and about halfway up the slope of the heavily wooded ridge.

Station mark: A bronze disk set in the solid ledge.

Atlas (Ontario, Thunder Bay District; W. B. Fairfield, 1910).—On the north side of North Fowl Lake, about 700 meters from the east end of Moose Portage. The station is on a cleared place on the southern slope of a hill, about 40 meters above the lake level.

Station mark: A bronze disk set in a rock projecting about 0.3 meter above the ground.

Ascot (Ontario, Thunder Bay District; W. B. Fairfield, 1910).—On the north side of North Fowl Lake, about midway between the east and west ends of the lake and about 500 meters back from Camp 6 of the Pigeon River Lumber Co. The station is on a solid rock on the highest part of a small cleared knoll.

Station mark: A bronze disk set in the rock.

Bail (Minnesota, Cook County; W. B. Fairfield, 1910).—On the United States shore of North Fowl Lake. The station is about midway between the head and foot of the lake, on the highest of the high rock cliffs and just back from a small wooded island. It is on the highest part of the cliff, about 2 meters back from the edge.

Station mark: A bronze disk set in the solid ledge.

Adam (Ontario, Thunder Bay District; W. B. Fairfield, 1910).—On the east side of the north arm of North Fowl Lake. The station is on the first high cliff that rises from the water on the Canadian shore after passing the narrows. It is about 4 meters back from the edge of the cliff on rising ground that is heavily wooded to the top of the hill above the station.

Station mark: A drill hole within a triangle cut in the solid rock.

Bab. (See description of reference monument 1272.)

Ball. (See description of reference monument 1280.)

Abel. (See description of reference monument 1305.)

Pigeon River Traverse Station 280. (See description of reference monument 1282.)

Bull. (See description of reference monument 1270.)

Alder (Ontario, Thunder Bay District; W. B. Fairfield, 1910; 1921).—On the east side of South Fowl Lake, at the foot of the high, rocky, wooded, bluff point 1,000 meters east of the island which is near the outlet of the lake. The station is on the rounded point, about 4.5 meters back from the water's edge, on a large rock.

Station mark: A bronze disk set in the rock. Reference monument 1303 bears north 69° 23′ east, 33.58 meters from the station.

Pigeon River Traverse Station 315 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—At the head of Pigeon River where it leaves South Fowl Lake. The station is on the hillside, about 55 meters northeast from the east end of the South Fowl Dam and about 25 meters from the lake shore.

Station mark: A drill hole at the center of a cross cut in a rock set for the purpose of marking the station.

Pigeon River Traverse Station 278 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the west shore of South Fowl Lake, about 230 meters from the South Fowl Lake Dam across the head of Pigeon River. The station is at the foot of the high rock cliff, on a very large fixed rock, and about 2 meters from the shore line at high water.

Station mark: A bronze disk, stamped "278," set in the rock.

PIGEON RIVER, MINOR SCHEMES

Pigeon River Traverse Station 276 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the west bank of Pigeon River, about 90 meters below the South Fowl Lake Dam. The station is on top of the high cliff point, about 1 meter back from the edge of the cliff.

Station mark: A bronze disk, stamped "276," set in the rock.

Pigeon River Traverse Station 313 (Ontario, Thunder Bay District; W. B. Fairfield, 1909).—On the east side of Pigeon River where it leaves South Fowl Lake. The station is on the ledge or cliff at the east end of the South Fowl Lake Dam and about 6 meters above the top of the dam.

Station mark: A bronze disk, stamped "313," set in the rock.

Pigeon River Traverse Station 311 (Ontario, Thunder Bay District; W. B. Fairfield, 1909).—On the east bank of Pigeon River, about 150 meters below the South Fowl Lake Dam.

Station mark: A drill hole at the center of a cross cut in a rock.

Pigeon River Traverse Station 274 (Minnesota, Cook County; W. B. Fairfield, 1909).—On the west bank of Pigeon River, about 75 meters below the South Fowl Lake Dam.

Station mark: A drill hole at the center of a cross cut in a rock.

Pigeon River Traverse Station 272 (Minnesota, Cook County; W. B. Fairfield, 1909).—On the west bank of Pigeon River, about 300 meters below South Fowl Lake Dam. The station is on a rock on the bank 10 meters above the lower end of the rapids.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 309 (Ontario, Thunder Bay District; W. B. Fairfield, 1909).—On the east bank of Pigeon River, about 500 meters below South Fowl Lake Dam. The station is on a rock about 2.5 meters from the shore line and just below an old pier at the head of a rapids.

Station mark: A bronze disk, stamped "309," set in the rock.

Pigeon River Traverse Station 270 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the west bank of Pigeon River, about 650 meters below South Fowl Lake Dam. The station is on the high bank, about 30 meters above the first dam below the lake and about 1.5 meters from the edge of the bank.

Station mark: A bronze disk, stamped "270," set in a fixed rock.

Pigeon River Traverse Station 307 (Ontario, Thunder Bay District; W. B. Fairfield, 1909).—On the east bank of Pigeon River, about 750 meters below South Fowl Lake Dam.

Station mark: A drill hole at the center of a cross cut in a large fixed rock.

Pigeon River Traverse Station 268 (Minnesota, Cook County; W. B. Fairfield, 1909).—On the west bank of Pigeon River, about 1,000 meters below South Fowl Lake. The station is on a large rock on the bank at a narrow rapid place in the river where the hills close in on both sides of the stream.

Station mark: A bronze disk, stamped "268," set in the rock.

Pigeon River Traverse Station 305. (See description of reference monument 1288.)

Pigeon River Traverse Station 303 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 1,400 meters below South Fowl Lake. The station is on a ledge on the bank about 100 meters east of the bend where the river first turns to an easterly course.

Station mark: A bronze disk, stamped "303," set in the ledge.

Pigeon River Traverse Station 250 (Minnesota, Cook County; W. B. Fairfield, 1909).—On the south shore of Pigeon River, about 100 meters above the mouth of Stump River. The station is on a rock on the gravel bar, about 4 meters from the river bank.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 291. (See description of reference monument 1292.)

Pigeon River Traverse Station 271 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 3,100 meters above the mouth of Swamp River. The station is on a rock on the low, muddy, timbered bank of the river.

Station mark: A bronze disk, stamped "271," set in the rock.

Pigeon River Traverse Station 224 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south bank of Pigeon River, about 2,200 meters above the mouth of Swamp River. The station is on a large rock on the shore line near the middle of a long east-and-west straight reach of the river.

Station mark: A bronze disk, stamped "224," set in the rock.

Pigeon River Traverse Station 267 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 2,000 meters above the mouth of Swamp River. The station is on the highest point of the high bluff bank at the bend of the river. The river trail crosses the point beside the station.

Station mark: A bronze disk, stamped "267," set in a large rock.

Pigeon River Traverse Station 222 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south shore of Pigeon River, about 1,800 meters above the mouth of Swamp River.

Station mark: A bronze disk, stamped "222," set in a large rock.

Pigeon River Traverse Station 220 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south bank of Pigeon River, about 1,400 meters above the mouth of Swamp River. The station is on a large rock.

Station mark: A bronze disk, stamped "220," set in the rock.

Pigeon River Traverse Station 261. (See description of reference monument 1308.)

Pigeon River Traverse Station 216 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south bank of Pigeon River, about 500 meters above the mouth of Swamp River. The station is on a large rock on the shore line at the head of the rapids and just upstream from a steep bluff bank.

Station mark: A bronze disk, stamped "216," set in the rock.

Pigeon River Traverse Station 257 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 300 meters above the mouth of Swamp River. The station is on a large rock on the shore line at the foot of a steep bluff bank.

Station mark: A bronze disk, stamped "257," set in the rock.

Pigeon River Traverse Station 208 (Minnesota, Cook County; W. B. Fairfield, 1909).—On the south bank of Pigeon River, about 850 meters below the mouth of Swamp River.

Station mark: A drill hole at the center of a cross cut in a fixed rock.

Pigeon River Traverse Station 243 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 1,200 meters below the mouth of Swamp River.

Station mark: A bronze disk, stamped "243," set in a large fixed rock.

Pigeon River Traverse Station 188 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south bank of Pigeon River, about 1,700 meters above Partridge Falls. The station is about 150 meters downstream from an abrupt bend of the river that has a small island in it. It is on a large rock on the bank, near the shore line.

Station mark: A bronze disk, stamped "188," set in the rock.

Pigeon River Traverse Station 227 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River about 1,600 meters above Partridge Falls. The station is on a large rock near the shore line about 300 meters below the mouth of a small stream.

Station mark: A bronze disk, stamped "227," set in the rock.

Pigeon River Traverse Station 221. (See description of reference monument 1318.)

Pigeon River Traverse Station 178 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south side of Pigeon River, about 200 meters below Partridge Falls. The station is on a large, fixed rock about 2 meters back from the shore line.

Station mark: A bronze disk, stamped "178," set in the rock.

Pigeon River Traverse Station 217 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 500 meters below Partridge Falls. The station is on a small rock, about 2 meters from the shore line just below the foot of some rapids.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 213 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 1,100 meters below Partridge Falls. The station is on a rock on the muddy bank just below the mouth of a small creek.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 211 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 1,300 meters below Partridge Falls. The station is on a rock on the muddy bank, about 200 meters below the mouth of a creek.

Station mark: A bronze disk, stamped "211," set in the rock.

Pigeon River Traverse Station 170 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south bank of Pigeon River, about five-eighths mile above the dam at the head of The Cascades. The station is on a large rock on the flat mud bank, about 3 meters from the shore line at the head of some rapids.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 207 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 900 meters above the dam at the head of The Cascades. The station is on a large rock on the low-water shore line at the mouth of a little stream. When the dam is closed the rock is covered with water.

Station mark: A bronze disk, stamped "207," set in the rock.

Pigeon River Traverse Station 168 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south shore of Pigeon River, about 800 meters upstream from the head of The Cascades. The station is on a large rock on the bank at the foot of some rapids when the river is at normal stage. When the Cascades Dam is closed, the station is flooded.

Station mark: A drill hole at the center of a cross cut in the rock.

Cascade (Minnesota, Cook County; Jesse Hill, 1918).—On the south side of Pigeon River, about one-fourth mile east of the Cascades Dam. The station is on the summit of a high hill which has been logged and cut over, leaving many exposed rock outcrops. There is a higher timbered hill about one-fourth mile to the southeast.

Station mark: A drill hole within a triangle cut in a large rock about 3 meters below and 8 meters southwest of the highest point of the hill.

Pigeon River Traverse Station 201 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north side of Pigeon River, about 200 meters southwest of the dam at The Cascades. The station is on the point of the ridge on the north side of the road leading up the hill from the river. It is on the highest part of the ledge.

Station mark: A bronze disk, stamped "201," set in the ledge.

Pigeon River Traverse Station 164 (Minnesota, Cook County; W. B. Fairfield, 1909).—On the south side of Pigeon River, about 170 meters upstream from the dam at the head of The Cascades. The station is on the sloping bank about 30 meters from the river.

Station mark: An iron rod 1 inch in diameter and 24 inches long driven in the ground to a depth of 20 inches.

Pigeon River Traverse Station 166 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south side of Pigeon River, about 520 meters southeast of the dam at the head of The Cascades. The station is on the summit of a hill at the southeast edge of the clearing and about 50 meters northeast of the Grand Portage trail or road.

Station mark: A bronze disk, stamped "166," set in a large rock.

Pigeon River Traverse Station 199. (See description of reference monument 1324.)

Pigeon River Traverse Station 197 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River at the head of The Cascades. The station is on the cliff on the sharp bend of the river just below the first falls and just opposite the end of the lumber chute.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 162 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south bank of Pigeon River, about 150 meters below the dam at the head of The Cascades. The station is on a large rock on top of the high cliff at the upper end of the third fall of The Cascades. It is about 2 meters back from the edge of the cliff.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 195 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 240 meters below the dam at the head of The Cascades. The station is on top of the cliff about a meter back from the edge.

Station mark: A bronze disk, stamped "195," set in the rock.

Pigeon River Traverse Station 193 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 400 meters below The Cascades. The station is on top of the cliff, near the north end, and about 2 meters back from the edge.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 158 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south bank of Pigeon River, about 500 meters below the dam at the head of The Cascades. The station is on a large rock on top of the cliff about 3.5 meters back from the edge.

Station mark: A bronze disk, stamped "158," set in the rock.

Pigeon River Traverse Station 156 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south bank of Pigeon River, about 700 meters below the dam at the head of The Cascades. The station is on a large rock on top of the cliff about 2 meters back from the edge.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 154 (Minnesota, Cook County; W. B. Fairfield; 1909; 1918).—On the south bank of Pigeon River, about five-eighths mile below The Cascades. The station is on top of the cliff about 4 meters back from the edge.

Station mark: A bronze disk, stamped "154," set in the rock.

Pigeon River Traverse Station 152 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south bank of Pigeon River, about seven-eighths mile below The Cascades. The station is at the lower end of a long canyon or gorge. It is about 200 meters upstream from where the river turns abruptly to the south and is on the rim of the gorge about 3 meters from the edge of the cliff.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 185 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 1 mile below The Cascades. The station is about 120 meters upstream from where the river leaves the long canyon and makes an abrupt turn to the south.

Station mark: A drill hole at the center of a cross cut in a large rock.

Pigeon River Traverse Station 181 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 1 mile below The Cascades. The station is about 120 meters downstream from where the river leaves the long canyon and turns abruptly to the south. It is on a large rock on the bank opposite a wing dam.

Station mark: A bronze disk, stamped "181," set in the rock.

Pigeon River Traverse Station 179 (Ontario, Thunder Bay District; W. B. Fairfield, 1909).—On the north bank of Pigeon River, about 1¼ miles below The Cascades. The station is on a rock 2 meters from the shore line.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 144 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south bank of Pigeon River, about 1⅜ miles below The Cascades.

Station mark: A drill hole at the center of a cross cut in a large rock.

Pigeon River Traverse Station 177 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 1½ miles below The Cascades. The station is on a large rock on the sloping bank about 1 meter from the shore line.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 140 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south bank of Pigeon River, about 1⅞ miles below The Cascades. The station is on a large rock near the mouth of a small brook.

Station mark: A bronze disk, stamped "140," set in the rock.

Pigeon River Traverse Station 171 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 4 miles above the mouth of Arrow River and about 2 miles below The Cascades.

Station mark: A bronze disk, stamped "171," set in a rock near the mouth of a small stream.

Pigeon River Traverse Station 138 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south side of Pigeon River, about 2¼ miles below The Cascades. The station is on a rock on a shoal in the river bed about 8 meters from the shore line.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 169½ (Ontario, Thunder Bay District; W. B. Fairfield, 1909).—On the north shore of Pigeon River, about 3¾ miles above the mouth of Arrow River. The station is on a dry shoal in the river bed about 8 meters offshore.

Station mark: A drill hole at the center of a cross cut in a rock.

Pigeon River Traverse Station 132 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south bank of Pigeon River, about 3⅜ miles above the mouth of Arrow River. The station is on a rock about a meter back from the shore line.

Station mark: A bronze disk, stamped "132," set in the rock.

Pigeon River Traverse Station 128 (Minnesota, Cook County; W. B. Fairfield, 1909).—On the south side of Pigeon River, about 2⅞ miles above the mouth of Arrow River. The station is on a large rock in the river about 2 meters from the shore line.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 126 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south bank of Pigeon River, about 2¾ miles above the mouth of Arrow River. The station is on a rock about 1.2 meters from the shore line.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 161 (Ontario, Thunder Bay District; W. B. Fairfield, 1909).—On the north shore of Pigeon River, about 2⅝ miles above the mouth of Arrow River. The station is on a rock on a dry shoal close to the shore.

Station mark: A bronze disk, stamped "161," set in the rock.

Pigeon River Traverse Station 155 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north shore of Pigeon River, about 2 miles above the mouth of Arrow River. The station is on a small rock about 1.5 meters off shore.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 153 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 1⅞ miles above the mouth of Arrow River. The station is on a large rock about 3 meters offshore opposite a large mud slide.

Station mark: A bronze disk, stamped "153," set in the rock. A bench mark, a bronze disk stamped "967," is set in the rock 0.3 meter west of the station.

Pigeon River Traverse Station 118 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south side of Pigeon River, about 1½ miles above the mouth of Arrow River. The station is in the river bed, on a large rock which is connected to the south shore by a wing dam.

Station mark: A bronze disk, stamped "118," set in the rock.

Pigeon River Traverse Station 145 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 1⅜ miles above the mouth of Arrow River. The station is on a rocky point just above a wide place in the river. It is on a rock close to the shore line at the swift rapids.

Station mark: A bronze disk, stamped "145," set in the rock.

Pigeon River Traverse Station 143 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 1 mile upstream from the mouth of Arrow River and at the mouth of a small brook.

Station mark: A bronze disk, stamped "143," set in a large rock.

Pigeon River Traverse Station 106 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south bank of Pigeon River, about 400 meters upstream from the mouth of Arrow River.

Station mark: A bronze disk, stamped "106," set in a large rock.

Pigeon River Traverse Station 131 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north side of Pigeon River, just above The Oxbow and about 450 meters downstream from the mouth of Arrow River. Two small streams enter the river about 70 meters apart at this place. The station is on a large rock on a shoal just off the mouth of the southern of the two streams.

Station mark: A bronze disk, stamped "131," set in the rock.

Pigeon River Traverse Station 100 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the United States (west) shore of Pigeon River at the most northwestern bend of The Oxbow. The station is on a rock on the bluff bank about 3 meters above the river.

Station mark: A bronze disk, stamped "100," set in the rock.

Pigeon River Traverse Station 125 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the Canadian (east) bank of Pigeon River and on the most western point of land inside the The Oxbow. The station is on a rock close to the shore line.

Station mark: A bronze disk, stamped "125," set in the rock.

Pigeon River Traverse Station 123 (Ontario, Thunder Bay District; W. B. Fairfield, 1909).—On the north bank of Pigeon River in the most southern bend of The Oxbow. The station is on a projecting rocky point that becomes an island at flood stage of the river. It is on a rock about 2.5 meters from the bank.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 115 (Ontario, Thunder Bay District; W. B. Fairfield, 1909).—On the north bank of Pigeon River, about 250 meters upstream from The Tunnel. The station is on a large rock about 4.5 meters above the water.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 94 (Minnesota, Cook County; W. B. Fairfield, 1909).—On the south bank of Pigeon River, about three-fourths mile above the Scott Highway Bridge and about 170 meters upstream from the head of The Tunnel. The station is on a large rock in the river bed about 4.5 meters out in the stream from the bluff bank.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 92 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south side of Pigeon River, about five-eighths mile above the Scott Highway Bridge. The station is on the rim of the cliff at The Tunnel, about 40 meters downstream from the upstream limits of the cliff and about 20 meters above the river bed.

Station mark: A bronze disk, stamped "92," set in the rock.

Pigeon River Traverse Station 111 (Ontario, Thunder Bay District; W. B. Fairfield, 1909).—On the north bank of Pigeon River, about 100 meters downstream from The Tunnel. The station is on a rock, set for the purpose of marking the station, on the steep hillside above the cliffs that rise from the water. It is about 4.5 meters back from the edge of the cliff.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 109 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank in a sharp bend of Pigeon River, about 600 meters above the Scott Highway Bridge and about 450 meters below The Tunnel. The station is on top of a low cliff about 6 meters above the river.

Station mark: A bronze disk, stamped "109," set in the rock.

Pigeon River Traverse Station 86 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south shore of the bend of Pigeon River, about 580 meters upstream from the Scott Highway Bridge. The station is on a level ledge of trap rock, about 2 meters wide, which extends along the shore line about 0.6 meter above the water. A meander corner post of the United States General Land Office stands on the bank 1.8 meters back of the station. The post is marked on the north side, "M. C. T. 64 N."; on the west, "S. 19"; on the east ,"R. 6 E. S. 20."

Station mark: A bronze disk, stamped "86," set in the ledge.

Pigeon River Traverse Station 107 (Ontario, Thunder Bay District; W. B. Fairfield, 1909).—On the north shore of Pigeon River, about 500 meters above the Scott Highway Bridge and about 100 meters upstream from the cliffs that are along the north bank of the river. The station is on a rock, set for the purpose of marking the station, on a steep hillside near the shore line.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 84 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south shore of Pigeon River, about 300 meters upstream from the Scott Highway Bridge. The station is on a large rock near the shore line.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 101 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north side of Pigeon River, about 100 meters below the Scott Highway Bridge. The station is on top of the cliff directly above the water, about 1.5 meters back from the edge of the cliff and about 12 meters above the water.

Station mark: A bronze disk, stamped "101," set in the rock. A bench mark, a bronze disk stamped "935," is set in the rock about 15 meters north of the station.

Pigeon River Traverse Station 80 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south shore of Pigeon River, about 220 meters below the Scott Highway Bridge. The station is on a ledge at the foot of the cliff and close to the water's edge.

Station mark: A drill hole at the center of a cross cut in the ledge.

Pigeon River Traverse Station 78 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the South bank of Pigeon River, about 600 meters below the Scott Highway Bridge. The station is on a large rock on the bank about 120 meters below the mouth of a small stream.

Station mark: A bronze disk, stamped "78," set in the rock.

Pigeon River Traverse Station 76 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south shore of Pigeon River, about 800 meters below the Scott Highway Bridge. The station is on a large buried bowlder on the bank about 1.2 meters from the shore line.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 95 (Ontario, Rainy River District; W. B. Fairfield, 1909; 1918).—On the north shore of Pigeon River, about 900 meters below the Scott Highway Bridge. The station is on a large rock about 1.5 meters back from the shore line.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 74 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south bank of Pigeon River, about 2½ miles above Horn Rapids. The station is near the middle of the long straight steep shore, on a rock about 3.5 meters in diameter, out in the river bed about 3 meters from the shore line and about 1.5 meters above the water.

Station mark: A bronze disk, stamped "74," set in the rock.

Pigeon River Traverse Station 93 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north side of Pigeon River, about three-fourths mile below the Scott Highway Bridge. The station is on a large rock on the grassy river bank about 150 meters below the mouth of a small stream.

Station mark: A bronze disk, stamped "93," set in the rock.

Pigeon River Traverse Station 72 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south bank of Pigeon River, about 2¼ miles above Horn Rapids. The station is on a large buried bowlder on the river bank at a point where one can look across the river and straight down the narrow channel that passes around the north side of the upper one of two large, low islands.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 89 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River at the head of some very swift rapids, about 2 miles above Horn Rapids. The station is just upstream from the sharp bend of the bank where the main channel of the river bends sharply around the northside of a large, low, flat island. At this point the river changes its course sharply from an easterly to a southerly direction for a short distance, thence it flows east again.

Station mark: A bronze disk, stamped "89," set in a large rock close to the water's edge.

Pigeon River Traverse Station 70 (Minnesota, Cook County; W. B. Fairfield, 1909).—On the south side of Pigeon River, about 2 miles upstream from Horn Rapids. The station is on the south shore of a large, low, flat island, around the north side of which the main channel of the river makes a sharp bend. It is about 65 meters downstream from the head of the island. The station is on a small buried bowlder just below the high-water mark. The channel between it and the mainland is only about 8 meters wide.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 68 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south bank of Pigeon River, about 1⅞ miles above Horn Rapids. The station is just opposite the downstream point of a large, low, flat island, around the north side of which the main channel of the river makes a sharp bend.

Station mark: A bronze disk, stamped "68," set in a large rock.

Pigeon River Traverse Station 85 (Ontario, Thunder Bay District; W. B. Fairfield, 1909.—On the north bank of Pigeon River, about 1½ miles upstream from Horn Rapids. The station is at the foot of the steep point of the hill, on a large rock about 1.5 meters from the water's edge. There are some islands in the river just above the station.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 64 (Minnesota, Cook County; W. B. Fairfield, 1909).—On the south bank of Pigeon River, about 1⅜ miles upstream from Horn Rapids. The station is on a large rock on the river bank.

Station mark: A bronze disk, stamped "64," set in the rock.

Pigeon River Traverse Station 83 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north shore of Pigeon River, about 1¼ miles above Horn Rapids. The station is on a large rock on a big bend of the river and is about 2 meters from the shore line.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 81 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 1,800 meters above Horn Rapids. The station is on a large rock about 2 meters from the water's edge.

Station mark: A bronze disk, stamped "81," set in the rock.

Pigeon River Traverse Station 62 (Minnesota, Cook County; W. B. Fairfield, 1909).—On the south bank of Pigeon River, about 1,500 meters upstream from Horn Rapids. The station is on a rock about 35 meters downstream from the mouth of a small creek and about 1 meter from the shore line.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 79 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 1,300 meters above Horn Rapids. The station is on a large rock about 3 meters from the water's edge.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 60 (Minnesota, Cook County; W. B. Fairfield, 1909).—On the south bank of Pigeon River, about 1,200 meters upstream from Horn Rapids. The station is opposite a very large, level, marshy area lying in the bend on the north side of the river.

Station mark: A drill hole at the center of a cross cut in a large rock.

Blink (Minnesota, Cook County; Jesse Hill, 1918).—On the south side of Pigeon River 1⅛ miles west of Horn Rapids. The station is about 300 meters south of the river, on the crest of the high ridge that parallels the river and about 30 meters northeast of the highest point on the ridge. The ridge is timbered, and vistas had to be cut to see other stations.

Station mark: A bronze disk set in rock.

Horn (Minnesota, Cook County; Jesse Hill, 1918).—On the south side of Pigeon River, about 450 meters southwest of Horn Rapids. The station is on the highest point of a high and prominent hill.

Station mark: A bronze disk set in the solid rock of the bare summit.

Poplar (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north side of Pigeon River 300 meters northeast of Horn Rapids. The station is on the south end of the high hill around which the Scott Highway descends to the river about 2 miles below the highway bridge.

Station mark: A bronze disk set in a large rock.

Pigeon River Traverse Station 75½ (Ontario, Thunder Bay District; Jesse Hill, 1918).—On the north shore of Pigeon River about 700 meters upstream from Horn Rapids and near the middle of the east-and-west reach of the river. The station is on a rock about 3 meters above the water.

Station mark: A cross cut in the rock.

Sight (Ontario, Thunder Bay District; W. B. Fairfield, 1908; 1918).—On the north side of Pigeon River, about three-fourths mile northeast of High Falls and about 250 meters northeast of the fork of the road leading to High Falls. The station is on the top of a prominent ridge that terminates at its southern end in a rocky bluff and steep cliffs.

Station mark: A drill hole within a triangle cut in the rock.

Boulder (Minnesota, Cook County; W. B. Fairfield, 1908).—On the third rocky point east of the mouth of Pigeon River and on the peninsula that terminates in Pigeon Point. The station is on the top of a very large rock about 6 meters above the shore of Lake Superior. On the face of the rock toward the lake is cut in large letters "Str. Picket." Back of the station the ground rises to the cliffs and is thickly wooded.

Station mark: A drill hole 1 inch in diameter and 4 inches deep inclosed within a triangle cut in the rock. In 1918 Jesse Hill occupied the station "Boulder-east" about 300 meters east of this station and marked it with a ¾ by 10 inch bolt set in a crack of the rock.

Ledge (Ontario, Thunder Bay District; W. B. Fairfield, 1908).—On the shore of Pigeon Bay of Lake Superior. The station is on the low rocky point that makes into the bay and separates the north arm from the south arm. The station is on a smooth ledge on the extreme end of the point. There is a small cove with a pebble beach about 100 meters east of the station.

Station mark: A drill hole within a triangle cut in the rock.

North Arm Rock (Ontario, Thunder Bay District; W. B. Fairfield, 1908).—On the little rock island in Pigeon Bay of Lake Superior that lies just off the eastern end of the point that lies between the north and south arms of the bay. It is on the highest point of the bare island, about 9 meters above the lake.

Station mark: A drill hole within a triangle cut in the rock.

Cliff (Minnesota, Cook County; W. B. Fairfield, 1908).—On the rocky north shore of Pigeon Point which projects into Lake Superior. The station is at the foot of the 30-meter rock cliff, about one-half mile west of the extreme end of the point. It is on the solid ledge about 8 meters above the water.

Station mark: A drill hole within a triangle cut in the rock.

Pigeon River Traverse Station 77 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north shore of Pigeon River, about 850 meters above Horn Rapids and about 50 meters above the mouth of a small stream. It is on a large rock on the bank of the river.

Station mark: A bronze disk, stamped "77," set in the rock.

Pigeon River Traverse Station 75 (Ontario, Thunder Bay District; W. B. Fairfield, 1909).—On the north bank of Pigeon River, about 475 meters above Horn Rapids and at the farthest point on the bend of the river from which the rapids are visible. The station is on a buried bowlder on the sloping bank at the foot of the perpendicular bank that rises here to a height of about 2.5 meters.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 73 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 120 meters above Horn Rapids. The station is on the top of a rock cliff, about 1.2 meters back from the edge of the cliff and about 3 meters above the water.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 69 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 200 meters below Horn Rapids. The station is on a large buried bowlder near the water's edge.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 54 (Minnesota, Cook County; W. B. Fairfield, 1909).—On the south shore of Pigeon River, about 370 meters below Horn Rapids. The station is on a large rock at the water's edge.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 67 (Ontario, Thunder Bay District, W. B. Fairfield; 1909).—On the north bank of Pigeon River, about 500 meters below Horn Rapids. The station is on a large buried bowlder on the bank of the stream.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 52 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south side of Pigeon River, about 620 meters below Horn Rapids. The station is on a large rock on the bank of the river.

Station mark: A bronze disk, stamped "52," set in the rock.

Pigeon River Traverse Station 65 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 800 meters below Horn Rapids. The Pigeon River Lumber Co.'s road parallels the river about 30 meters back of the station.

Station mark: A bronze disk, stamped "65," set in a large buried bowlder on the bank.

Pigeon River Traverse Station 63 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north shore of Pigeon River, about five-eighths of a mile below Horn Rapids. The station is on a buried bowlder on the bank at the foot of a hill and on a bend of the river.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 57 (Ontario, Thunder Bay District; W. B. Fairfield, 1909).—Reported moved 3 feet in 1918 and therefore not to be used. On the north bank of Pigeon River on the bend of the river about 1,800 meters upstream from Little Falls. The station is on a large buried bowlder about 1.2 meters above normal water level and just downdream from the mouth of a little stream. From this station one can see down the river almost due east for a distance of about 800 meters and up the river almost due south for about 500 meters.

Station mark: A bronze disk, stamped "57," set in the rock.

Pigeon River Traverse Station 55 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north shore of Pigeon River, about 1,700 meters upstream from Little Falls. The station is on a large rock near the water's edge about 150 meters downstream from the mouth of a small creek. The river road is on the high bank just above the station.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 49 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 800 meters above Little Falls. The station is on a large rock just at the water's edge and opposite the lower end of an island.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 47 (Ontario, Thunder Bay District; W. B. Fairfield, 1909).—On the north shore of Pigeon River, about 400 meters above Little Falls. The station is on a rock on the bank of the river.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 40. (See description of reference monument 1348.)

Pigeon River Traverse Station 39 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north side of Pigeon River, about 180 meters below Little Falls, which can be seen from the station. The station is on a large rock near the water's edge.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 37 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north shore of Pigeon River, about 350 meters below Little Falls. The station is on a rock that stands out on a shoal or bar about 6 meters from the shore line nearly opposite the upper end of a small island in the middle of the river. The immediate shore back of the station is low and marshy. The station is awash at high water.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 35 (Ontario, Thunder Bay District; W. B. Fairfield, 1909).—On the north bank of Pigeon River, about 3 miles above the mouth of the river and about 600 meters below Little Falls. The station is on a large rock on the bank near the water. Two small creeks flow into the river a little above the station; the nearer one is about 70 meters and the farther one about 105 meters from the station. The wagon road is on the high bank just above the station.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 33 (Ontario, Thunder Bay District; W. B. Fairfield, 1909).—On the north bank of Pigeon River, about 2⅞ miles above the mouth of the river and about 700 meters below Little Falls. The station is on a rock on the bank on the big bend of the river.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 31 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north side of Pigeon River, about 2¾ miles above the mouth of the river and about 900 meters below Little Falls. The station is near the water's edge on a large rock on a wooded point at a bend of the river.

Station mark: A bronze disk, stamped "31," set in the rock.

Pigeon River Traverse Station 29 (Ontario, Thunder Bay District; W. B. Fairfield, 1909).—On the north side of Pigeon River, about 2¾ miles above the mouth of the river and about 1,000 meters below Little Falls. The station is on a large flat rock about 8 meters out in the river. The rock is probably awash at high water.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 27 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north bank of Pigeon River, about 2½ miles above the mouth of the river and above the river gorge known as The Canyon. The station is on a large rock near the water's edge.

Station mark: A bronze disk, stamped "27," set in the rock.

Pigeon River Traverse Station 30 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south bank of Pigeon River, about three-fourths mile above High Falls and near the head of the rapids above the river gorge known as The Canyon. The station is on a large rock near the water's edge.

Station mark: A bronze disk, stamped "30," set in the rock.

Pigeon River Traverse Station 26 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south bank of Pigeon River, about 900 meters above High Falls. It is on a flat ledge near the water's edge abreast of the narrowest portion of the stream in the gorge. Three meters back of the station the walls of the gorge rise in perpendicular cliffs.

Station mark: A bronze disk, stamped "26," set in the ledge.

Pigeon River Traverse Station 24 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south bank of Pigeon River, about 800 meters above High Falls. The station is on the slope above the cliffs of The Canyon, about 120 meters upstream from its mouth.

Station mark: A bronze disk, stamped "24," set in solid rock.

Pigeon River Traverse Station 22 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south bank of Pigeon River just at the mouth of The Canyon. The station is on a large rock close to the water's edge.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 18 (Minnesota, Cook County; W. B. Fairfield, 1909).—On the south bank of Pigeon River, about 460 meters upstream from High Falls. The station is on a large rock near the river bank.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 17 (Ontario, Thunder Bay District; W. B. Fairfield, 1909).—On the north shore of Pigeon River, about 520 meters upstream from High Falls. The station is on a large buried bowlder close to the river bank.

Station mark: A bronze disk, stamped "17," set in the rock.

Pigeon River Traverse Station 16 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south shore of Pigeon River, about 380 meters upstream from High Falls and about 80 meters upstream from the mouth of a small creek. The station is on a large buried bowlder near the shore line.

Station mark: A drill hole at the center of a cross cut in the rock.

Pigeon River Traverse Station 14 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On the south side of Pigeon River, about 230 meters above High Falls Dam. The station is on a rocky point at the foot of the rapids.

Station mark A drill hole at the center of a cross cut in the solid rock.

Granite (Ontario, Thunder Bay District; W. B. Fairfield, 1908).—About 550 meters northeast of High Falls of Pigeon River. The station is about 100 meters northwest of the road to High Falls at a point about 300 meters from where the road leaves the main river road. It is on the ridge that rises above the cliffs which are near the road.

Station mark: A drill hole within a triangle cut in the ledge.

View (Ontario, Thunder Bay District; W. B. Fairfield, 1908; 1918).—On the north side of Pigeon River, about 1 mile upstream from the mouth of the river. The station is on the low point of the ridge about 150 meters back from the river, opposite and about northeast of a sharp and narrow bend of the river. It is on a large rock about 90 meters back from the road and about 18 meters above the level of the river.

Station mark: A bronze disk, stamped "9," set in the rock.

Upper (Ontario, Thunder Bay District; W. B. Fairfield, 1908; 1918).—On the north side of Pigeon River, about three-fourths mile above the mouth of the river. The station is about 150 meters back from the river at a point about opposite the upper end of Island "E." It is in a clearing about 30 meters north of the road at a point where the road begins to ascend from the river bottom to higher ground. It is on a large bowlder. There are no other large rocks near it.

Station mark: A bronze disk, stamped "7," set in the bowlder.

Staple Point (Minnesota, Cook County; W. B. Fairfield, 1908).—On the shore of Lake Superior on the first rocky point on the south side of and east of the mouth of Pigeon River. The station is on the first rock level above the point and about 9 meters above the lake level. A large iron staple has been set in the solid rock at the water's edge just below the station.

Station mark: A drill hole within a triangle cut in the rock.

Rock (Ontario, Thunder Bay District; W. B. Fairfield, 1908).—At the head of Pigeon Bay of Lake Superior on the first rocky point north of the mouth of Pigeon River. The station is about 1 meter above the lake on the solid ledge that projects out from the point. Another large rock, still farther out in the lake and about 1 meter higher than the station, has a hole 3 inches in diameter and 7 inches deep drilled in its outer side for the purpose of holding a ring bolt for a boom fastening.

Station mark: A drill hole within a triangle cut in the rock.

Pigeon River Traverse Station 11 (Ontario, Thunder Bay District; W. B. Fairfield, 1909; 1918).—On the north side of Pigeon River near High Falls. The station is on the high rocky point 100 meters northeast of the dam at High Falls. It is on the top of the solid ledge just above the road.

Station mark: A bronze disk, stamped "11," set in the ledge.

Pigeon River Traverse Station 10 (Minnesota, Cook County; W. B. Fairfield, 1909; 1918).—On Pigeon River, about 550 meters below High Falls. The station is on the northeast point of the large island that lies in the southern part of the cove below the rapids from High Falls. "Island H" is just north of the station across a narrow channel. The station is 3 meters back from the shore line on a large rock.

Station mark: A bronze disk, stamped "10," set in the rock.

Island I (Ontario, Thunder Bay District; Jesse Hill, 1918).—On Pigeon River, about 540 meters below High Falls. The station is near the middle of the southern part of the most western island of the group of islands lying below the falls.

Station mark: A bronze disk, stamped "I," set in a concrete block.

Island G (Ontario, Thunder Bay District; Jesse Hill, 1918).—On Pigeon River about 575 meters below High Falls. The station is near the middle of a small island that is near the center of the group of islands lying in the slack water below the falls.

Station mark: A bronze disk, stamped "G," set in a concrete block.

Island H (Minnesota, Cook County; Jesse Hill, 1918).—On Pigeon River, about 575 meters below High Falls. The station is near the middle of a small round island that lies in the southwestern part of a group of islands.

Station mark: A bronze disk, stamped "H," set in a concrete block.

Island F (Ontario, Thunder Bay District; Jesse Hill, 1918).—On Pigeon River, about 650 meters below High Falls. The station is near the middle of an island about 40 by 90 meters in size which lies in the northeastern part of a group of islands.

Station mark: A bronze disk, stamped "F," set in a concrete block.

Island E (Minnesota, Cook County; Jesse Hill, 1918).—On Pigeon River, about 1,300 meters above its mouth. The station is on the west shore of a long, low island. It is about 120 meters downstream from the head of the island.

Station mark: A bronze disk, stamped "E," set in a concrete block.

Island D (Minnesota, Cook County; Jesse Hill, 1918).—On Pigeon River, about 1,000 meters above the mouth of the river. The station is on a small, round island lying near the middle of the stream and on the south side of the main channel.

Station mark: A bronze disk, stamped "D," set in a concrete block.

Island C (Ontario, Thunder Bay District; Jesse Hill, 1918).—On Pigeon River, about 950 meters above the mouth of the river. The station is on the southwest shore of a long, low island lying just north of the middle of the channel. It is about 40 meters downstream from the head of the island.

Station mark: A bronze disk, stamped "C," set in a concrete block.

Island B (Ontario, Thunder Bay District; Jesse Hill, 1918).—On Pigeon River, about 840 meters above the mouth of the river. The station is near the middle of a very long, low island lying just north of the middle of the stream.

Station mark: A bronze disk, stamped "B," set in a concrete block.

Island A (Minnesota, Cook County; Jesse Hill, 1918).—On Pigeon River, about 430 meters above the mouth of the river. The station is near the center of a small island lying just south of the middle of the stream.

Station mark: A bronze disk, stamped "A," set in a concrete block.

Ban. (See description of reference monument 1364.)

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Atlee	336		27
Atom	241	508	D, 27
Aunt	339	573	28
Auto	242	510	D, 35
Axe	265	530	8
Bab	340	573	28
Bachtel	249	512	4
Back (Rainy River)	258		6
Back (Rose Lake)	240	507	D, 26
Bad	340		28
Bag	335	571	27
Bail	340	573	28
Baldy	236	500	C, 11
Ball	340	573	28
Balsam	241	508	D, 27
Ban	355	585	36
Bandy	336	572	27
Banker	338	572	28
Bar (Lac LaCroix)	288		16, 17
Bar (Rainy River)	258	523	6
Baraba	249	512	4
Bard	338	572	28
Bare (Rainy River)	255	521	5
Bare (Sand Point Lake)	280		15
Bark	254	519	5
Barn	266		8
Bat (Rainy River)	258	523	6
Bat (U. S. C. & G. S.) (Namakan Lake)	231	488	A, 14
Baudette (U. S. C. & G. S.)	229	483	A
Baudette water tank	248		4
Bay (Lac LaCroix)	291		18
Bay (Loon River)	284		16
Bay (Rainy River)	247		3
Bay (Sand Point Lake)	236	502	C, 15
Bay (Watap Lake)	241	508	D, 27
Beach (Lake of the Woods)	244		1
Beach (Rainy River)	265	531	8
Bean	306	548	20
Bear (Lake of the Woods)	245		1
Bear (Moose Lake)	339	573	28
Bear (Rainy Lake)	236	501	C, 13, 14
Beaver (Loon Lake)	286		16
Beaver (Rainy River)	258	524	6
Beaver (U. S. C. & G. S.) (Basswood Lake)	232	491	B
Becky	295		18
Bed (Bottle River)	294		18
Bed (Loon River)	285		16
Bee	252	517	5
Bees Kees (U. S. C. & G. S.)	231	488	A, 14
Before	295		18
Bell (U. S. C. & G. S.)	230	487	A, 14
Belt	241	508	D, 27
Ben	234	496	C
Bend	252	517	5
Benson	246		3
Berry (Rainy Lake)	236	499	C, 11
Berry (Rainy River)	266	531	8
Bert	286		16
Best	241	508	D, 27
Between	242	510	D, 35, 36
Betwixt	336	571	27
Big (Basswood River)	306	548	20
Big (Lake of the Woods)	229	481	A, C, 2
Big (Moose Lake)	339	573	28
Big Fork Pole	263		8
Big Island	236	500	C, 12
Big Point	234	496	C, 1, 2
Bigsby	234	496	C, 2
Bill	339	573	28
Billie	339	572	28
Billy	251	515	4
Billy west base	251		4
Bilyew	255	521	5

Station	Position	Description	Sketch
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Birch (Basswood River)	306	548	20
Birch (Little Vermilion Lake)	281		16
Birch (Loon Lake)	286		16
Birch (Moose Lake)	339	573	28
Birch (Rainy River)	253	518	5
Birchdale east base	256	522	6
Birchdale west base	255	522	6
Birch Point	235	498	C, 9
Bird (Bottle River)	294		18
Bird (Little Vermilion Lake)	281		16
Bird (Loon Lake)	287		16
Bird (Namakan Lake)	277		14, 15
Bird (Rose Lake)	335	571	26, 27
Bishop sawmill stack	331	569	26
Black (Basswood River)	305	547	20
Black (Lake of the Woods)	246		2
Black (Little Vermilion Lake)	281		16
Black (Moose Lake)	339	573	28
Black (Namakan Lake)	278		14, 15
Black Bay 1	271	535	10
Black Bay 2	271	535	10
Black Bay 3	271	535	10
Black Bay 4	271	535	10
Black Bay 5	271	535	10
Black Bay 6	271	535	10
Black Bay 7	271	536	10
Black Bay 8	271	536	10
Black Bay 9	271	536	10
Black Bay 10	271	536	10
Blake (Geodetic Survey of Canada)	233	495	B
Blank	254	520	5
Blatz	240	507	D, 26
Blaze (Lake of the Woods)	244		1
Blaze (Loon River)	284		16
Blin	338	572	28
Blink	352	581	35
Block	335	571	27
Bloom	337	572	27
Blossom	254	520	5
Blot	335		27
Blow (Basswood River)	306	548	20
Blow (Watap Lake)	241	508	D, 27
Blue	339	573	28
Bluff	291		17
Bluffer	241	509	D, 28
Board	250	513	4
Boat	260	526	7
Bold	241	508	D, 26
Bon (U. S. C. & G. S.)	229	483	A
Bone	335	571	27
Book	335	571	26, 27
Boom (near Baudette)	248		3
Boom (near mouth of Little Fork River)	264	529	8
Boucher	260	525	7
Boulder	352	581	36
Boundary=Late (U. S. C. & G. S.)	236	487	A, C, 12, 13
Boundary monument 1	317	480	23
Boundary monument 2	318	480	23
Boundary monument 3	318	480	23
Boundary monument 4	333	480	26
Boundary monument 5	332	480	26
Boundary monument 6	332	480	26
Boundary monument 7	337	480	27
Boundary monument 8	337	480	27
Boundary monument 9	337	481	27
Boundary monument 913	234		C, 1
Boundary monument 924	243	357	1
Boundary monument 925	243	358	1
Bow	258	523	6
Bowen	265	530	8
Bowie	335	571	27
Box (Moose Lake)	339		28
Box (Namakan Lake)	277		14
Boy	255	521	5
Brake	336		27
Branch	249	512	4
Brand	334	571	26
Break	255	522	5
Breaul (U. S. C. & G. S.)	230	487	A, 11, 12
Bridge	268	532	9
Brindle	255	521	5
Broad	251	515	4
Bronx	241	509	D, 27
Brooks	249	512	4
Brown (Namakan Lake)	278		14
Brown (Rainy Lake)	236	501	C
Brown (Rainy River)	260	526	7
Brule	236	500	C, 11, 12
Brush (Lac LaCroix)	289		17
Brush (Lake of the Woods)	245	511	1
Brush (U. S. C. & G. S.) (Rainy River)	229	483	A
Brutus	282		16
Buffalo	234	495	C
Buffy	250	514	4
Bull (North Fowl Lake)	340	573	28
Bull (Rainy River)	263	528	8
Bully	241	507	D
Bum	338		28
Bump (Namakan Lake)	236	501	C
Bump (Rose Lake)	335		26, 27
Bunch	289		17
Buoy	245		1
Burke	241	509	D, 27, 28
Burn	306	548	20
Burnt (Lac LaCroix)	231, 237	490	B, D, 17
Burnt (Rainy River)	263	528	8
Burr	256		6
Burton	229	482	A, C, 2
Bush (Bottle River)	294		18
Bush (opposite Roddick Tp.)	266	531	8
Bush (opposite Wabanica Creek)	247		3
Bushyhead	236	499	C
Butte	242	510	D, 32, 33, 35
Cabin (Rainy River)	268	532	9
Cabin (Rose Lake)	334	571	26
Cable	320		24
Caboose	320	559	24
Cabot	326	566	25
Cad	264	529	8
Cadden	264	529	8
Caddie	239	506	D, 25
Cadet	323	564	25
Cafe	320	559	24
Cairo	317	557	23
Cake	323	564	24
Calf (Maraboeuf Lake)	323		24
Calf (Rainy River)	250	513	4
Calm	323	564	24

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Calyx	319	559	24
Cameron	254	520	5
Camp (Lake of the Woods)	245		1
Camp (Namakan Lake)	279		15
Camp (Rainy River)	252	517	5
Camp (Saganaga Lake)	319	559	24
Camp 2	291		17
Camp 3	292		18
Can (Namakan Lake)	278		14
Can (North Lake)	331	569	26
Canada (Geodetic Survey of Canada)	232	492	B
Canal	323	564	25
Cancil	323	564	24
Candor	320	560	24
Candy	328	567	25
Cane (Rainy River)	250	514	4
Cane (Rose Lake)	334		26
Canoe (Lac LaCroix)	291		18
Canoe (Manitou Rapids)	258	524	6
Canoe (North Lake)	331	569	26
Canoe (Ranier)	268	533	9
Cant	322	563	24
Canter	322	563	24
Canton	320	560	24
Canute	330	568	26
Cap	240	507	D, 26
Captor	317	558	23
Car	330		26
Card	240	507	D, 26
Cark	324	565	25
Carl	333	570	26
Carlos	239	506	D, 25
Carp	331	569	26
Carson	249	512	4
Cartoon	317	558	23
Carve	324	565	25
Cascade	347	576	32, 33
Case	322	563	24
Casket	316	556	23
Cass	264	529	8
Cast	322		24
Castle	321	562	24
Cat (Loon River)	284		16
Cat (Rainy River)	256	522	6
Cat (Rose Lake)	334	571	26
Cate	329		26
Catkin	321	562	24
Cato	282		16
Cave (Magnetic Lake)	329	567	25
Cave (Rainy River)	256	522	6
Cedar (U. S. C. & G. S.) (Lac LaCroix)	231	490	B
Cedar (Lake of the Woods)	245		1
Cedar (Loon Lake)	286		16
Cedar (Namakan Lake)	277		14
Cedar (Rainy River)	267	532	9
Cede	321	562	24
Cement (Namakan Lake)	276		14
Cement (Saganaga Lake)	321	562	24
Cent	325	565	25
Center (Lac LaCroix)	289		17
Center (Lake of the Woods)	244	511	1
Center (Little Vermilion Lake)	281		16
Center (Saganaga Lake)	320	560	24
Center (Sand Point Lake)	281		15, 16
Center 2 (Lake of the Woods)	245		1
Center I	237	502	C
Center II (Lac LaCroix)	231, 237	490	B, D, 17
Center II (Namakan Lake)	276		14
Center II (Sand Point Lake)	279		15
Center III (Iron Lake)	237	502	D, 18
Center III (Namakan Lake)	275		14
Central (Cypress Lake)	316	557	22, 23
Central (Rainy River)	252	516	5
Cephas	317	557	23
Cere	316	557	22, 23
Certes	264	529	8
Chafe	316	557	22
Champ	239	505	D, 25
Channel (Lac LaCroix)	288		17
Channel (Loon River)	282		16
Chap	325	566	25
Charles	319	558	24
Charlie	255	521	5
Chat	329		26
Cherry	245		1
Chief (Rainy River)	264	530	8
Chief (Sand Point Lake)	280		15
Chif	332		26
Chimney	265		8
Chip	286		16
Chirp	324	565	25
Chit	333	570	26
Chop (Lac LaCroix)	289		17
Chop (Lake of the Woods)	244		1
Chowder	239	506	D
Chris (Loon River)	284		16
Chris (Magnetic Lake)	239	506	D, 25
Church	247		3
Cicero	282		16
Cider	319	558	24
Cinch	315	556	22, 23
Circus	316	556	23
Cita	332	569	26
City (Pine Lake)	327	566	25
City (Rainy Lake)	270	535	10
Civil	315	555	22
Clack	325		25
Clam	319	558	24
Clamp	239		D, 25
Claret	316	556	23
Clark (Namakan Lake)	278		15
Clark (Rainy River)	262	528	7
Clash	317	558	23
Claw	319	558	24
Clay	263	529	8
Clayton	315	556	22, 23
Clean	251	515	4
Clear	254	520	5
Cleaver	323		25
Clem	332	569	26
Clemenston	235	496	C, 4
Clerk	315	555	22
Click	317	557	23
Cliff (Lac LaCroix)	288		16, 17
Cliff (Lake of the Woods)	244		1
Cliff (Namakan Lake)	279		15
Cliff (Pigeon River)	352	581	36
Climb	324	565	25
Clip	333	570	26
Close	334		26
Cloud	286		16
Clover (in Roddick Tp.)	266	531	8
Clover (near Baudette)	248		3
Club	334	571	26
Cochran	256	522	6
Cod	330	568	26
Cog	329	567	25
Color	324	565	25
Colt (Rainy River)	257	522	6

Station	Position	Description	Sketch
	Page	*Page*	*Number*
Colt (Rose Lake)	333	570	26
Colvin	252	516	5
Come	330	567	26
Company	250	513	4
Condor	325		25
Cook (in Lash Tp.)	235	497	C
Cook (Loon River)	285		16
Cook (opposite Winter Road River)	247		3
Coon	329	567	25
Coop	319		24
Cop	326		25
Cope	322	563	24
Corn	329	567	25
Cotter	325	566	25
Courthouse	267		9
Cover	332	569	26
Cow	261	526	7
Crab	331	568	26
Craigen	253	518	5
Cramp	331		26
Cranberry	236	499	C, 11
Crane (Namakan Lake)	278		15
Crane (Sand Point Lake)	280		15
Crane (South Lake)	240	507	D, 26
Crate	285		16
Craw	331	568	26
Cream	331		26
Creamery	249	511	4
Cred	331	569	26
Creek (near Winter Road River)	247		3
Creek (opposite Crozier Tp.)	266	531	8
Creek (Round Lake)	324	565	25
Crib	334		26
Crill	331	568	26
Crime	331	568	26
Cringe	318	558	23, 24
Crisp	323	565	25
Crit	331	568	26
Croak	331	569	26
Crook (Namakan Lake)	276		14
Crook (Rainy River)	260	525	7
Crooked	278		14, 15
Crow (Rainy River)	249	512	4
Crow (South Lake)	332		26
Crown	332	570	26
Crumb	326	566	25
Crump	240		D, 26
Crupper (Cypress Lake)	317		23
Crupper (Rat Lake)	334	557	26
Crusoe	318	558	23, 24
Crust	330		26
Cruz	331	568	26
Cuddle	317		23
Cult	240	506	D, 26
Curtain	237	503	D, 19
Curtain II	237	502	D
Curve (North Lake)	331		26
Curve (Rainy River)	255	521	5
Cusk	331		26
Cut (Basswood River)	305	547	20
Cut (in Crozier Tp.)	266	531	8
Cut (Lac LaCroix)	288		17
Cut (Lake of the Woods)	244		1
Cut (near Frontier School)	253	519	5
Cute	331	569	26
Cuttle	326	566	25
Cutts	240	507	D, 26
Cutty	326	566	25
Cuyo	318	558	24
Cyclone	244		1
Dad	334		26
Daddy	315	556	22
Dade	240	507	D, 26
Daft	317	557	23
Dagger	315		22, 23
Dago	327	567	25
Daily	321	561	24
Dale	323		25
Dall	333	570	26
Dally	240	507	D
Dam (Bottle River)	294		18
Dam (Gunflint Lake)	239	506	D, 25
Dam (Loon River)	285		16
Damp	329	567	25
Damper	325	566	25
Dan (Rainy River)	257	523	6
Dan (Rose Lake)	333	570	26
Dander	323		25
Dandy	240	507	D
Danger	242	510	D, 35
Danny	316	556	23
Darby	235	497	C
Dare	327	567	25
Dark	333	571	26
Darn	323		25
Dart	323	564	25
Date	329		26
Daub	323	564	24
Davis	322	563	24
Daw	235	498	C, 8
Dawn	323	564	24
Dawson	245		1
Dayton	320	561	24
Daze	323	564	24
Dead (Bottle River)	294		18
Dead (Magnetic Lake)	328	567	25
Dead (Namakan Lake)	278		14, 15
Deal	329	567	25
Dean (Maraboeuf Lake)	322	563	24
Dean (Rainy River)	250	513	4
Deck	322	563	24
Decline	322	563	24
Decoy	322	563	24
Decree	322	563	24
Deer (Lac LaCroix)	288		16, 17
Deer (Lake of the Woods)	243		1
Deer (U. S. C. & G. S.) (Namakan Lake)	231	488	A, B, 14
Deer (Namakan Narrows)	279		15
Deer (Rainy River)	258		6
Deer (Rose Lake)	334	571	26
Define	321	562	24
DeGraw	261	527	7
Del	255	521	5
Delf (U. S. C. & G. S.)	230	484	A, C
Delhi	321	562	24
Delta	330		26
Delve	320	561	24
Demon	330	567	26
Den	240	506	D
Denby	240	506	D
Dense	322	563	24
Dent	334		26
Depend	319	558	24
Depot	318	558	23, 24
Derrick	250	513	4
Desk	324	565	25
Detect	320	560	24
Device	323	564	25
Devilfish (Geodetic Survey of Canada)	233, 241	495	B, D
Devlin	235	498	C
Dice	322	563	24

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Dick (opposite Barwick, Ontario)	257		6
Dick (opposite Wilson Creek)	247		3
Dick (South Lake)	332	570	26
Dicker	239	505	D,23,24
Dido	320	560	24
Digester	267		9
Diggs	321	561	24
Digit	321	562	24
Dike	321	563	24
Dilke	319	559	24
Dill	329	567	26
Dilly	325	565	25
Dime	240	507	D
Dimple	239	505	D, 25
Din	317		23
Ding	321	562	24
Dinny	321	561	24
Dire	321	562	24
Disco	326	566	25
Dispel	321	562	24
Diston	326	566	25
Ditts	325	565	25
Divan	320	560	24
Dive (Granite Lake)	325	565	25
Dive (Lac LaCroix)	293		18
Divide	240	507	D, 26
Dixie	239	505	D
Dixon	330		26
Dizzy	320	559	24
Do	327	567	25
Doc	331	569	26
Dock (near Conmee Island)	260	526	7
Dock (near Wilson Creek)	247		3
Dock (Saganaga Lake)	320	559	24
Dod	332	569	26
Dodge	320	559	24
Doff	320	559	24
Dog (Little North Lake)	331		26
Dog (U. S. C. & G. S.) (Rainy Lake)	230	487	A,13,14
Dog (Rainy River)	256	522	6
Doily	319	559	24
Doke	332	569	26
Dole	330	568	26
Doll	330	568	26
Dolo	330	568	26
Domino	239	505	D,24
Don	293		18
Donovan	259	524	6
Dont	333	570	26
Dooley	330	567	26
Door	330	568	26
Dope	332	570	26
Dopfer	315	556	23
Doran (U. S. C. & G. S.)	231	488	A, 14
Dorothy (Geodetic Survey of Canada)	232, 238	493	B, D, 22, 23
Dort	330		26
Dot	333		26
Dotty	239	506	D, 25
Double	240	507	D
Dough	239	506	D, 25
Dout (U. S. C. & G. S.)	229	482	A
Dove	270	535	10
Dow	330		26
Dowel	320	560	24
Doxey	317	557	23
Draft	320	560	24
Draggle	320	560	24
Dragon	327	566	25
Drake	334		26
Dram	332	569	26
Draw	295		18
Dream	326	566	25
Driggs	239	505	D, 24
Drill (Lac LaCroix)	289		17
Drill (Rainy River)	265	530	8
Drill (South Lake)	332	570	26
Drip	333	570	26
Driver	321	562	24
Droit	239	505	D, 25
Drone	240	506	D, 26
Droop (Gunflint Lake)	329		26
Droop (Maraboeuf Lake)	323	564	25
Drop	333	570	26
Drove	316	557	22, 23
Drub	316	556	23
Dryweeds	270	535	10
Dub	316	557	22
Dubois	239	505	D, 25
Ducat	316	556	23
Duck (Rainy (Lake)	236	500	C, 12
Duck (Rose Lake)	334	571	26
Dud	327	566	25
Due	330	568	26
Duet	316	557	23
Duff (Saganaga Lake)	321	562	24
Duff (South Lake)	333	570	26
Duke	333	570	26
Dulce	239	506	D, 25
Duluth	315	556	22, 23
Dump (Rainy River)	267	532	9
Dump (Rose Lake)	333	571	26
Dun (Rainy River)	263	529	8
Dun (Saganaga Lake)	321	561	24
Dunder	321	561	24
Dune	327	566	25
Dungeon	317	557	23
Dunk	320	560	24
Dunlap	239	505	D, 24
Dunsmoore	236	499	C, 10
Duplex	320	561	24
Durand	260	525	7
Dutch	321	561	24
Dux	331	569	26
Dwarf	317	557	23
Dye	239	505	D, 25
Ear	314	555	22
Earl	253	519	5
Early	313	554	22
Earn	314	555	22
Earth	314	555	22
Ease	315	555	22
East Ref. Mon. (Ref. Mon. 1)	243	357	1
Eave	311	553	21
Eben	314	554	22
Echo (Birch Lake)	238	504	D, 21
Echo (Geodetic Survey of Canada) (Pigeon River)	233	494	B
Eckley	311	553	21
Econd	311	553	21
Edge	261	526	7
Edna	313	554	22
Egg	313	554	22
Elbow	314	554	22
Elm	266	531	8
Ely	237	502	D, 17
Ember	313	554	22
Emily	232, 238	492	B, D
Emma	249	511	4

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Emo east base	260	525	7
Emo west base	259	525	7
Empress	249	511	4
End	253	518	5
Engler	234		C
English (Basswood Lake)	238	504	D
English (Rainy River)	267	532	9
Enough	311	553	21
Ensign	238	504	D
Erd	311	553	21
Ewing (Geodetic Survey of Canada)	232, 238	492	B, D, 22
Exit	313	553	21, 22
Extra	260	526	7
Extra ecc	260		7
Face	313	554	21, 22
Factor	314		22
Factotum	314		22
Fad	314	555	22
Fagin	238	504	D
Fail	315	555	22
Fain	314	555	22
Fair (Iron Lake)	296		19
Fair (Knife Lake)	315	556	22, 23
Faith	311	553	21
Fall (Knife Lake)	314	555	22
Fall (Lac LaCroix)	292		18
Fall (Little Vermilion Lake)	282		16
Falls (Crooked Lake)	231, 237	491	B, D
Falls (Rainy River)	267	532	9
Fang	232, 238	492	B, D, 21
Farm	255	520	5
Farquhars Knob (Geodetic Survey of Canada)	233	495	B
Fat	311	553	21
Fate	238	504	D
Fave	237	503	D
Fear	238	504	D, 20
Feel	310	552	21
Felix	313	554	22
Fence	262	528	7
Fender	251	515	4
Fent	310	552	21
Fern	258	523	6
Feron	258	523	6
Fest	312	553	21
Field	262	528	7
Fine	305	547	20
Fink	313	554	22
Finn	238	504	D, 20
Fire (Basswood Lake)	310	552	21
Fire (Rainy River)	255	520	5
Fire (Sand Point Lake)	280		15
First	311	553	21
Fish (Lac LaCroix)	231, 237	489	B, C, D
Fish (Rainy River)	267	532	9
Fit	311	553	21
Fitz	311	553	21
Five Roses	250	513	4
Flag (Crooked Lake)	237	503	D, 20
Flat	259	524	6
Flay	314	554	22
Flick	314	554	22
Flint	259		6
Flood	313	554	22
Flora	311	553	21
Fluke	238	504	D, 20
Fly (Basswood River)	306	548	20
Fly (Loon River)	284		16
Flynn	253	517	5
Foot	281		16
Fop	310	552	21
Forest	283		16
Fork	264	530	8
Fort (U. S. C. & G. S.)	230	486	A
Fort Frances east base	235	498	C, 9
Fort Frances west base	235	498	C
Fort Frances west base ecc. (U. S. C. & G. S.)	230	486	A, C
Fote	238	504	D
Found	232, 238	492	B, D
Fourth	310	552	21
Frame (Lac LaCroix)	288		17
Frame (Rainy River)	257	522	6
Francois	261	526	7
Frank	314		22
Fransen	235	499	C, 9, 10
Frasier	263	529	8
Fred (Lake of the Woods)	246		1
Fred (Rainy River)	263	528	8
Freight	277		14
Fritz (U. S. C. & G. S.)	229	483	A
Frog	235	498	C
Front	314	555	22
Frontier	235	497	C, 5
Frump	238	504	D, 20
Fuel	252	517	5
Full (U. S. C. & G. S.)	229	482	A
Furman	249	511	4
Fuzzy	249	512	4
Game	309	552	21
Gap	309	552	21
Gape	237	503	D, 19
Garb	232	492	B, 21
Garden	229	481	A, C, 1
Gas	309	551	21
Gate	309		21
Genus	301	545	19
George (Crooked Lake)	301	545	19
George (Rainy River)	259	525	6
German	237	503	D
Gift	304	546	20
Gill	238	503	D, 20
Gillian	267	532	9
Gilson	253	517	5
Gin	307	548	20
Gip (U. S. C. &. G. S.)	229	483	A, 4
Girl	304	546	20
Glib	303		20
Glint	232, 237	491	B, D
Glow	303		20
Glue	307	548	20
Goal	302	546	20
Goat	308	549	20
Gold	245		1
Gone	232, 238	492	B, D
Gong	304	546	20
Good	304	547	20
Goose	277		14
Gore (Basswood Lake)	308	549	20
Gore (Lake of the Woods)	245		1
Gorge (Crooked Lake)	237	503	D
Gorge (Loon River)	284		16
Gosh	238	503	D
Gould	234	496	C
Goulet	243		1
Gout	304	546	20
Gown	307	549	20
Grab	304	546	20
Grace (U. S. C. & G. S.)	230	484	A
Grain	309	551	20, 21
Granite (U. S. C. & G. S.) (Lac LaCroix)	231	490	B

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Granite (Pigeon River)	354	584	35, 36
Grass (Lac LaCroix)	291		18
Grass (Loon Lake)	287		16
Grassy (U. S. C. & G. S.)	231	489	B, C, 14
Green (Lake of the Woods)	245		1
Green (Little Vermilion Lake)	282		16
Green (Loon River)	285		16
Green (Rainy River)	260	526	7
Greenwater (Geodetic Survey of Canada)	233	494	B
Grindstone	270	535	10
Grog	302	545	19
Grove	265	530	8
Guess	309	551	21
Gull Island	234	495	C
Gum (Crooked Lake)	301	544	19
Gum (Loon River)	283		16
Gun	257	523	6
Gunflint (Geodetic Survey of Canada)	232, 239	494	B, D
Gunflint east base	240		D
Gunflint west base	240		D
Gus	250	514	4
Ha	302		19
Habit	308	551	20
Had	232	492	B, 21
Hades	304	546	20
Haft	309	551	21
Hag	309	551	21
Hair	308	550	20
Hale	308	550	20
Half	308	550	20
Hall (Crooked Lake)	302	546	20
Hall (Sand Point Lake)	279		15
Halo	308	549	20
Halter	304	546	20
Ham (Basswood Lake)	309	551	21
Ham (Lac LaCroix)	290		17
Hammer	265	530	8
Hand	308	551	20
Handy	238	504	D, 20
Hang	309	551	20, 21
Hank	309	551	20
Hansen	257	523	6
Hard (Basswood Lake)	308	550	20
Hard (Rainy River)	261	526	7
Hardy	309	551	20
Harem	304	546	20
Hargo	231, 237	491	B, D, 19
Harp	302		19
Harpy	307	548	20
Harry (U. S. C. & G. S.)	231	488	A, 14
Hart	253	518	5
Hartley	257	523	6
Hasp	307	549	20
Hat	308	551	20
Hate	308	550	20
Hathway	264	530	8
Have	238	504	D, 20
Havoc	304	547	20
Haw	308	549	20
Hawk	308	549	20
Hay (Loon River)	284		16
Hay (Rainy River)	254	520	5
Hayes	276		14
Haze	308	549	20
Hazel	285		16
Helga (Geodetic Survey of Canada)	232, 238	493	B, D
Hen	303	546	20
Hen (U. S. C. & G. S.)	229	482	A
Hen ecc. (U. S. C. & G. S.)	229		A
Henri (U. S. C. & G. S.)	230	484	A
Henry	263	528	8
Herd	301	545	19
Heron	278		14, 15
Hide	302	545	19
High (Basswood Lake)	307	549	20
High (Loon River)	284		16
High (Namakan Lake)	279		15
High (Rainy River)	262	528	7
Higher	238	505	D, 21
Hilda	308	551	20
Hill	235	498	C
Hilt	303	546	20
Him	303		20
Hint	302	545	19
Hire	301	545	19
Hit	308	550	20
Hockey	308	550	20
Hoist (Basswood Lake)	308	550	20
Hoist (Rainy River)	262		7
Hoist north base (Basswood Lake)	308	550	20
Hold	307	549	20
Hole	266	531	8
Honk	301	545	19
Horn	352	581	35
Hornet	245		1
Horse	252	516	4
Hotel	263	528	8
Howard	255	522	5, 6
Hub (Basswood Lake)	308	550	20
Hub (Loon River)	283		16
Hub 2	283		16
Hub 6	283		16
Hub 7	283		16
Hub X	283		16
Hub Y	283		16
Hub Z	284		16
Hubbard	268	533	9
Hugh	254	519	5
Hump	305	548	20
Hunch	308	549	20
Hungry 1913	234		C, 2, 3
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Hunt	259	524	6
Ibex	301	545	19
Ice	301	545	19
In	301	544	19
India	297	541	19
Indian	264	529	8
Indus	235, 260	498	C, 7
Inn	303		20
Interior	271	536	10
Ipse	297	540	19
Isherwood	265	530	8
Island	288		16
Island A	356	585	36
Island B	356	585	36
Island C	356	585	36
Island D	356	585	36
Island E	355	585	36
Island F	355	585	36
Island G	355	584	36
Island H	355	584	36
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Island View	235	499	C, 10
Isle (Basswood River)	304	547	20
Isle (Rainy River)	255	521	5
Isle (Sand Point Lake)	279		15
Isle 1	244		1
Isle 4	295		18

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Isle 9	293		18
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Isle 26	291		17
Isle Royal East (U. S. Lake Survey)	233	495	B
Ivy	247		3
I. W. C. Mon. 3	356	480	36
Jack (Namakan Lake)	276		14
Jack (Sand Point Lake)	281		15
Jackson	265	531	8
Jamison	268	533	9
Jane	301	544	19
Japheth	290		17
Jar	299	543	19
Jasper	299	543	19
Jaw	300	544	19
Jaxe	300	544	19
Jay	287		16
Jeff (Crooked Lake)	237	503	D, 19
Jeff (Loon Lake)	286		16
Jehu	299	543	19
Jerry (Crooked Lake)	297	541	19
Jerry (Loon Lake)	286		16
Jesse (U. S. C. & G. S.)	230	485	A
Jig	300	544	19
Jim	280		15
Jingle	297	540	19
Jock	300	544	19
Joe (Loon River)	284		16
Joe (Rainy River)	254	520	5
John (Rainy River)	252	517	5
John (Geodetic Survey of Canada) (Saganaga Lake)	232	494	B
Johnny	297	540	19
Johnson	235	498	C, 8
Joy (U. S. C. & G. S.)	230	487	A, 13
Jump	299	542	19
Jumpy	305	548	20
Kavanagh	253	518	5
Kearney	251	515	4
Ken	299	543	19
Kennedy	261	527	7
Kerosene	253	518	5
Kettle	276		14
Key	266		9
Kid	299	543	19
King (Crooked Lake)	299	543	19
King (Rainy River)	252	516	5
Kitty	300	544	19
Knit	297	540	19
Knob (U. S. Lake Survey)	242	511	D
Knoll (Crooked Lake)	298	542	19
Knoll (Loon River)	285		16
Know	258	524	6
Knox	275	540	14
Knox (U. S. C. & G. S.)	231	487	A
Koble	300	544	19
Koochiching Court House	267	532	9
LaBelle (U. S. C. & G. S.)	230	485	A
La Croix	237	502	D, 17
Lad	300	543	19
Laddy	299	542	19
Lady	298	541	19
Lag	299	543	19
Lagoon	299	542	19
Lake (Bottle River)	294		18
Lake (east end of Rainy Lake)	236	501	C
Lake (Namakan Lake)	278		15
Lake (west end of Rainy Lake)	269		9
Lake (U. S. C. & G. S.)	230	486	A, 10
Lamb (Crooked Lake)	299	542	19
Lamb (Rainy River)	262	527	7
Lame	298	542	19
Lamp	300	544	19
Land	260	525	7
Lander	298	541	19
Lang	259	524	6
Large	298	541	19
Lash	298	541	19
Lass (Crooked Lake)	299	543	19
Lass (Sand Point Lake)	280		15
Last (Crooked Lake)	300	544	19
Last (Namakan Lake)	276		14
Late (U. S. C. & G. S.) = Boundary	230	487	A, C, 12, 13
Laurel	263		7, 8
Law (Crooked Lake)	299	542	19
Law (Rainy River)	263	529	8
Lax	299	542	19
Leaf (Lake of the Woods)	244		1
Leaf (Rainy River)	261	527	7
Lean	256	522	6
Leave	253	519	5
Ledge	352	581	36
Lee	287		16
Left (Crooked Lake)	299	542	19
Left (Rainy River)	256	522	6
Lefty	305	547	20
Len	293		18
Level	249	513	4
Lewis	258	524	6
Lid	250	514	4
Light (Geodetic Survey of Canada)	232	494	B
Lighthouse	245		1
Limb	252	516	4
Linden	259		6
Line	283		16
Linn	256		6
Linquist	261	527	7
Lipkie	251	516	4
Lister	231, 237	491	B, D, 19
Little (Basswood River)	304	547	20
Little (Lake of the Woods)	245		1
Little (Little Vermilion Lake)	281		16
Little (Rainy River)	264	530	8
Lock (Loon Lake)	286		16
Lock (near Burton Creek)	258	524	6
Lock (near Clement Creek)	253	518	5
Lockhart	235	498	C, 9, 10
Lofty	298	541	19
Log (Basswood River)	305	547	20
Log (Lake of the Woods)	246		2
Log (opposite Crozier Tp.)	266	532	8, 9
Loman	262		7
Lone Tree	234		C
Long Point	234	496	C, 2
Loon (U. S. C. & G. S.)	231	490	B
Loon east base	284		16
Loon west base	284		16
Lost (Loon Lake)	286		16
Lost (Rainy Lake)	236	499	C
Lost (Rainy River)	253		5
Louis	277		14
Love	298	542	19
Low	279		15
Loyd	253	519	5

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Luck	297	541	19
Lucy	251	515	4
Lumber	262	527	7
Lumber Camp	236	499	C, 10
Lunch (Rainy River)	251	515	4
Lunch (Sand Point Lake)	280		15
Luttrell	261	527	7
Lynx	284		16
Mabel (Geodetic Survey of Canada)	232, 238	493	B, D,24
Mac	263	528	8
MacGregor (Geodetic Survey of Canada)	233	495	B
Mail (Namakan Lake)	277		14
Mail (Rainy River)	246		3
Main (Lac LaCroix)	288		17
Main (Rainy River)	262	528	7
Malone	254	519	5
Mamie	276		14
Man	259		6
Manitou (U. S. C. & G. S.) (Rainy Lake)	230	487	A, C,12
Manitou (Rainy River)	235	497	C
Manitowoc	236	500	C, 12
Martin	338		28
Mass	245	511	1
Matt	278		14, 15
May (U. S. C. & G. S.)	229	482	A
McComb	260	526	7
McCutcheon	251	515	4
McGauley	259	524	6
McGee	252	516	5
McIntosh	262	527	7
McKay (Geodetic Survey of Canada)	233	495	B
McLoud	255	521	5
Meadow	254	520	5
Metcalf	262	527	7
Mica	276		14
Mid	292		18
Mill (near Locking Creek)	261		7
Mill (near Sleemans Creek)	251	515	4
Miller	229	481	A
Milne	251	515	4
Mistake	262	527	7
Moe	261		7
Mollie	242	510	D, 36
Monument 1	317	480	23
Monument 2	318	480	23
Monument 3	318	480	23
Monument 4	333	480	26
Monument 5	332	480	26
Monument 6	332	480	26
Monument 7	337	480	27
Monument 8	337	480	27
Monument 9	337	481	27
Monument 913	234		C, 1
Monument 924	243	357	1
Monument 925	243	358	1
Moore	247		3
Moose (Bottle River)	294		18
Moose (Lake of the Woods)	243		1
Moose (Namakan Lake)	236	501	C, 14
Moose (Sand Point Lake)	280		15
Morceau	260		7
Morris	242	510	D, 35, 36
Mound	259	524	6
Mount	295		18
Mount Josephine (U. S. Lake Survey)	242	510	D, 35
Mouth (Lac LaCroix)	293		18
Mouth (Lake of the Woods)	246		2, 3
Move	264	529	8
Mowe (Geodetic Survey of Canada)	232	494	B
Muck	256	522	6
Mud	247		3
Muir	257	523	6
Muldoon	255	521	5
Mullen	255	521	5
Muskrat	268	533	9
Mutt (Crooked Lake)	237	503	D, 19
Mutt (Loon Lake)	286		16
Myrtle (U. S. C. & G. S.)	230	484	A, C
Nail	341		28
Namakan	236	501	C, 14
Namakan ecc	278		14
Namakan east base (U. S. C. & G. S.)	231	489	B,14,15
Namakan west base (U. S. C. & G. S.)	231	489	B, 14
Narrows	281		15, 16
Nassau	261		7
National	267	532	9
Near	306	548	20
Nell	241	509	D, 28
Nest (Lac LaCroix)	289		17
Nest (Little Vermillion Lake)	281		16
Net	290		17
New	277		14
New Loon	243		1
New Rice	243		1
Night	294		18
Nito	255	522	5, 6
Nix (U. S. C. & G. S.)	231	488	A
Norland	253	518	5
North Arm Rock	352	581	36
North Lake longitude station	331	569	26
North Pigeon	355		36
Northwest Angle=Boundary Turning Point 1	243		1
N. W. Royal	242	511	D
Norway (Lac LaCroix)	288		16
Norway (Saganaga Lake)	239		D
Nose	254	520	5
Not	298	541	19
Nybo	256		6
Oak (Lake of the Woods)	234		C, 2, 3
Oak (Rainy Lake)	274	539	13, 14
Obil	255	521	5
Object	249	513	4
Office	257	523	6
Ogden	262	527	7
Ogren	257	523	6
Old	265		8
Olsen	257	523	6
Onion	268		9
Open	266	531	8
Oscar	280		15
Oster	255	521	5
Otter	286		16
Over	258	524	6
Owl	246		3
Paddle	258	524	6
Paddy (Geodetic Survey of Canada)	232, 238	492	B, D, 22

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Palm	250	513	4
Pargie	252	517	5
Parson	255	522	6
Partridge (Pigeon River)	242	510	D, 31, 32, 33
Partridge (Rainy River)	235	497	C
Pass	262	527	7
Pasture	250	514	4
Pat (U. S. C. & G. S.)	230	484	A
Paul	261	526	7
Paulsen (Geodetic Survey of Canada)	232, 238	493	B, D
Peak	288	----	16
Peal	255	521	5
Pearson	253	518	5
Pebble	293	----	18
Penn	280	----	15
Pent (Namakan Lake)	277	----	14
Pent (Rainy River)	246	----	3
Perrier	280	----	15
Pete	242	509	D, 32, 33
Peter	264	529	8
Phone	249	512	4
Pick	271	535	10
Picket	267	----	9
Picnic	250	513	4
Pier	265	----	8
Pig (Namakan Lake)	279	----	15
Pig (U. S. C. & G. S.) (Rainy River)	230	485	A
Pigeon (Geodetic Survey of Canada)	233, 242	495	B, D, 32, 33, 35
Pigeon River traverse station A	344	----	30
Pigeon River traverse station B	344	----	30
Pigeon River traverse station C	344	----	30
Pigeon River traverse station 10	355	584	36
Pigeon River traverse station 11	355	584	36
Pigeon River traverse station 14	354	584	36
Pigeon River traverse station 15	354	----	36
Pigeon River traverse station 16	354	584	36
Pigeon River traverse station 17	354	583	36
Pigeon River traverse station 18	354	583	36
Pigeon River traverse station 22	354	583	36
Pigeon River traverse station 24	354	583	36
Pigeon River traverse station 26	354	583	36
Pigeon River traverse station 27	354	583	36
Pigeon River traverse station 28	354	----	36
Pigeon River traverse station 29	354	583	36
Pigeon River traverse station 30	354	583	36
Pigeon River traverse station 31	354	583	36
Pigeon River traverse station 32	354	----	36
Pigeon River traverse station 33	354	583	36
Pigeon River traverse station 34	354	----	36
Pigeon River traverse station 35	354	583	36
Pigeon River traverse station 36	354	----	36
Pigeon River traverse station 37	354	583	36
Pigeon River traverse station 38	354	----	36
Pigeon River traverse station 39	354	583	36
Pigeon River traverse station 40	353	582	36
Pigeon River traverse station 44	353	----	36
Pigeon River traverse station 44½	353	----	35
Pigeon River traverse station 45	353	----	36
Pigeon River traverse station 46	353	----	35
Pigeon River traverse station 47	353	582	36
Pigeon River traverse station 47½	353	----	36
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Pigeon River traverse station 51	353	----	35
Pigeon River traverse station 52	353	582	35
Pigeon River traverse station 53	353	----	35
Pigeon River traverse station 54	353	582	35
Pigeon River traverse station 55	353	582	35
Pigeon River traverse station 57	353	582	35
Pigeon River traverse station 58	352	----	35
Pigeon River traverse station 59	353	----	35
Pigeon River traverse station 60	352	581	35
Pigeon River traverse station 61	353	----	35
Pigeon River traverse station 62	352	581	35
Pigeon River traverse station 63	353	582	35
Pigeon River traverse station 64	352	580	35
Pigeon River traverse station 65	353	582	35
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Pigeon River traverse station 74	351	580	34
Pigeon River traverse station 75	353	582	35
Pigeon River traverse station 75½	352	581	35
Pigeon River traverse station 76	351	580	34
Pigeon River traverse station 77	352	582	35
Pigeon River traverse station 78	351	579	34
Pigeon River traverse station 79	352	581	35
Pigeon River traverse station 80	351	579	34
Pigeon River traverse station 81	352	580	35
Pigeon River traverse station 82	351	-------	34
Pigeon River traverse station 83	352	580	35
Pigeon River traverse station 84	351	579	34
Pigeon River traverse station 85	352	580	35
Pigeon River traverse station 86	351	579	34
Pigeon River traverse station 87	352	-------	35
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Pigeon River traverse station 89	352	580	34
Pigeon River traverse station 92	351	579	34
Pigeon River traverse station 93	351	580	34
Pigeon River traverse station 94	351	579	34
Pigeon River traverse station 95	351	580	34
Pigeon River traverse station 96	350	-------	34
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Pigeon River traverse station 106	350	578	34
Pigeon River traverse station 107	351	579	34
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Pigeon River traverse station 211	346	576	32
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Pigeon River traverse station 266	342		29
Pigeon River traverse station 267	344	575	30
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Pigeon River traverse station 269	343		30
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Pistol	257	523	6
Pitt	234	496	C
Pitch	251	515	4
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Plank	295		18
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Poplar (Little Vermilion Lake)	281		16
Poplar (Pigeon River)	352	581	35
Poplar (Rainy River)	247		3
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Rainy Lake 2	269	533	9
Rainy Lake 3	269	533	9
Rainy Lake 5	269	533	9
Rainy Lake 6	269	533	9
Rainy Lake 7	269	533	9
Rainy Lake 8	269	533	10
Rainy Lake 9	269	533	10
Rainy Lake 10	269	533	10
Rainy Lake 11	269	533	10
Rainy Lake 12	269	533	10
Rainy Lake 13	270	534	10
Rainy Lake 14=Raney (U. S. C. & G. S.)	270	486	A, 10
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Rainy Lake 16	270	534	10
Rainy Lake 17	270	534	10
Rainy Lake 18	270	534	10
Rainy Lake 19	270	534	10
Rainy Lake 20	270	535	10
Rainy Lake 21	271	536	10
Rainy Lake 22	271	536	10
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Rainy Lake 29	269	533	10
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Rainy Lake 31	269	533	10
Rainy Lake 32	270	534	10
Rainy Lake 33	270	534	10
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Rainy Lake 42	272	537	11
Rainy Lake 43	272	537	11
Rainy Lake 44	272	537	11
Rainy Lake 45	272	537	11
Rainy Lake 46	272	537	11
Rainy Lake 47	272	537	11
Rainy Lake 48	272	537	11
Rainy Lake 49	272	537	11
Rainy Lake 50	272	537	11
Rainy Lake 51	272	537	11
Rainy Lake 52	272	537	11
Rainy Lake 53	272	537	11
Rainy Lake 54	272	537	11
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Rainy Lake 90	274	539	14
Rainy Lake 92	274	539	14
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Rainy Lake 96	275	540	14
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Ran	264	529	8
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Ranger	292		18
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Rapid (at mouth of Rapid River)	251	514	4
Rasp	266	531	8
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Ray (U. S. C. & G. S.) (near Sleemans Creek)	230	483	A
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Ref. Mon. 8	243	358	1
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Ref. Mon. 11	243	359	1
Ref. Mon. 12	243	359	1
Ref. Mon. 13	243	359	1
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Ref. Mon. 16	243	359	1
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Ref. Mon. 29	244	360	1
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Ref. Mon. 64	247	364	3
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Ref. Mon. 66	247	364	3
Ref. Mon. 67	247	364	3
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Rip (U. S. C. & G. S.)	230	484	A
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River (Rainy River)	268	532	9
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