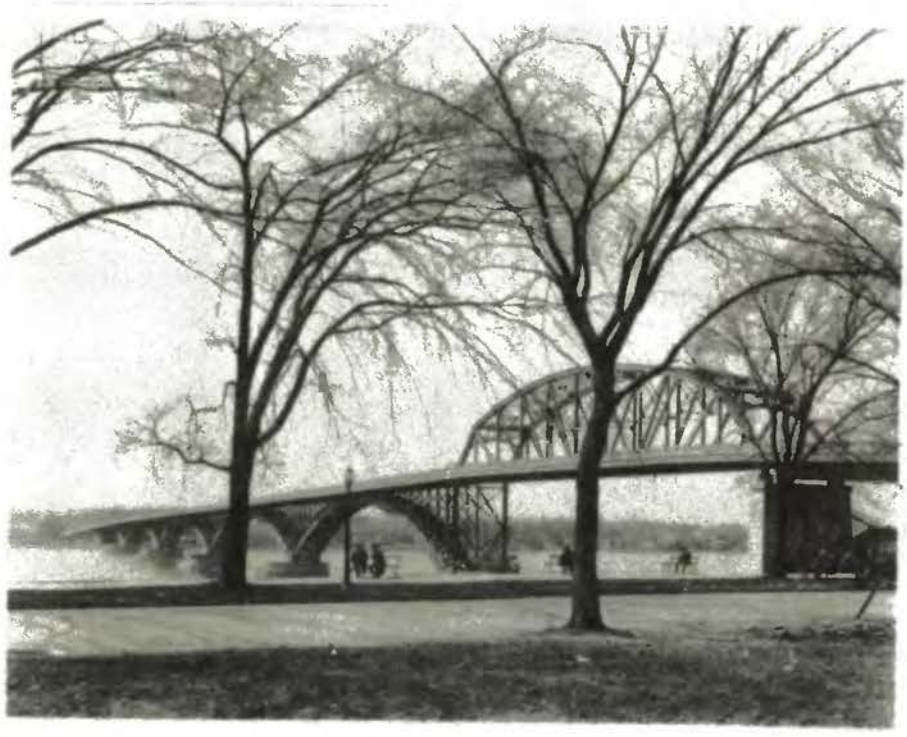
REPORT

INTERNATIONAL BOUNDARY COMMISSION

REVISION ON THE 1927 NORTH AMERICAN DATUM AND MAINTENANCE OF THE BOUNDARY BETWEEN CANADA AND THE UNITED STATES MOUTH OF NIAGARA RIVER TO THE HEAD OF ST. CLAIR RIVER

SPECIAL REPORT NO. 2

1957



The Peace Bridge

Across the Niagara River between Buffalo,
New York and Fort Erie, Ontario.

INTERNATIONAL BOUNDARY COMMISSION

JOINT REPORT

UPON THE MAINTENANCE OF THE BOUNDARY BETWEEN

CANADA AND THE UNITED STATES

UNDER THE PROVISIONS OF ARTICLE IV OF THE TREATY

SIGNED AT WASHINGTON, FEBRUARY 24, 1925

SPECIAL REPORT NO. 2

REVISED DATA FROM THE MOUTH OF NIAGARA RIVER

TO THE HEAD OF ST. CLAIR RIVER AND MAINTENANCE

ON THIS SECTION FROM 1925 TO 1956

COMMISSIONERS

FOR CANADA		FOR THE UNITED STATES	
J. D. CRAIG	1925-1931	E. L. JONES	1925-1929
N. J. OGILVIE	1931-1947	J. H. VAN WAGENEN	1929-1935
J. M. WARDLE	1947-1950	T. H. RIGGS	1935-1945
J. L. RANNIE	1950-1951	J. A. ULINSKI	1945-1953
J. E. R. ROSS	1951-	SAMUEL L. GOLAN	1953-

OTTAWA, 1957

INTERNATIONAL BOUNDARY COMMISSION

CANADA, UNITED STATES, AND ALASKA

Ottawa, June 28, 1957

The Honourable
The Secretary of State
for External Affairs of Canada,
Ottawa.

The Honourable
The Secretary of State
of the United States,
Washington.

Sirs:

We have the honour to submit herewith to each Government two signed originals of the Commissioners' joint report upon the maintenance work done on the International Boundary Line from the mouth of Niagara River to the head of St. Clair River subsequent to the year 1925, under the provisions of Article IV of the Treaty between His Britannic Majesty in respect of Canada and the United States, signed at Washington, February 24, 1925.

Respectfully submitted,

J.E.R. ROSS
Canadian Commissioner

SAMUEL L. GOLAN
United States Commissioner

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INTRODUCTION

Article IV of the treaty between the United States and His Britannic Majesty in respect of Canada, signed at Washington, February 24, 1925, which provides 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," stipulates:

> "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."

This is a joint report submitted by the Commissioners under the above provisions of the treaty of 1925. The report contains a complete account of boundary inspections and maintenance work performed by this Commission along the water boundary from the mouth of Niagara River to the head of St. Clair River from 1925 to 1956. All geodetic positions are on the 1927 North American datum.

REESTABLISHMENT UNDER THE TREATY OF 1908

Under the terms of Article IV of the Treaty of April 11, 1908, the ascertaining and reestablishing of the boundary between the two countries through the St. Lawrence River and the Great Lakes was assigned to the International Waterways Commission. This Commission at meetings in Buffalo, N.Y., and Toronto, Canada, prepared and submitted to the two governments plans for carrying out this work. In the preparation of the new charts covering this area, use was made of topographic and hydrographic information available from other government bureaus, supplemented by surveys where necessary by field parties of the Commission. Likewise use was made of geodetic work of other bureaus executed with the required accuracy, supplemented by triangulation work of the Commission's field engineers.

Reference monuments were located where essential for referencing the boundary turning points in the connecting waters and lighthouses chosen to reference the turning points of the boundary in the lakes. In the section covered by this report there were located 35 reference monuments along the Niagara River, 58 reference monuments along the Detroit and St. Clair Rivers and 8 lighthouses along Lake Erie chosen and located as references. Many of these references have been moved to new locations due to erosion of river banks, changes in roads, erection of new buildings, disuse of old lighthouses, etc. The locations of references given in this report are of the references now in use.

The field work of the International Waterways Commission was done in the years 1909 to 1913, inclusive. The office work was completed and the report of the International Waterways Commission on this section of the boundary was published in Ottawa in 1916 on the old North American datum. A complete account of the field work is given on pages 120-129, inclusive, of the report.

The United States Lake Survey in addition to hydrographic and topographic work, have done considerable triangulation throughout the Great Lakes region and this triangulation has been incorporated in the results given in this report where marked survey stations are still in existence. This is especially true along the Detroit River. This bureau on request also moved a few reference monuments in the period between the close of the International Waterways Commission's work and the assigning of the maintenance work to the International Boundary Commission by the Treaty of 1925. They have co-operated very closely with the work of this Commission since 1925. Other monuments were moved upon request by the Hydrographic Survey of Canada.

The United States Coast and Geodetic Survey and the Geodetic Survey of Canada have done considerable first and second order triangulation in the Great Lakes area and the accurate work of these bureaus has been used by the International Boundary Commission as control for its geodetic surveys along the boundary.

FIELD MAINTENANCE WORK

The International Boundary Commission, United States, Alaska and Canada was made responsible for the maintenance work on the St. Lawrence River and Great Lakes section of the International Boundary by the Treaty of February 24, 1925. During the next thirty years, several inspections were made of this section, several monuments moved or replaced and a complete geodetic survey made. This revision was necessary because many of the stations or previous surveys had not been permanently marked, and without the timely

Portable instrument stand,
St. Clair River flats.

recovery of those still existing, coupled with a complete re-survey, there was the danger that the system of continuous control would be lost. All stations, new and old, of the re-survey were placed on the 1927 North American datum, as were the boundary turning points which they control. A description of the field work, the final geodetic data, and the description of the survey stations is given in the following pages. The field inspections and revision work were as follows:

1927 the location of the boundary on the bridges across the Niagara River.

1929 the inspection, location and marking of the boundary on bridges and in tunnels along the Niagara, Detroit and St. Clair Rivers.

1930 the location and marking of the boundary in a new tunnel under the Detroit River.

1933 the inspection of the reference monuments along the Niagara River by the Canadian Commissioner.

1934 the Commissioners' inspection of the reference monuments along the Niagara, Detroit and St. Clair Rivers. Also the moving of a reference monument on the St. Clair River.

1935 the moving of some reference monuments along the St. Clair River.

1938 the location and marking of the boundary on the Blue Water bridge across the St. Clair River between Port Huron and Point Edwards.

1939 the Commissioners' inspection of reference monuments along all three rivers; and some work on reference monuments on the Niagara River.

1940 inspection of reference monuments along the Niagara River.

1941 a complete geodetic survey along the Niagara River, and moving of some reference monuments. The inspection of this work by the Commissioners.

1942 a complete geodetic survey along the Detroit River, Lake St. Clair, and St. Clair River, and moving of some reference marks. The inspection of this work by the Commissioners.

1944 the erection and location of new reference monuments on the lower Detroit River and moving of a reference monument on the St. Clair River

1945 the inspection and referencing of the lighthouses on Lake Erie used to reference the boundary turning points.

1946 the inspection by the Engineer to the U. S. Section of the Commission, of the work done in 1945.

1948 the inspection by the Commissioners of the boundary through the St. Clair River.

1949 the inspection of the boundary through the islands in Lake Erie by the United States Commissioner. Buoys set in a section of Lake Erie.

1950 the repair of some reference monuments along the St. Clair River and the inspection and repair of bridge tablets on the Niagara and Detroit Rivers. Buoys set along a section of the boundary in Lake Erie.

1951-1956 buoys set each year along a section of the boundary in Lake Erie.

DESCRIPTION OF FIELD WORK

1927 <u>New York-Ontario Boundary - The Niagara River</u>

One engineer from Canadian Section and one from the United States Section of the Commission made the geodetic survey necessary to determine the points where the International Boundary intersected the two rails of the 6 bridges across the Niagara River. Bronze tablets designed for this purpose were permanently attached to the bridge rails of the new Peace Bridge between Buffalo, New York, and Fort Erie, Ontario. Temporary marks were made on the five other bridges. The geodetic positions of these marks were determined from nearby boundary reference monuments whose geodetic positions were known, and reported in the Annual Report of the Commissioners for 1928. A complete record of the work will be found in the 1927 Annual Report, beginning with page 18.

I.W.C. Station 90=U.S.L.S. Station "Cottage",
near Marysville.

1929 New York-Ontario Boundary - The Niagara River
Michigan-Ontario Boundary - Detroit & St. Clair Rivers

The two Engineers to the Commission met in Detroit, Michigan, and inspected the bridge and tunnel crossing the Detroit River. They then located the intersections of the International Boundary with the rails of the bridge and the sides of the railroad tunnel and marked them with the adopted bridge tablets. They then proceeded to Port Huron, Michigan, and determined and marked the boundary on the sides of the railroad tunnel under the St. Clair River. Proceeding to the Niagara River, they marked the boundary line on four of the bridges surveyed in 1927. Report of this work is given in the Annual Report for 1929, beginning on page 25. Due to the construction of the bridge only the temporary mark could be placed on the other bridge.

1930 Michigan-Ontario Boundary - The Detroit River

The two Engineers to the Commission met in Detroit, Michigan, and located and marked the boundary on the walls of the new highway tunnel under the Detroit River between Detroit, Michigan, and Windsor, Ontario. A more complete record of this work is in the 1930 Annual Report, starting on page 23.

1933 New York-Ontario Boundary - The Niagara River

The Canadian Commissioner inspected the boundary reference monuments along the Niagara River between Niagara Falls and Fort Erie. One reference monument was found broken off and repaired. The record of this work is on page 24 of the Annual Report of the Commissioners for 1933.

1934 New York-Ontario Boundary - The Niagara River
Michigan-Ontario Boundary - Detroit & St. Clair Rivers

The two Commissioners made a joint inspection of the Great Lakes boundary this year. The inspection of the reference monuments along the Niagara River was made by automobile, along the Detroit River partly by automobile and partly by boat, and entirely by boat along the St. Clair River. An inspection was made of 86 reference monuments and their condition reported in the Annual Report for 1934, starting on page 4.

Changes in the location of the Canadian highway along the St. Clair River were being made this year. Two engineers from the Canadian Section of the Commission proceeded to this area and moved such reference monuments as necessary for making the changes in the highway. They also rebuilt one reference monument and inspected a number of others. A complete record of this work is in the Annual Report for 1934, starting on page 16.

1935 Michigan-Ontario Boundary - The St. Clair River

The Canadian highway along the St. Clair River was widened, making it necessary to move Reference Monument 44. An engineer from the Canadian Section of the Commission moved this reference monument and located it in its new position from adjacent monuments. The complete report of this work is in the Annual Report, pages 6 and 7.

1938 Michigan-Ontario Boundary - The St. Clair River

A new bridge was being built across the St. Clair River between Port Huron, Michigan, and Point Edward, Ontario. As soon as the bridge was sufficiently complete for marking the International Boundary thereon, the United States party surveying along the St. Lawrence River went to Point Edward. They made the necessary survey to determine the intersection of the boundary line with the bridge rails and marked these points with the standard bridge tablets. A complete report of this work is given in the 1938 Annual Report, starting on page 17.

1939 New York-Ontario Boundary - The Niagara River
Michigan-Ontario Boundary - Detroit & St. Clair Rivers

The two Commissioners made a joint inspection of a number of reference monuments along the Niagara, Detroit and St. Clair Rivers and found a number in poor condition. A complete record of this inspection is given on page 10 of the 1939 Annual Report.

An engineer from the Canadian Section of the Commission went to Niagara-on-the-Lake, Ontario, and Reference Monument 1 was reset at a lower elevation to conform to changes in the ground level caused by re-grading around Fort George. Record of this work is found in the 1939 Annual Report, pages 51 and 52.

Monument 1, Sugar Island Dike
Detroit River.

1940 New York-Ontario Boundary - The Niagara River

The two Commissioners inspected the reference monuments along the Niagara River, with special attention to several that might be effected by road changes or the building of houses. A complete record is given in the 1940 Annual Report, page 6.

1941 New York-Ontario Boundary - The Niagara River

A party from the United States Section of the Commission assisted by a Canadian engineer as Canadian representative made a complete geodetic survey of the Niagara River. They used as many marked survey stations of the International Waterways Commission and the United States Lake Survey as could be fitted into their scheme of triangulation and recovered and located all others still existing. The triangulation was connected with primary stations of the United States Coast and Geodetic Survey and the Geodetic Survey of Canada at the north and south ends and adjusted between these control points.

All boundary reference monuments were well located by triangulation and two or more triangulation stations visible from each reference monument were permanently marked for future survey purposes. The old survey stations from Lake Erie to Niagara Falls were well marked and described and all those still existing were easily found by inspection or from nearby survey stations. Below Niagara Falls, only wooden hubs could be found and 15 out of 62 were recovered and the others definitely determined to be lost. Three reference monuments were moved and one repaired. Auxiliary stations such as church spires were well located and made available for future use.

The new Rainbow Bridge across the Niagara River between Niagara Falls, New York, and Niagara Falls, Ontario, was complete enough late in the season to permit the mounting of bronze tablets to mark the intersection of the two bridge rails by the boundary.

Careful descriptions of all reference monuments and survey stations were made in the field. A complete record of the field work is given in the 1941 Annual Report, beginning on page 42.

The two Commissioners made an inspection of the field work of the party. They also conferred with the Engineer Corps, United States Army about the St. Clair River improvements. The record of the inspection is given in the Annual Report, pages 5 and 8.

Helio stand at
Station "Hillock, eccentric".

1942 Ontario-Michigan Boundary - Detroit & St. Clair Rivers

A party from the United States Section of the Commission, accompanied by an engineer from the Canadian Section as Canadian representative made a complete geodetic survey along the boundary between Lake Erie and Lake Huron, incorporating the United States Lake Survey work along the Detroit River where possible. Connections were made with first-order stations of the United States Coast and Geodetic Survey in Detroit and of the United States Lake Survey at several other places for control purposes, and the new geodetic work adjusted between these points. A number of bases were measured for length control. All survey stations were marked where possible and carefully described. Only a very few stations of previous surveys could be recovered on the St. Clair River.

All reference monuments were carefully located by triangulation, and a few moved to better locations and any necessary repairs made. A few reference monuments were found in the water; these were re-set in new locations on the shore. All bridge and tunnel tablets were checked and found to be in good condition. Reference Monument 7 was found buried under coal and a substitute station "Euclid" located nearby. Reference Monument 51 is covered by the grading of a lawn but is well described and recoverable if needed.

A complete record of the field work is found in the 1942 Annual Report, pages 28 to 48, inclusive.

The Commissioners made an inspection of the field work of this party. The report of their inspection is found on pages 4 and 6 of the Annual Report.

At the request of law enforcement agencies, a survey was made of the Livingstone Dikes, lower Detroit River, and painted wooden crosses were placed on them as a temporary marking of the approximate location of the boundary.

1944 Ontario-Michigan Boundary - Detroit & St. Clair Rivers

The United States party with a Canadian representative working along the St. Mary's River completed their work about the middle of October and then moved to Marine City, Michigan. There they built a new Reference Monument 31 as the old reference monument was in the river. The party then moved to Wyandotte, Michigan, where permanent monuments were erected on the Livingstone Dikes to mark the boundary and the crosses erected in 1942 embedded in the concrete

bases of these monuments for use of the various enforcement officers. The record of this work is on pages 33 and 36 of the 1944 Annual Report.

1945 Ontario-Michigan, -Ohio, -Pennsylvania Bdry. - Lake Erie
Ontario-New York Boundary - Lake Erie, Niagara River

The United States Commissioner inspected boundary points on the Niagara River, recorded on page 6 of the Joint Annual Report of 1945.

The United States Commissioner and the Engineer to the United States Section inspected bridge tablets and reference monuments on the Niagara and Detroit Rivers. Their report is on page 23 of the Annual Report for 1945.

A party from the United States Section of the Commission, with a Canadian engineer as representative, made a trip along the shores of Lake Erie, identifying the lighthouses used by the International Waterways Commission as reference marks for the boundary turning points in the lake. They established two or more references to facilitate the relocating of the center point of each light in case the structure should be destroyed in the future, and made a topographic survey of the site of each lighthouse. A complete record of the work done is found in the Annual Report for 1945, beginning on page 13.

1946 Ontario-Ohio Boundary - Lake Erie
Michigan-Ontario Boundary - Detroit & St. Clair Rivers
Ontario-New York Boundary - The Niagara River

The Engineer to the United States Section of the Commission made an inspection of the bridge marks on the Niagara and Detroit Rivers and of some survey stations and reference marks on the Detroit and St. Clair Rivers and repaired one station on the St. Clair River.

He also inspected lighthouses on Lake Erie used as reference marks for the boundary turning points. He took solar azimuth observations of the lines joining the references to 4 of the lighthouses so the geodetic positions of the references could be computed. Starting on page 12 of the Annual Report for 1946 a complete report of this work is given. The geodetic positions of the references as obtained from the solar azimuth are given on the old North American datum on pages 56 to 60 inclusive of this Annual Report.

Reference Monument 4 on Grosse Isle, Detroit River.

1948 Ontario-Michigan Boundary - St. Clair River

The two Commissioners, accompanied by the Engineer to the United States Section of the Commission inspected reference monuments and bridge tablets along the St. Clair River. The report of this inspection is given on page 5 of the Annual Report for 1948.

1949 Ontario-Ohio Boundary - Lake Erie

The Engineer to the United States Section of the Commission accompanied by a United States Coast Guard party set buoys at and in the vicinity of Turning Point 158 to mark the boundary through the island section north of Sandusky, Ohio, where much fishing is done. Later the United States Commissioner went to Sandusky and inspected the three buoys. Report is on page 5 of the Annual Report for 1949.

1950 Ontario-Michigan Boundary - St. Clair River

Two engineers from the Canadian Section of the Commission repaired one reference monument, established a mark eccentric to it, and determined the geodetic position of another reference monument on the St. Clair River. The account of this work is on pages 40 and 41 of the Annual Report for 1950.

Ontario-Ohio Boundary - Lake Erie

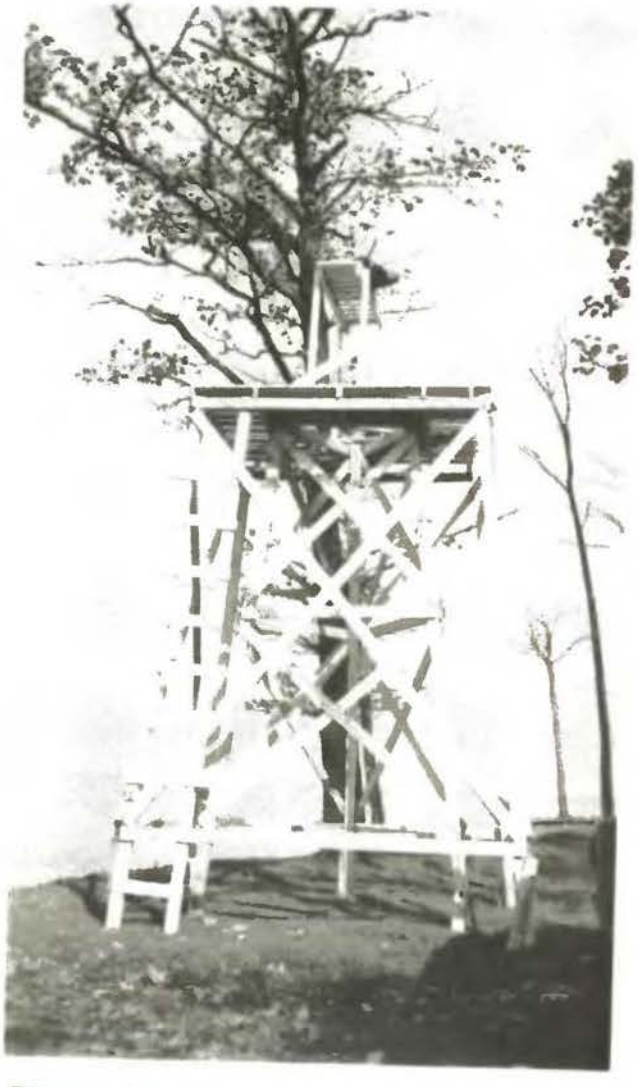
The Coast Guard placed lighted buoys in the vicinity of Turning Point 158 at places indicated by the Engineer to the United States Section of the Commission. These buoys are removed in the autumn.

1951-1955 Ontario-Ohio Boundary - Lake Erie

Lighted buoys were placed as in the previous year and removed each autumn.

1956 Ontario-Michigan Bdry. - Detroit and St. Clair Rivers
Ontario-New York Boundary - Niagara River

The Engineer to the United States section inspected the reference monuments and triangulation stations from the mouth of Niagara River to the head of St. Clair River so that the descriptions of these could be brought up to date for this report. The results of this inspection and recovery are incorporated in the descriptions starting on page 25.



Tower at Station "Blue Point"
with helio stand.

Ontario-Ohio Boundary - Lake Erie

Lighted buoys were placed, as in previous years, and removed in autumn.

OFFICE WORK

1927-1940 Ontario-Michigan, -New York Boundary - St. Clair, Detroit and Niagara Rivers

During these years the changes in position of reference monuments and the new bridge tablets were computed on the North American datum, together with their connections to the boundary turning points. These geodetic data together with the record of all inspections were given in the Annual Reports of the Commissioners for the respective years.

1941 Ontario-New York Boundary - The Niagara River

The triangulation executed along the Niagara River was rigidly adjusted to the first-order stations to which it was tied by the field work, on the 1927 North American datum. The triangulation was adjusted in several sections, between tie points to first-order stations. The reference monuments and intersection stations were then adjusted to the triangulation along the river.

Reference monuments moved were also computed on the old North American datum in which the International Waterways Commission report was given and the resultant geodetic positions and their connection to the boundary turning points were given in the Annual Report for 1941, together with a record of the season's work and inspections. Complete descriptions of stations were written and typed. All marked geodetic stations still recoverable, of the International Waterways Commission and the United States Lake Survey along the Niagara River were computed and are given in this report.

1942 Ontario-Michigan Bdry. - Detroit and St. Clair Rivers

This year's triangulation along the Detroit and St. Clair Rivers was rigidly adjusted to the fixed tie points in the first-order triangulation on the 1927 North American datum and the reference monuments and intersection stations then adjusted to the triangulation as in the Niagara work above.

I.W.C. Station "Staley"
on Grand Island.

The reference monuments moved were also computed on the North American datum, connected to the boundary turning points and given in the 1942 Annual Report, with a record of the season's work and inspections. Complete descriptions of stations were written and typed. All marked geodetic stations still recoverable, of the International Waterways Commission and the United States Lake Survey along the Detroit and St. Clair Rivers were computed and are given in this report.

1943-1944 Ontario-Michigan Bdry. - St. Clair and Detroit Rivers

New monuments were computed on the North American datum and listed in the Annual Report for 1944.

1945-1946 Ontario-Ohio Boundary - Lake Erie

The lighthouses used as references for the boundary turning points in Lake Erie were computed on the 1927 North American datum and the connections of these lighthouses to the boundary turning points also computed on this datum. Descriptions of stations were written and typed.

The lighthouses and their references were also computed on the North American datum and listed in the Annual Report of 1946.

1947-1954 Ontario-New York, -Michigan - Niagara, Detroit and St. Clair Rivers

Changes in reference monuments were computed on the North American datum and listed in the appropriate Annual Report.

The connections between the reference monuments and the boundary turning points were computed on the 1927 North American datum in preparation for the special report on this part of the Great Lakes boundary.

1955 Ontario-New York, -Pennsylvania, -Ohio, - Michigan Bdry. - From the mouth of Niagara River to the head of St. Clair River

The descriptive part of the report for this section of the Great Lakes boundary was written and together with all the descriptions of stations and the geodetic data was typed in form for the special report. The geodetic positions, distances, and azimuths for triangulation stations, reference monuments,

Niagara Falls
From the Boundary on Rainbow Bridge.

and boundary turning points, as well as station descriptions, are listed separately for the various sections, - Niagara River, Lake Erie, Detroit River, Lake St. Clair and St. Clair River. All geodetic data were computed and are given in the report to the standard number of decimal places.

1956 Ontario-New York, -Pennsylvania, -Ohio, -Michigan Bdry. From Mouth of Niagara River to head of St. Clair River.

The descriptions of triangulation stations and reference monuments on this whole section of the boundary were revised following the inspection by the Engineer to the United States section, and the revised descriptions are included in this report. The report was typed for photolithographing.

SUMMARY OF PERSONNEL ENGAGED			
Year	Location of Work	Section	Engineer in Charge
1927	Niagara R.	Joint	J. Hill
1929	Niagara R. Detroit R. St. Clair R.	Joint	J. Hill J. Pounder
1930	Detroit R.	Joint	J. Hill J. Pounder
1933	Niagara R.	Canadian	
1934	St. Clair R.	Canadian	G. T. Prinsep
1935	St. Clair R.	Canadian	L. N. Wadlin
1938	St. Clair R.	United States	J. G. Hefty
1939	Niagara R.	Canadian	D. F. Chisholm
1940	Niagara R.	Joint	
1941	Niagara R.	United States	J. G. Hefty
1942	Detroit R. St. Clair R.	United States	F. H. Brundage
1944	Detroit R. St. Clair R.	United States United States	N. W. Smith N. W. Smith
1945	Lake Erie Niagara R.	United States United States	R. K. Lynt
1946	Lake Erie Niagara R. Detroit R. St. Clair R.	United States United States United States United States	J. Hill J. Hill
1948	St. Clair R.	Joint	
1949	Lake Erie	United States	J. Hill
1950	St. Clair R.	Canadian	D. F. Chisholm
1956	Niagara R. Detroit R. St. Clair R.	United States United States United States	N. W. Smith N. W. Smith N. W. Smith

IN THE FIELD WORK, 1925 - 1956		
Triangulation	**Monumenting**	**Inspection**
	J. Hill	
J. Hill J. Pounder	J. Hill J. Pounder	J. Hill J. Pounder
J. Hill J. Pounder	J. Hill J. Pounder	J. Hill J. Pounder
		N. J. Ogilvie
G. T. Prinsep	G. T. Prinsep	G. T. Prinsep
L. N. Wadlin	L. N. Wadlin	L. N. Wadlin
G. T. Prinsep	G. T. Prinsep	J. G. Hefty
	D. F. Chisholm	D. F. Chisholm
		N. J. Ogilvie T. H. Riggs
G. T. Prinsep N. W. Smith	N. W. Smith	J. G. Hefty N. J. Ogilvie T. H. Riggs
G. T. Prinsep N. W. Smith	F. H. Brundage	F. H. Brundage N. J. Ogilvie T. H. Riggs
N. W. Smith G. T. Prinsep	N. W. Smith N. W. Smith	N. W. Smith G. T. Prinsep
G. T. Prinsep	R. K. Lynt	R. K. Lynt J. A. Ulinski
J. Hill	J. Hill	J. Hill J. Hill J. Hill J. Hill
		N. J. Ogilvie J. A. Ulinski J. Hill
J. Hill		J. A. Ulinski J. Hill
D. F. Chisholm	A. F. Lambert	D. F. Chisholm
		N. W. Smith N. W. Smith N. W. Smith

DESCRIPTIONS OF TRIANGULATION STATIONS AND BOUNDARY REFERENCE MONUMENTS

The descriptions of triangulation stations and reference monuments which follow are based upon surveys made by the International Boundary Commission from 1941 to 1950, inclusive, except for a few U. S. Lake Survey stations on Detroit River not used by the Commission, whose descriptions are copied from the Lake Survey. The original descriptions of stations established by the International Waterways Commission could not be found.

The reference monuments used along the various rivers in the Great Lakes region are the standard International Waterways Commission monuments. They are constructed in the form of the frustum of a cone with a hemispherical top. These monuments are 2½ feet high, 2 feet in diameter at the base, 1½ feet in diameter at the top, and with a radius for the hemispherical crown of 9 inches. The concrete foundations extend 5 feet below the surface, except where solid rock occurs at a lesser depth, when the monument is built on and bonded to the rock by several iron pins. Each monument has its centre marked by a brass plug ¾ inch in diameter, with a small drill hole in the centre, and each monument has a number cast in its side. They are numbered consecutively upstream in the various rivers. Through Lake Erie, the lighthouses built and maintained by the respective countries as aids to navigation have been used as boundary reference points.

In the general inspection of triangulation stations and reference monuments undertaken in 1956, time did not permit the use of an instrument to recover stations where local conditions prevented their recovery otherwise, but most stations were either recovered or proven destroyed. Where extensive changes were found, additional notes follow the original description. The type of mark used for each triangulation station is given at the end of its general description.

Following our adopted practice, the number of a reference monument is followed by the year its position, as given in this report, was determined. In parentheses after the number of the reference monument is given the year of origin followed by the years in which it was subsequently occupied or recovered.

TRIANGULATION STATIONS
INTERNATIONAL BOUNDARY COMMISSION

NIAGARA RIVER

GRIMSBY (Ontario,Lincoln County;G.S.of C.1909;1941)--About 1 mile south of the village of Grimsby on the Canadian Natl. Rwy.; on a high bluff on Lot 11, Concession II; on the west side of a deep ravine that ascends southerly from Grimsby Village. The station is 70 paces west of the brink of the ravine and 7 paces from the north edge of the escarpment. The station was recovered in 1941 and the marks were renewed. The revised description of the marks is given.

Station mark: A copper bolt stamped "G.S.C. 1912" set in the bedrock (the original mark, said to have been leaded in, but no lead shows around it). In 1941 a surface mark was set over the original mark. The original mark was covered with a 2-inch metal bottle top and a concrete block 2 by 2 feet and 8 inches high was placed over it. The station was surface marked with a Geodetic Service of Canada standard bronze-disk station mark set in the top of the concrete block. There are three references. Reference No. 1 (original mark) is a copper bolt leaded into a hole in the bedrock. Reference No. 2 is a like original mark set in a similar manner. Original Reference No. 3 has been destroyed. It was replaced by a 3/4-inch drill hole 1 inch in depth in bare bedrock 5 feet from the edge of the cliff. The azimuths and distances to the references are:

Marks	Azimuths from north	Distances
Reference No. 1	84° 47'	9.66 feet
Reference No. 2	227 12	35.53 feet
Reference No. 3	7 49	19.37 feet

FORT NIAGARA LIGHT (New York,Niagara County;1871;1941;1956)--The lighthouse was built in 1871. The station mark is the apex of the conical roof of the light. The light can be occupied eccentrically on the platform around the lantern.

FORT NIAGARA WATER TANK (New York,Niagara County;J.G.Hefty; 1941;1956)--The tank has a conical roof the apex of which is surmounted by a ball. The station mark is the apex of the roof under the ball. The station cannot be occupied.

NORTH BASE (YOUNGSTOWN)-I.W.C.(New York,Niagara County;1912; 1941)--The station mark was recovered as originally described. The description of the location and references as amended reads. About 1500 feet north of the southern entrance to the Fort Niagara grounds, just east of the macadam road and concrete sidewalk running along the river. A portion of the

curb on the east side of the road has been removed and a new macadam east-west street put in, the street covering the station. The station is 58.50 feet southwest of the near corner of the first brick officer's quarters north of the east-west street and 89.40 feet northwest of the near corner of a new frame barracks just south of the street.

Station mark: The center of the hole in a brass plug set in the top of a 2-1/2-foot shaft of concrete whose top is 8 inches below the surface of the street. There are two references. No. 1 is about 16 feet west of the river road and about 27 feet south of the center line of the east-west street. It is about 10 feet from the edge of the high bank above the river. No. 2 is in the southeast corner of the intersection of the sidewalks along the river road and the north side of the east-west street. Both references are I.B.C. standard bronze-disk station marks with an arrow cut in pointing toward the station and numbered. Each is set flush with the surface of the ground in the top of a concrete shaft, 2-1/2 feet deep and 8 inches in diameter. Directions and distances to the references are:

	Directions			Distances
SOUTH BASE (YOUNGS-TOWN)-I.W.C.	0°	0C'	00"	
Reference No. 1	56	01	25.5	74.70 feet
Reference No. 2	150	53	26.0	23.66 feet
Rt. angle to near edge of east-west sidewalk	175	35	03.0	22.6 feet
Southwest corner of first brick officer's quarters	225	04	03.0	58.50 feet
Northwest corner of frame barracks	294	02	10.0	89.40 feet
Center 14-inch oak tree southeast of station	338	01	03.0	29.0 feet

SOUTH BASE (YOUNGSTOWN)-I.W.C. (New York, Niagara County; 1912; 1941)--The station mark was recovered as originally described. The description of the location and references as amended reads. Just inside the entrance to the Fort Niagara grounds, in the midst of a group of ornamental shrubs, between the two macadam roads entering the Fort and near their point of intersection. The station is 87 feet from the corner of the hedge on the west side of the west road and about 7-1/2 feet south of the concrete east-west sidewalk connecting the two roads. It is about 8 feet east of the concrete east curb of the west road.

Station mark: The center of the hole in a brass plug set in the top of a 2-1/2 foot shaft of concrete whose top is 8 inches below the surface of the ground. There are two

references. No. 1 is a drill hole 1/4-inch in diameter in the center of a triangle chipped into the east curb of the west road at a point 1.79 feet south of the more westerly of two concrete lamp posts. No. 2 is a drill hole 1/4-inch in diameter in the center of a triangle chipped into the east-west sidewalk about 2 inches north of its south edge and 11 feet east of the east curb of the west road. It is 5.90 feet from the northeast corner of the west lamp post. Distances to the references are:

	Distances
Reference No. 1	8.15 feet
Reference No. 2	7.56 feet

QUARTERS-SUB (New York,Niagara County;J.G.Hefty,1941;1956)--About 2200 feet north of the southern entrance to the grounds of Fort Niagara, on the west side of the macadam road along the river and about 45 feet south of the drive leading from the road to the rear of the first house inside the grounds and on the west side of the road. It is about 22 feet east of the edge of the high bank along the river.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a concrete cylinder, 8 inches in diameter and 12 inches in depth. The subsurface mark is a brass screw set 13 inches underground in the top of a similar cylinder of concrete. There are two references. No. 1 is an iron post set in concrete holding the top of a hand rail on the concrete steps leading to the pier on the river bank opposite the drive. No. 2 is the rear corner of the southern end of the curb on the north side of the drive at its intersection with the road. Directions and distances to the references are:

	Directions	Distances
NORTH BASE (YOUNGSTOWN)-I.W.C.	0° 00' 00"	
Reference No. 1	153 54 45.0	36.60 feet
Reference No. 2	257 37 00.0	99.95 feet

VINCENT PIER (New York,Niagara County;J.G.Hefty,1941;1956)--On the east side of the Niagara River, on the concrete dock of St. Vincent's School in the north end of Youngstown, New York. The station is 0.4 foot south of the north edge of the dock at a point 33.55 feet east of the river end and 39.3 feet west of the shore end of the dock.

Station mark: An I.B.C. standard bronze-disk station mark cemented in a drill hole in the concrete dock. There are four references. No. 1 is the southwest corner of the concrete dock. No. 2 is the northwest corner of the concrete dock. No. 3 is the southwest corner of the concrete building just north of the dock. No. 4 is the southeast corner of the concrete dock. Distances to the references are:

	Distances
Reference No. 1	35.45 feet
Reference No. 2	33.55 feet
Reference No. 3	34.00 feet
Reference No. 4	42.00 feet

GEORGE-SUB (Ontario,Lincoln County;J.G.Hefty,1941;1956)--On the Canadian side of the Niagara River just east of the south end of Fort George, Niagara-on-the Lake. The station lies in the level graded area along the east side of the highway between the highway and the river and 8.43 feet from the east curb of the highway.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 6 inches in diameter and 20 inches in depth. The subsurface mark is a bronze plug set 20 inches below the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 1 foot in depth. There are two references. No. 1 is a drill hole 3/4 inch in diameter and 1-1/2 inches in depth and is situated 37.9 feet northwest of the station in the stone curb of the highway. No. 2 is a similar drill hole 3/4 inch in diameter and 1 inch in depth and is situated 21.12 feet southwest of the station in the stone curb of the highway.

OAK-SUB (Ontario,Lincoln County;J.G.Hefty,1941)--On the Canadian side of the Niagara River on top of the high bank of the river. The station is about 675 feet south of the station "Oak-I.W.C." and is midway between the edge of the bank and the edge of the road which runs along the river. The station was not permanently marked. A wooden hub with a nail was left as a temporary mark.

OAK-1941 (Ontario,Lincoln County;J.G.Hefty,1941)--On the Canadian side of the Niagara River, about 750 feet south of the Y in the road south of Fort George. The station is at the north end of the first curve in the road south of the Y and about 420 feet north of the north end of the guard rail on the east side of this curve. It is under a blazed oak tree 2 feet in diameter. The station is 40 feet from the highway and about 2 feet below the road level.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 2 feet in depth. The subsurface mark is a brass screw set 2 feet underground in the top of a cylinder of concrete 8 inches in diameter and 10 inches in depth.

WORTH-SUB (New York,Niagara County;J.G.Hefty,1941;1956)--At the southern end of Youngstown, New York, on the beach of

the Niagara River a few inches above the normal water level. The station is just west of a gully through the high bank of the river where Bloody Run Creek flows in wet weather. It is on Fox Point, a few feet south of the remains of an old dock. Disk gone in 1956.

Station mark: The station could not be permanently marked because of its proximity to the river. A 2 by 2 inch wooden hub with a nail in the top was left as a station mark. There is one reference. It is called "Worth-1941." It is an I.B.C. standard bronze-disk station mark cemented in a drill hole in the concrete retaining wall around the old dock north of the station. The following angles and distances were recorded at the reference:

	Angle			Distance
Station Steps-I.W.C.	0°	00'	00"	
Oak-1941	38	00	46.2	
Fort Niagara Light-house	81	05	50.2	
Fort Niagara Water Tank	83	28	03.9	
Worth-Sub	312	40	43.4	32.02 feet

WORTH-1941 (New York,Niagara County;J.G.Hefty,1941;1956)--On the American side of the Niagara River in the southern end of Youngstown, New York. The station is on the stony beach of Fox Point at the mouth of Bloody Run, a dry gully about 20 feet high. It is about 1/4 mile south of the Youngstown Yacht Club dock, about 8 feet from the water's edge. Disk gone in 1956.

Station mark: An I.B.C. standard bronze-disk station mark cemented in the top of the south end of a concrete wall about 3 feet high and 1 foot thick. The wall is part of an old dock just north of station "WORTH-SUB." "WORTH-1941" is 32.02 feet north-east of "WORTH-SUB" which it serves as a reference.

STEPS-I.W.C. (Ontario,Lincoln County;1912;1941;1956)--On the west shore of the Niagara River, about five-eights mile south of Fort George, Niagara-on-the-Lake, and east of the southern end of the east guard rail around the section of the macadam road which curves away from the river bank from a point just south of Fort George. The station is 6 feet west of the top of the high bank along the river at a place where two medium and four small trees are growing part way down the bank.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 18 inches in depth. The subsurface mark is a cut in the center of the sharp end of a brass wedge set 18 inches underground in the top of a cylinder of concrete 9 inches in diameter and 12

inches in depth. There are two references. No. 1 is a drill hole 1 inch in diameter and 1-1/4 inches in depth in the top of a rock 3 by 1 feet whose top is 6 inches above the surface of the ground. The rock is 50 feet east of the edge of the road and 35 feet south of the end of the guard rail. It is the only rock in sight on the east side of the road and is just opposite a large rock in the west ditch of the road. No. 2 is a drill hole 1 inch in diameter and 1-1/2 inches in depth in a solid rock 3 by 3 feet whose top is 2 inches above the surface of the ground. The rock is 10 feet from the top of the high bank of the river. Directions and distances to the references are:

	Directions	Distances
Station VINCENT PIER	0° 00' 00"	
Youngstown Water Tank	18 26	
Reference No. 1	253 45	159.42 feet
Reference No. 2	332 31	20.35 feet

STEPS-SUB (Ontario,Lincoln County;J.G.Hefty,1941)--On the Canadian side of the Niagara River on the top of the high bank of the river. The station is about 575 feet south of Station "STEPS-I.W.C." and is about 15 feet west of the edge of the bank. The station was not permanently marked. A wooden hub with a nail was left in place.

BOW-SUB (New York,Niagara County;J.G.Hefty,1941)--About one mile south of Youngstown, New York, on the stony beach on the east shore of the Niagara River, about 6 feet from the river at normal stage. The station is just south of a small bay on the United States shore. Because of the proximity to the river, it was impracticable to permanently mark the station. A wooden hub with a nail in it was left in place.

GULLY-SUB (Ontario,Lincoln County;J.G.Hefty,1941)--On the west shore of the Niagara River about a mile south of Fort George, Niagara-on-the-Lake, at a point where a wagon road leads down to the shore of the river. The station was not marked as it was in the sand of the beach near the water's edge. A nail in a wooden hub was left in place.

ELINOR-SUB (Ontario,Lincoln County;J.G.Hefty,1941)--On the west shore of the Niagara River about 1-1/2 miles south of Fort George, Niagara-on-the-Lake, on the north side of the rounding point on which Monument 3 is located and within sight of that monument. The station is not marked as it was in the sand of the beach near the water's edge. A nail in a wooden hub was left in place.

VIEW-SUB (New York,Niagara County;J.G.Hefty,1941)--At the inshore edge of the narrow stony beach of the Niagara River

about 1-1/4 miles south of Youngstown, New York, and about 180 feet north of a set of old, partly broken stairs leading up the high bank to a point opposite the Health Villa, a nursing home on the east side of the road which runs along the river. Because of the proximity to the river, no permanent mark could be set. The station is marked by a nail in the top of a wooden hub, 2 by 2 inches.

WOOD-SUB (New York,Niagara County;J.G.Hefty,1941)--On the east side of the Niagara River about 1-3/4 miles south of Youngstown, New York, and about 10 feet from the normal high water mark of the river. The station is at the inshore edge of the stony beach of the river, about 14 feet north of a set of stairs leading to the top of the high bank through a covered summer house situated about half way up.

Station mark: An I.B.C. standard bronze-disk station mark cemented in a drill hole in a rock 20 by 20 inches nearly flush with the surface of the ground. There are two references. No. 1 is a drill hole 3/4 inch in diameter and 2 inches in depth in a rock 2 by 2 feet whose top is 6 inches above the surface of the ground. The rock is at the inshore edge of the beach about 30 feet north of the stairs. No. 2 is a drill hole 1 inch in diameter and 1-1/2 inches in depth in a rock 12 by 12 inches whose top is flush with the surface of the ground in a group of rocks 5 feet north of the stairs. The station is on a direct line between these two references. Directions and distances to the references are:

	Directions	Distances
Jack-Sub	0° 00' 00"	
Fort Niagara Light	68 42 20	
Fort Niagara Water Tank	69 40 30	
Reference No. 1	92 32	19.47 feet
Reference No. 2	272 32	8.06 feet

JACK-SUB (Ontario,Lincoln County;J.G.Hefty,1941;1956)--On the Canadian side of the Niagara River about 1/2 mile south of Point Elinor. The station is about 6 feet from the water's edge and about 3 feet above the water level. It is about 100 feet north of a boathouse and slip which are reached by a set of wooden stairs leading down the high bank from a point east of the highway which runs along the river. The top entrance to the stairs is across the highway from the large, white, English-style home of H. H. Jackson. Boathouse gone, station in burdocks.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 2 feet in depth. The subsurface mark is a brass screw set 2 feet underground in the top of a cylinder of concrete 8 inches in

diameter and 10 inches in depth. There are two references. No. 1 is an iron snubbing post, 10 inches in diameter and 12 inches in height, on the boathouse dock. The reference is marked by a cross chiseled into the top of the post. No. 2 is a railroad spike set flush with the surface of the ground in the top of a piece of concrete-filled drain tile. Directions and distances to the references are:

Station VIEW-SUB	Directions 0° 00' 00"	Distances
Reference No. 1	161 10 12.0	53.87 feet
Reference No. 2	261 12 05.0	15.56 feet

ROSE-SUB (Ontario,Lincoln County;J.G.Hefty,1941;1956)--On the Canadian side of the Niagara River about 1-1/4 miles south of Point Elinor. The station is about 100 feet east of the macadam highway which runs along the river and about 150 feet west of the water's edge. It is about 75 feet east of a roadway leading north from the highway to the river. The station is on the slope which runs from the highway to a marsh at the water's edge. It is about 300 feet from the southern end of a row of 10-inch spruce trees extending for a distance of about 800 feet along the west side of the highway.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 6 inches in diameter and 2 feet in depth. The subsurface mark is a brass screw set 2 feet underground in the top of a cylinder of concrete 8 inches in diameter and 10 inches in depth. There are two references. No. 1, 21 feet northeast of the highway, is an I.B.C. standard bronze-disk reference mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 2-1/2 feet in depth. No. 2, 28 feet north east of the highway, is an I.B.C. standard bronze-disk station mark cemented in a 6 by 6 inch granite rock which projects 1 inch above the surface of the ground. Both references have arrows pointing toward the station. In 1956 ref. No. 2 was in high grass and not recovered but probably O.K., Ref. No. 1 was recovered 8 feet west of the bushes; 60 feet south of an old road to the river; 65 feet south of the line hedge on south side of the E. T. Palmer house; and about 500 feet south of the culvert near the grassy point. Directions and distances to the references are:

Station JACK-SUB	Directions 0° 00' 00"	Distances
Reference No. 1	212 01 33.8	101.35 feet
Reference No. 2	257 29 52.8	84.58 feet

SNOW-SUB (New York,Niagara County;J.G.Hefty,1941)--At the inshore edge of the stony beach of the Niagara River about

2-1/2 miles south of Youngstown, New York. Because of the proximity of the river, no permanent mark could be set. The station is marked by a nail in the top of a wooden hub, 2 by 2 inches.

STELLA-I.W.C. (New York, Niagara County; 1912; 1941)--About 3 miles south of Youngstown, New York, on the high east bank of the Niagara River, about 14 feet from the edge of the bank. The station lies between the river and an old wagon road leading to a small white chapel on the river bank about 500 feet to the south. It is 10 feet from the nearest wheel track of this road and about 150 feet south of a concrete pump house by a road leading to a boat landing from the north end of the Stella Niagara Cadet and Girls' School buildings. The station is 25 feet south of a conspicuous tree from which the bark has been striped.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 12 inches in depth. The subsurface mark is a brass screw set 13 inches underground in the top of a similar cylinder of concrete. There are two references. No. 1 is the southwest corner of the pump house. No. 2 is a drill hole 3/4 inch in diameter and 1 inch in depth in a rock 1 by 2 feet whose top is flush with the surface of the ground. The rock is 6 feet from the edge of the bank. Directions and distances to the references are:

	Directions			Distances
Station DAGON-SUB	0°	00'	00"	
Brock's Monument	2	48	00	
Reference No. 2	114	54	45	8.98 feet
Reference No. 1	175	12	45	152.91 feet
Cross on Stella Niagara	260	36	45	

DAGON-SUB (New York, Niagara County; J.G.Hefty, 1941)--On the narrow stony beach of the Niagara River about 1-1/3 miles north of Lewiston, New York. The station was not permanently marked because of its proximity to the river. A 2 by 2 inch wooden hub with a nail in the top was left as a station mark.

GYPSY-SUB (Ontario, Lincoln County; J.G.Hefty, 1941)--On the narrow beach on the west shore of the Niagara River about 2 miles north of Queenston, Ontario, and about 5/8 mile south of the prominent point on which Monument 5 is situated. Because of the proximity of the river, no permanent mark could be set. A 2 by 2 inch wooden hub with a nail in the top was left as station mark.

LEFT-SUB (New York,Niagara County;J.G.Hefty,1941)--On the east side of the Niagara River about 3/4 mile north of Lewiston, New York. The station is at the foot of the slides from the high bank of the river and about 3 feet inshore from the narrow stony beach. No permanent mark could be set. A 2 by 2 inch wooden hub with a nail in the top was left as station mark.

ROOT-SUB (Ontario,Lincoln County;J.G.Hefty,1941)--On the Canadian side of the Niagara River about 1-1/2 miles north of Queenston, Ontario, and 5/8 mile north of Acorn Point. The station is on a flat space about 6 feet wide between the steep bank and the gravel shore of the river. It is 16 feet south of a cairn, 2 feet wide, 3 feet long, and 2-1/2 feet high, on the same flat space.

Station mark: An I.B.C. standard bronze-disk station mark set 2 inches above the surface of the ground in the top of a cylinder of concrete 1 foot in diameter and 1-1/2 feet in depth. The subsurface mark is a brass screw cemented in a drill hole in bedrock 1-1/2 feet underground.

MONUMENT 6 ECC. (New York,Niagara County;J.G.Hefty,1941;1956) About 5/8 mile north of Lewiston, New York, on the top of the high bank of the Niagara River, near Monument 6. The station is 2 inches east of the top of a north-south retaining wall and near its southern end. It is about equidistant from the cement garage just north of the station and the fence by the house just south of the station. It sees marked triangulation station "ROOT-SUB" and unmarked stations "ACORN-SUB" and "GYPSY-SUB."

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 18 inches in depth. The subsurface mark is a brass screw set 18 inches underground in the top of a similar cylinder of concrete. There are two references. No. 1 is the southwest corner of the garage. No. 2 is Monument 6. Directions and distances to the references are:

	Directions	Distances
Station ROOT-SUB	0° 00' 00"	
Reference No. 1		44.01 feet
Reference No. 2 (Mon. 6)	200 47 27.5	47.245 feet

MEDINA-SUB (New York,Niagara County;J.G.Hefty,1941)--On the inshore edge of the stony beach on the east side of the Niagara River about 1/2 mile north of Lewiston, New York. Because of the proximity to the river, no permanent mark could be set. A 2 by 2 inch wooden hub with a nail in the top was left as station mark.

ACORN-SUB (Ontario,Lincoln County;J.G.Hefty,1941)--On the beach on the west side of the Niagara River about one mile north of Queenston, Ontario, and across the river from the north end of Lewiston, New York. Because of proximity to the river, no permanent mark could be set. A 2 by 2 inch wooden hub with a nail in the top was left as station mark.

MONUMENT 7 ECC.-I.W.C.(Ontario,Lincoln County;1912;1941)--On the Canadian side of the Niagara River about 3/8 mile north of Queenston, Ontario. The station was recovered but was not permanently marked because of its proximity to Monument 7. A 2 by 2 inch wooden hub with a nail in the top was left as station mark.

BROCK'S MONUMENT (Ontario,Lincoln County;1912;1941)--On the Canadian side of the Niagara River, on Queenston Heights. The station is the center of the monument at the elevation of the window openings just above the landing at the head of the stairs inside the monument.

The monument, a memorial to General Brock, is a triangulation station of the U. S. L. S., the G. S. of C., and the U. S. C. & G. S., directly connected with the first-order triangulation of the three systems.

The chamber at the top of the monument is 4.5 feet in diameter. The stair and a seat occupy one-half of the floor space. The center of the chamber is marked by a tack in the wooden seat. The tack is 0.1 foot from the iron post supporting the seat and 0.15 foot from the straight edge of the seat. The masonry walls at the chamber elevation are 1.15 feet thick. There are eight windows in the chamber, equally spaced around the tower at an elevation of 4.5 feet above the floor. Seven of the windows are 0.8 foot in diameter; the eighth one is 1.4 feet in diameter. The monument can be occupied with the transit by making eccentric stations where two or more points can be seen at the same time through the window openings.

NELL-SUB (New York,Niagara County;J.G.Hefty,1941)--On the American side of the boundary, in Lewiston, New York, about 300 feet north of the foot of Center Street on the site of an old hotel which has been destroyed. The station is about 75 feet from the edge of the Niagara River and about 50 feet above the water level. It is about 300 feet south of a circular coal elevator and about 400 feet north of "Tearce's Riverside Inn." It is directly above the Lewiston steamboat dock and about 40 feet west of the extension of First Street. Reference No. 2 alone recovered in 1956.

Station mark: An I.B.C. standard bronze-disk station mark cemented into one of the concrete floor slabs, about 8 feet square, of the old hotel. There are two references.

No. 1 is a metal plug cemented into the center of the top of a concrete block, a portion of the original hotel foundation, 12 inches square at the top and extending about 12 inches above ground. It is 53.25 feet north of the station. No. 2 is the center of a drill hole 1 inch in diameter and 1-1/2 inches in depth in the southwest corner of a concrete paved area about 20 feet square. An arrow cut in the concrete points toward the station. The reference is 56 feet east of the station. Directions and distances to the references are:

	Directions	Distances
Brock's Monument	0° 00'	
Reference No. 1	181 06	53.25 feet
Reference No. 2	266 13	56 feet

HEIGHTS-SUB (New York,Niagara County;J.G.Hefty,1941;1956)--About 1 mile south of the village of Lewiston, New York, on the top of the high cliff overlooking the Niagara River and west of the grounds of the Niagara Falls Country Club. The station is about 300 feet west of a two-storied white house and about 150 feet west of the tracks of the New York Central Hudson River Railroad. It is in the northwest corner of a small hay field and is situated about 45 feet east of the edge of the cliff and 42 feet southeast of a 12-inch elm.

Station mark: An I.B.C. standard bronze-disk station mark set in the top of a cylinder of concrete 8 inches in diameter and 1 foot in depth whose top is 1.8 feet below the surface of the ground. There is no surface mark. There are two references. No. 1, which is 27.89 feet east of the station, is the center of a drill hole 1 inch in diameter and 1-1/2 inches in depth in a rock, 2 feet wide and 4 feet long, whose top is 6 inches above the surface of the ground. An arrow cut in the rock points toward the station. No. 2, which is 97.83 feet south of the station, is the center of a drill hole 1 inch in diameter and 1 inch in depth in a granite boulder whose top is 3 inches above the surface of the ground. An arrow cut into the boulder points toward the station. Directions and distances to the references are:

	Directions	Distances
Ogden-Sub	0° 00'	
Reference No. 2	7 07	97.83 feet
Reference No. 1	274 25	27.89 feet

CHANCE-1941 and
CHANCE-SUB (Ontario,Welland County;J.G.Hefty,1941;1956)--Midway between Brock's Monument and the Ontario Hydroelectric Power Station, on a sharp point of the high bank on the west side of the Niagara River. Chance-Sub is as near as possible on the site of Chance-I.W.C., which was not recovered, and is on an overhanging ledge, less than 2 feet from its edge.

Chance-1941 is directly on line from Chance-Sub to Reference No. 1 and can be used with Reference No. 1 to relocate Chance-Sub. It is 45 feet east of the old bed of the International Railway Company car tracks and on line with the top of the high bank southward toward the Power Station.

Station marks: Chance-Sub could not be marked because of its proximity to the edge of the bank. Chance-1941 is marked by an I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 1 foot in depth. The subsurface mark is a brass screw set 1 foot below the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 1 foot in depth. Reference No. 1 is a drill hole 3/4 inch in diameter and 1-1/2 inches in depth in a rock situated on the east shoulder at the first bend in the river road from Brock's Monument to the Power Station. The rock measures 18 by 12 inches and projects an inch above the surface of the shoulder. Directions and distances to the references from Chance-Sub are:

	Directions			Distances
Station Heights-Sub	0°	00'	00"	
Reference No. 1	223	37	30	119.18 feet
Chance-1941	223	37	30	10.46 feet

OGDEN-SUB (New York,Niagara County;J.G.Hefty,1941;1956)--About 1-1/2 miles south of the village of Lewiston, New York, on the top of the high cliff overlooking the Niagara River. The station is about 300 feet southeast of Monument 9 and about 80 feet east of the edge of the cliff. It is situated between the New York Central Hudson River Railroad track and a concrete north-south road lying just east of the track. It is 15.5 feet west of the inside edge of the concrete west curb of the road and about 30 feet east of the railroad track. The station is about 55 feet north of the dead-end of the concrete pavement of the road.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 6 inches in diameter and 2 feet in depth. The subsurface mark is a brass screw set 2 feet underground in the top of a cylinder of concrete 10 inches in diameter and 1 foot in depth. There are two references. No. 1, 35.4 feet northeast of the station, is the center of a drill hole 1 inch in diameter and 1-1/2 inches in depth in the concrete curb of the road. An arrow points toward the station. No. 2, 48.4 feet south of the station, is a similar mark in the concrete curb. Directions and distances to the references are:

	Directions			Distances
Kiln-Sub	0°	00'	00"	
Reference No. 1	207	13	12.4	35.4 feet
Reference No. 2	340	38	31.9	48.4 feet

BOLT-SUB (Ontario,Welland County;J.G.Hefty,1941;p.1.1956)--About 4-1/2 miles north of the Niagara River Falls, near the Ontario Hydroelectric Power Building situated on the top of the high cliff overlooking the Niagara River. The station is about 10 feet north of the projection of the south side of the building and about 25 feet west of the railing at the cliff's edge. It is 4.7 feet east of the inside edge of a cement curb.

Station mark: An I.B.C. standard bronze-disk station mark set nearly flush with the surface of the ground in the top of a concrete cylinder about 8 inches in diameter and 18 inches in depth in the crushed rock of the boulevard.

Subsurface mark: A cross cut on the thick end of a small brass wedge cemented in a drill hole in solid rock. There are two references. No. 1 is the nearest part of the southwest leg of a steel power cable tower. No. 2 is the southeast corner of the hydroelectric building. Directions and distances to the references are:

	Directions	Distances
Station CHANCE-SUB	0° 00' 00"	
Reference No. 1	29 49 50.0	53.35 feet
Reference No. 2	250 08 17.5	44.8 feet

KILN-SUB (New York,Niagara County;J.G.Hefty,1941;1956)--About 4/5 mile north of Niagara University, on the top of the high cliff overlooking the Niagara River and roughly opposite the Ontario Hydroelectric Power Station. The station is 12 feet east of the edge of the cliff.

Station mark: An I.B.C. standard bronze-disk station mark cemented in a solid rock ledge a few inches below the surface of the ground. There are two references. No. 1, 201.8 feet east of the station, is the base of the nearest high tension pole. No. 2, 31.8 feet south of the station, is a drill hole 1 inch in diameter, and an arrow pointing toward the station cut into a limestone boulder lying in a small depression of the ground.

VOLT-I.W.C.(Ontario,Welland County;1912;1941)--About 4 miles north of the Niagara River Falls, on the top of the high cliff overlooking the Niagara River and near marked triangulation station "TRANS-I.W.C."

Station mark: A bronze plug with a hole in the center, set in a rock about 6 inches below the surface of the ground. The station can be found by occupying the station "TRANS-I.W.C." and using the following directions and distances.

At Trans-I.W.C.

	Directions	Distances
Bolt-Sub	0° 00' 00"	
Volt-I.W.C.	38 10 38	49.215 feet
Reference No. 1	127 01 18	36.75 feet
Distance Reference No. 1 to Volt-I.W.C. -		60.82 feet

TRANS-I.W.C. (Ontario, Welland County; 1912; 1941; p.1.1956)--About 4 miles north of the Niagara River Falls, on the top of the high cliff overlooking the Niagara River. The station is at the west side of the right-of-way of the old bed of the International Railway Company car tracks, about 60 feet west of the edge of the cliff and 100 feet east of Niagara Boulevard.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 1 foot in depth. The subsurface mark is a hole in the top of a bronze wedge set 1 foot underground in the top of a cylinder of concrete 8 inches in diameter and 1 foot in depth. There are two references. No. 1 is a bronze plug resembling the top of a plumb bob set in concrete in a 7-inch diameter iron pipe. No. 2 is the northwest corner of an iron spike fence enclosing six steel towers supporting power lines crossing the river. Directions and distances to the references are:

	Directions			Distances
	0°	00'	00"	
Station BOLT-SUB				
Reference No. 1	127	01	18.0	36.75 feet
Reference No. 2	155	32	02.0	81.4 feet
Reference No. 1 to Reference No. 2				52.35 feet
Reference No. 1 to Station VOLT-I.W.C.				60.82 feet

MONUMENT 11 ECC.-I.W.C. (New York, Niagara County; 1912; 1941)--On the United States side of the Niagara River just west of the New York Central and Hudson River Railroad tracks and about 3/8 mile north of Niagara University. The station is 87.725 feet south of Monument 11, on the high bank of the river, just north of the line fence of the old Electric Transmission Building lot. It was recovered but was not permanently marked because of its proximity to the monument.

COLLEGE-I.W.C. (New York, Niagara County; 1912-1941; 1956)--On the high bank overlooking the Niagara River, on the opposite side of the concrete highway from the Niagara University buildings. The station is west of the south end of the most northerly building which has a cupola surmounted by a cross. It is 10 feet east of the edge of the cliff above the Niagara Gorge Railway and 15 feet below the level of the highway. References O.K.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 2-1/2 feet in depth. The subsurface mark is a brass screw set 2-1/2 feet underground in the top of a cylinder of concrete 8 inches in diameter and 1 foot in depth. There are two

references. No. 1 is a drill hole in the west curb of the highway at a point opposite the main door of the most northerly building and just south of a curve in the highway. No. 2 is a drill hole in the west curb of the highway on the bank above an overturned octagonal pillar of concrete about 4 feet in diameter and 10 feet in length. The pillar lies below the bank about 20 feet west of the curb. Slope distances to the references are:

	Distances
Reference No. 1	145.55 feet
Reference No. 2	103.65 feet

DEVIL-SUB (New York,Niagara County;J.G.Hefty,1941)--About 2000 feet southwest of Niagara University, in the Devil's Hole State Park, on the top of the high cliff overlooking the Niagara River. The station is in the western corner of the northernmost of two projections of the edge of the cliff at the Devil's Hole and lies between the edge of the cliff and the iron railing around the park. It is about 2 feet from the cliff's edge and 8 inches outside the railing. Probably O.K. in 1956, high grass.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete, 6 inches in diameter and 1-1/2 feet in depth. The subsurface mark is a brass screw set 2 feet below the surface of the ground in the top of a cylinder of concrete, 8 inches in diameter and 6 inches in depth. There are two references. No. 1, 5.91 feet southeast of the station, is an iron post supporting the railing. No. 2, 5.2 feet north of the station, is a similar post.

TIE-SUB (Ontario,Welland County;J.G.Hefty,1941;1956)--On the Canadian side of the Niagara River about 2-1/2 miles north of the Whirlpool Rapids bridge; 21 feet east of the river road from Niagara Falls to the Ontario Hydroelectric Power Plant. The station is 6 inches west of a line of small trees planted on the east side of the road and 126 feet south of the east end of an 8-inch diameter drain pipe under the highway.

Station mark: An I.B.C. standard bronze-disk station mark cemented in a drill hole in solid ledge rock 8 inches below the surface of the ground. There is no surface mark. There are two references. No. 1 is a drill hole 3/4 inch in diameter in ledge rock showing 6 by 5 feet flush with the surface of the ground. The mark is northeast of the station and 18 feet west of the old bed of the International Railway Company car tracks. No. 2 is an I.B.C. standard bronze-disk station mark cemented in a drill hole 3/4 inch in diameter in ledge rock showing 18 by 8 feet flush with the surface of the ground. The mark is southeast of the

station and 15 feet west of the car track bed. Directions and distances to the references are:

	Directions	Distances
Monument 12	0° 00' 00"	
Reference No. 1	47 18 00	27.00 feet
Reference No. 2	121 12 00	24.66 feet

BESS-I.W.C. (New York, Niagara County; 1912; 1941; 1956)--In Rapids Boulevard Park on top of the high cliff overlooking the Niagara River and on the opposite side of Niagara Boulevard from the corner of Rankine Road. The station is 35 feet south of the extension of the curbing along the south edge of Rankine Road. It is about 15 feet east of the edge of the cliff and 15 feet west of a gravel footpath through the park. Opposite the entrance to Rankine Road, on the west side of Niagara Rapids Boulevard, is a woven wire guard fence supported by 10 concrete posts.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 2-1/2 feet in depth. The subsurface mark is a brass screw set 2-1/2 feet underground in the top of a cylinder of concrete 8 inches in diameter and 1 foot in depth. There are two references. No. 1 is a fire hydrant on the north side of the entrance to Rankine Road. No. 2 is a drill hole in a rock 3 by 3 feet. The rock projects 2 feet above the surface of the ground and is situated between the footpath and the boulevard. Distances to the references are:

	Distances
Reference No. 1	139.92 feet
Reference No. 2	32.77 feet
South post of guard fence	60.98 feet

MOSES-SUB (Ontario, Welland County; J.G. Hefty, 1941; 1956)--About 3 miles north of the Niagara River Falls, on the high cliff overlooking the Niagara River. The station is about 84 feet from Niagara Boulevard and 30 feet back from the edge of the cliff. It is about 100 feet north of the first highway curve north of the entrance to the north side of the Whirlpool aerial tramway and 100 feet south of the curve south of the crest of the hill. It is about midway between the cliff and the roadbed of the old Niagara Gorge Railway. Shank only in 1956.

Station mark: An I.B.C. standard bronze-disk station mark cemented in a drill hole in solid bedrock 8 inches underground. There are two references. No. 1 is an I.B.C. standard bronze-disk reference mark cemented in an outcrop of rock between the old railway bed and the edge of the cliff, with the arrow pointing toward the station. No. 2 is the top of a drill set in a concrete cylinder about 8

inches in diameter. It is about 15 feet east of the edge of the highway. Directions and distances to the references are:

	Directions			Distances
Station BESS-I.W.C.	0°	00'	00"	
Reference No. 1	153	35	32	30.84 feet
Reference No. 2	214	46	30	78.30 feet

DeVEAUX-I.W.C.(New York,Niagara County;1912;1941)--In the north end of Niagara Falls, New York, on the high cliff overlooking Niagara River, about 300 feet north of the intersection of Highway 31 with Niagara Rapids Boulevard and 300 feet southwest of the entrance to Vanderbilt Avenue. The station is about 100 feet west of the west curb of the boulevard and 10 feet from the edge of the cliff. Reference No. 2 O.K. in 1956. Station probably O.K. but covered.

Station mark: An I.B.C. standard bronze-disk station mark cemented, a little below the general ground level, in a drill hole in bedrock. There are two references. No. 1 is an I.B.C. standard bronze-disk reference mark set flush with the surface of the ground in the top of a cylinder of concrete 6 inches in diameter and 3 feet in depth. An arrow on the mark points toward the station. No. 2 is a drill hole in a 2 by 3 feet rock outcrop below the bank. The rock is flush with the surface of the ground. Directions and distances to the references are:

	Directions		Distances
Moses-Sub	0°	00'	
Reference No. 2	151	41	11.83 feet
Reference No. 1	235	18	81.55 feet

JUNIOR-SUB (Ontario,Welland County;J.G.Hefty,1941;1956)--On the Canadian side of the Niagara River on the top of the high cliff overlooking the Whirlpool and about 1/2 mile south of Niagara Glen. The station is 8 feet south of a parking area formed by widening the highway to about double width. A guard rail extends along the south edge of this parking area. The station is about 60 feet north of the edge of the cliff, 300 feet east of a fork in the highway, and 400 feet east of a red fire hydrant situated in the center of an open field.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 18 inches in depth. The subsurface mark is a brass screw set 18 inches underground in the top of a similar cylinder of concrete.

DAVID-SUB (Ontario,Welland County;J.G.Hefty,1941;1956)--On the Canadian side of the Niagara River on a rock shelf 100 feet above the river, at the point where Colts Creek empties

into the Whirlpool as a small waterfall. The station is about 50 feet northwest of a culvert in the creek and about 300 feet northeast of the highway which runs along the top of the cliff above the river. It is 4 feet from the edge of the rock shelf, in the middle of a little-used path along the gorge.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 10 inches in diameter and 18 inches in depth. The subsurface mark is a brass screw set 18 inches underground in the top of a cylinder of concrete 1 foot in diameter and 1 foot in depth. There are two references. No. 1 is a drill hole 1 inch in diameter and 1 inch in depth cut in the top of a concrete abutment at a point 51.35 feet southwest of the station. No. 2 is a similar drill hole in a flat black rock, 3 feet square and flush with the surface of the ground, in the center of the path along the gorge, and 25.6 feet southwest of the station.

WHIRL-SUB (Ontario,Welland County;J.G.Hefty,1941;1956)--On the Canadian side of the Niagara River on the top of the high cliff overlooking the river and near the Whirlpool Aero-Car south landing. The station is about 10 feet south of the cliff's edge.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 15 inches in depth. The subsurface mark is a bronze plug set 15 inches underground in the top of a cylinder of concrete 10 inches in diameter and 18 inches in depth. There are two references. No. 1, 35.6 feet west of the station, is the concrete pier under the east corner of the small building at the landing. No. 2 is a drill hole, 1 inch in diameter and 1 inch in depth in the top of a granite-topped stone wall along the sidewalk leading to the landing, 55.6 feet south of the station. Two references O.K. station probably lost in 1956.

POOL-SUB (New York,Niagara County;J.G.Hefty,1941;1956)--On the United States side of the Niagara River in Whirlpool State Park, on the top of the high cliff above the river. The station is at the western edge of a flagstone area about 30 feet in diameter overlooking the Whirlpool. It is about 4 inches east of an iron railing along the edge of this area and 30 feet west of the park dedication tablet.

Station mark: An I.B.C. standard bronze-disk station mark cemented, flush with the surface, in one of the flagstones. There is no subsurface mark.

BURR-SUB (New York,Niagara County;J.G.Hefty,1941;1956)--On the United States side of the Niagara River in the north

end of the city of Niagara Falls, New York, on the top of the high cliff overlooking the river. It is about 3/8 mile north of the Whirlpool Rapids Bridge, and is situated on property owned by the New York State Park Commission. The station is west of the end of Chestnut Street, about 15 feet east of the edge of the cliff and 6 feet east of a gravel footpath running along the edge.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 18 inches in depth. The subsurface mark is a bronze plug set 18 inches underground in the top of a cylinder of concrete 8 inches in diameter and 15 inches in depth. There are two references. No. 1 is a drill hole in the east end of a 2 by 4 foot rock whose top is 1 foot above the surface of the ground. No. 2 is the top of the south end of the iron fence which runs along the western edge of the footpath. Directions and distances to the references are:

	Directions	Distances
Station POOL-SUB	0° 00' 00"	
Reference No. 1	20 50 30	27.90 feet
Reference No. 2	350 02 23	83.14 feet

RAPID (Ontario,Welland County;J.G.Hefty,1941;1956)--On the Canadian side of the Niagara River, several hundred feet north of the west end of the Whirlpool Rapids Bridge. The station is the center of the metal flagpole welded solidly to the inside of the south wall on the roof of the Whirlpool Rapids Elevator Building. The station was occupied eccentrically.

CUSTOM (New York,Niagara County;J.G.Hefty,1941;1956)--On the United States side of the Niagara River, on the roof of the United States Customs House immediately north of the Whirlpool Rapids Bridge and east of Whirlpool Street. Measured on a line parallel with the north-south edge of the roof, the station is 0.13 foot north of the nearest part of an iron ventilator. It is 1.18 feet east of the nearest part of the north-south side of the flat part of the roof. Probably O.K. in 1956. Distances to the corners of the flat part of the roof are:

Northwest corner	5.30 feet
Northeast corner	46.14 feet
Southeast corner	52.60 feet
Southwest corner	27.25 feet

POST-SUB (Ontario,Welland County;J.G.Hefty,1941;1956)--On the Canadian side of the Niagara River in the city of Niagara Falls, Ontario, on the flat roof of a stone building, the Department of National Revenue, situated on the corner

of Park and Clifton Streets. The station, a .14 by .14 foot wooden hub nailed to the east side of a wooden block at the base of the southern iron rod support for the building flagpole, is 0.26 foot from the north end of the block and 0.60 foot from the south end of the block. At an elevation of 3.6 feet above the station, the distance to the nearest part of the flagpole is 4.63 feet. The station is 20.11 feet from the nearest corner of a stone chimney also situated on the roof and 27.6 feet from the southwest corner of the roof. The direction and distance to the center of the flagpole are.

	Direction	Distance
St. Andrew's Church	0° 00' 00"	
Center of flagpole	9 53 10	4.78 feet

CLOVER-SUB (New York,Niagara County;J.G.Hefty,1941;1956)--On the United States side of the Niagara River, in the city of Niagara Falls, near the First Congregational Church. The station is on the top of the high cliff overlooking the river and lies between the edge of the cliff and the New York Central and Hudson River Railroad tracks. It is about 130 feet south of the point where Whirlpool Street crosses these tracks and about 30 feet south of a large house with a concrete block cellar wall. The station is 6 feet east of the edge of the cliff. A railroad signal and switch tower stands at the crossing on the south side of Whirlpool Street.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 18 inches in depth. The subsurface mark is a brass screw set 18 inches underground in the top of a similar cylinder of concrete. There are four references. No. 1 is the corner of the concrete pier at the west end of the sidewalk which runs along the south side of the house. No. 2 is the southeast corner of the concrete cellar wall of the house. No. 3 is the nearest point on the railroad track. No. 4 is the northwest corner of an I-beam set on end on the ground just south of the station. Distances to the references are:

	Distances
Reference No. 1	34.81 feet
Reference No. 2	42.635 feet
Reference No. 3	66.87 feet
Reference No. 4	18.06 feet

RED-SUB (Ontario,Welland County;J.G.Hefty,1941;1956)--On the Canadian side of the Niagara River on a small point of land on the top of the high cliff overlooking the river. It is about midway between the points of intersection of Ellis and Simcoe Streets with River Road, across River Road from house No. 893, and on the outside of the stone wall which runs along the east side of the road. The station is 10 feet

east of the wall, 8 feet from the edge of the cliff, and about 5 feet southwest of an oak tree 2 feet in diameter.

Station mark: An I.B.C. standard bronze-disk station mark set 1 inch above the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 15 inches in depth. The subsurface mark is a brass screw set 15 inches underground in the top of a similar cylinder of concrete. There are two references. No. 1 is an iron post 1 foot east of the wall. Mounted on the post is a sign reading "King's Highway No. 8." No. 2 is a 4 by 4 inch cross cut into the base of the wall opposite the station. Distances to the references are:

	Distances
Reference No. 1	30.61 feet
Reference No. 2	9.92 feet

The original station mark for "RED-I.W.C." was recovered but there is evidence that it had been slightly moved. It was not re-marked. It was found 47.725 feet from "RED-SUB" in azimuth 29° 03' 03".

SOX-I.W.C.(New York,Niagara County;1912;1941;1956)--On the United States side of the Niagara River in the city of Niagara Falls, about 1/2 mile south of the Whirlpool Rapids Bridge and on the top of the high cliff overlooking the river. The station is situated on a grass plot between the edge of the cliff and the New York Central and Hudson River Railroad tracks at a point about 15 feet east of the cliff's edge. It is west of the intersection of Orchard Parkway with Third Street.

Station mark: An I.B.C. standard bronze-disk station mark set 1 inch above the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 18 inches in depth. The subsurface mark is a brass screw cemented 18 inches underground in a crack in the bedrock. There are two references. No. 1 is a cross cut into the top of a 6 inch square stone, probably a land boundary stone, set in the ground and projecting about 4 inches above its surface. The stone is 3 feet east of the path which runs along the edge of the cliff, and it is just south of a fork in the path. No. 2 is a drill hole 3/4 inch in diameter and 1-1/2 inches in depth in the top of a triangular rock, 30 inches on a side, whose top projects 8 inches above the surface of the ground. The rock is south of the station at a point about 20 feet east of the edge of the cliff and 5 feet east of the path. Directions and distances to the references are:

	Directions	Distances
Station POST-SUB	0° 00' 00"	
Reference No. 1	47 31 00	20.74 feet
First Congregational Ch.	48 24 20	
Reference No. 2	209 11 30	92.27 feet

See description of "SOX-SUB"

SOX-SUB (New York,Niagara County;J.G.Hefty,1941;1956)--On the United States side of the Niagara River in the city of Niagara Falls, about 1/2 mile south of the Whirlpool Rapids Bridge and on the top of the high cliff overlooking the river. The station is about 25 feet east of the edge of the cliff.

Station mark: An I.B.C. standard bronze station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 15 inches in depth. An arrow cut into the station mark points toward "SOX-I.W.C." which it serves as a reference. The subsurface mark is a brass screw set 15 inches below the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 12 inches in depth. SOX-I.W.C. is 34.94 feet from the station in azimuth 23° 47'. See description of "SOX-I.W.C."

ROPE-SUB (Ontario,Welland County;J.G.Hefty,1941;1956)--On the Canadian side of the Niagara River about one mile north of the American Falls on the top of the high cliff overlooking the river and about 5 feet from the edge. The station is on the outside of the wall which runs along the east side of River Road and is situated at a point about 160 feet from the end of Seneca Street and 240 feet from the end of Otter Street, Niagara Falls, Ontario.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 16 inches in depth. The subsurface mark is a brass screw cemented 16 inches underground in a depression in the rock. There are two references. No. 1 is a punch hole in the coping of the wall at a point directly above a 1-inch drill hole which is 2.1 feet above the surface of the sidewalk. The line from the reference to the station makes a right angle with the river. No. 2 is a similar mark directly above another 1-inch drill hole situated 2.1 feet above the surface of the sidewalk. This reference is on the opposite side of the station from the United Office Building in Niagara Falls, New York, and on line with the two.

Azimuths and distances to the references are:

	Azimuths	Distances
United Office Bldg. Flag	353° 48' 34"	
Reference No. 1	144 42 24	37.50 feet
Reference No. 2	173 48 34	45.50 feet

GIANT-SUB (New York,Niagara County;J.G.Hefty,1941;n.r.1956)--On the United States side of the Niagara River in the city of Niagara Falls, on the top of the high cliff overlooking the river. The station is about midway between the Aluminum Company buildings and the tower above the sewer outlet 1/4

mile north of the buildings. It is almost due west of a bridge of the New York Central and Hudson River Railroad over a winding gravel road which leads from Third Street to the remains of an old hotel on the cliff's edge. The station is about 6 feet east of an iron picket fence where the fence makes a right angle just south of the hotel site. Not recovered in 1956 but probably O.K.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 15 inches in depth. The subsurface mark is a brass screw set 15 inches underground in the top of a similar cylinder of concrete. There are four references. No. 1 is the northeast corner of the iron fence post at the fence corner just east of the station. No. 2 is the southwest corner of the concrete wall of the old hotel. No. 3 is the southeast corner of the iron fence post at the end of the fence just northwest of the station. No. 4 is the northeast corner of the iron fence post at the fence corner just south of the station. Distances to the references are:

	Distances
Reference No. 1	14.15 feet
Reference No. 2	21.64 feet
Reference No. 3	17.28 feet
Reference No. 4	8.10 feet

TUG-SUB (Ontario,Welland County;J.G.Hefty,1941;1956)--On the Canadian side of the Niagara River, on the top of the high cliff overlooking the river, on a prominent point of land about one-fourth mile north of the Rainbow Arch Bridge. The station is about 50 feet north of the tip of the point and one-half block north of the intersection of John Street, Niagara Falls, Ont., with River Road. It is about midway between the edge of the cliff and the stone wall along the east side of River Road and about 12 feet east of a double tree, the largest tree on the point.

Station mark: An I.B.C. standard bronze-disk station mark set nearly flush with the surface of the ground in the top of a cylinder of concrete 1 foot in diameter and 1 foot in depth. The subsurface mark is a brass screw cemented 1 foot underground in a drill hole in the bedrock. There are three references. No. 1 is a drill hole 1 inch in diameter and 1-1/2 inches in depth in the top of a large boulder showing a triangular surface about 30 inches on a side. The east side of the boulder is about 18 inches above the surface of the ground and the west side is about flush. The boulder is 6 feet east of the wall and 7 feet north of the double tree. No. 2 is an iron post 3 feet east of the wall and 12 feet south of the tree. Mounted on the post is a sign reading "King's Highway No. 8." No. 3 is a drill hole 1 inch in

diameter and 1 inch in depth in a rock showing an area about 1 foot square, flush with the surface of the ground. The rock is about 8 feet from the edge of the high cliff. directions and distances to the references are:

	Directions			Distances
Station ROPE-SUB	0°	00'	00"	
Reference No. 3	126	42	40	17.17 feet
Reference No. 2	222	24	05	22.53 feet
Reference No. 1	288	36	45	20.73 feet
"TUG-I.W.C." (not marked)	161	51	38	76.00 feet

POWER (New York,Niagara County;J.G.Hefty,1941)--On the United States side of the Niagara River, about 660 feet north of the United States end of the Rainbow Arch Bridge, on the top of the high cliff overlooking the river. The station is about 10 feet east of the retaining wall above the escarpment at the point where a second wall, about the same height but only 30 feet in length, bulges out about 10 feet. The station lies between the edge of the cliff and the parallel iron mesh fence of the Niagara Hudson Power Company. It is south of the line of buildings and is approached through the Power Company's premises.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 2 feet in depth. The subsurface mark is a brass screw set 2 feet underground in the top of a cylinder of concrete 8 inches in diameter. There are three references. No. 1 is the top of the post at the north end of the iron fence. No. 2 is the top of the seventh post from the north end of the fence. No. 3 is the east side of the post at the west end of the fence which intersects the iron mesh fence. Directions and distances to the references are:

	Directions			Distances
Station "TUG-SUB"	0°	00'	00"	
Reference No. 1	78	45	49	70.04 feet
Reference No. 2	159	40	37	6.92 feet
Reference No. 3	246	16	57	204.88 feet

RAINBOW (New York,Niagara County;J.G.Hefty,1941;1956)--On the deck of the Rainbow Arch Bridge across the Niagara River between Niagara Falls, N. Y., and Niagara Falls, Ont. The station is on the raised curb section that separates the east-bound traffic from the west-bound traffic, about 145 feet westerly from the eastern or United States end of the arch span. It is 4.25 feet westerly from the center line of the fourth manhole from the United States end of the span, and 0.58 foot from the north edge of the curb. The line "Rainbow-Arch" is parallel with the center line of the bridge.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface in a drill hole in the concrete.

ARCH (Ontario,Welland County:J.G.Hefty,1941;1956)--On the deck of the Rainbow Arch Bridge across the Niagara River between Niagara Falls, N. Y., and Niagara Falls, Ont. The station is on the raised curb section that separates the east-bound traffic from the west-bound traffic. It is near the west or Canadian end of the bridge, 1.16 feet from the end of the raised curb and 0.58 foot from the north edge; it is 16.3 feet westerly from the center of the nearest lamp post. The line "Arch-Rainbow" is parallel to the center line of the bridge.

Station mark: An I.B.C. standard bronze-disk station mark set in a drill hole in the concrete.

CLIFTON-SUB (Ontario,Welland County;J.G.Hefty,1941;1956)--On the west side of the Niagara River in the city of Niagara Falls, Ont., in Queen Victoria Park, on the top of the high cliff overlooking the river. The station is about 1-1/2 feet outside the stone wall along the east side of the park and 40 feet north of the top of the Clifton Incline to the "Maid of the Mist" dock.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 14 inches in depth. The subsurface mark is a brass screw set 15 inches underground in the top of a cylinder of concrete 8 inches in diameter and 1 foot in depth. There are two references. No. 1 is the outside edge of the concrete block in the top of the wall at the top of the Clifton Incline. No. 2 is the outside edge of the concrete topping on the stone wall at the nearest point to the station. Distances to the references are: Station to No. 1 is 38.8 feet. Station to No. 2 is 1.74 feet.

STATE-SUB (New York,Niagara County;J.G.Hefty,1941)--On the United States side of the Niagara River, about 220 feet north of the American Falls, in the New York State Reservation; on the top of the high cliff overlooking the river. The station is on the first projecting point of the cliff north of the falls, about 8 inches west of the iron railing around the reservation, and about 3 feet from the edge of the cliff.

Station mark: An I.B.C. standard bronze-disk station mark cemented flush with the surface of the ground in a drill hole in the ledge rock. There are two references. No. 1, which is 89.37 feet from the station, is the southwest corner of the building which houses the elevator to

the foot of the falls. No. 2, which is 41.82 feet from the station, is the railing upright on the next projecting point north of the station.

QUEEN-SUB (Ontario,Welland County;J.G.Hefty;1941;1956)--On the Canadian side of the Niagara River, about 1,500 feet north of Horseshoe Falls, on the top of the high cliff overlooking the river. The station is near the southern end of a recess in the stone wall which runs along the edge of the cliff. This recess is just north of the power plant outlet opposite Goat Island and directly across the road from a large tank situated just north of the Park Restaurant.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of an asphalt walk in the top of a cylinder of concrete 6 inches in diameter and 1 foot in depth. The subsurface mark is a brass screw set 1 foot underground in the top of a cylinder of concrete 6 inches in diameter and 6 inches in depth. There are three references. No. 1 is the southeast corner of a square drain at the east edge of the road. No. 2 is the corner of the stone wall at the southern entrance to the recess. No. 3 is the sharp wall corner between the main recess and the smaller recess just south of it. Distances to the references are:

	Distances
Reference No. 1	27.25 feet
Reference No. 2	6.77 feet
Reference No. 3	18.10 feet

LUNDY-I.W.C.(Ontario,Welland County;1912;1941)--On the Canadian side of the Niagara River, a little upstream from the crest of the Horseshoe Falls, on the grounds of the Ontario Hydroelectric Power Company. The station is about 4 feet from the edge of the river bank at a point opposite the southernmost end of the curve of the Horseshoe Falls. The bank is protected at this point by a heavy rip-rap. The station is 5 feet from a footpath and about 70 feet from the east curb of the boulevard in Queen Victoria Park.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 18 inches in depth. The subsurface mark is a brass screw set 18 inches underground in a similar cylinder of concrete. Station "LUNDY-SUB" is 65.79 feet from the station in azimuth 189° 38'. (See description of "LUNDY-SUB")

LUNDY-SUB (Ontario,Welland County;J.G.Hefty;1941;1956)--On the Canadian side of the Niagara River, a little upstream from the crest of the Horseshoe Falls, on the property of the Ontario Hydroelectric Power Company. It is situated on a concrete pier about 4 feet from the water's edge and

about 8 feet above the water level. The station is about 225 feet northeasterly of a small stone octagon-shaped gardner's house. It is 20.48 feet east of triangulation station "CANAL-U.S.L.S." which is marked by a cross cut in a one-fourth inch bolt in the top of a rough stone 12 by 18 by 18 inches placed 3 inches underground. It is 21.35 ft. from the northeast corner of the pier and 5.04 feet from the southeast corner of the pier.

Station mark: A one-half inch copper plug with a drill hole in the center of a cross cut in one end. The plug is cemented flush with the surface of the pier in a drill hole in the concrete. The azimuths and distances to the marked points nearby are:

	Azimuth	Distance
Lundy-I.W.C.	9° 38'	65.79 feet
Canal-U.S.L.S.	74 30	20.48 feet

(See description of station "LUNDY-I.W.C.")

TERRAPIN-U.S.L.S.(New York,Niagara County;1886;1941;1956)--The station was found as described by the U.S. Lake Survey and occupied by the International Boundary Commission in 1941 as a point in their main triangulation scheme. The station was established in 1886 by R. S. Woodward for the U.S. Geological Survey and occupied by the International Waterways Commission in 1912. It is probably very close to the point of the same name used by the U. S. L. S. in 1875.

Station mark: A cross on a brass bolt expanded into a drill hole in the top of Terrapin Rock on the Goat Island side of the Horseshoe Falls. The name "Terrapin" is cut in rude letters on the rock around the station. A bridge leads from Goat Island to the rock and a path surrounds it. Bridge gone in 1956.

PARK-I.W.C.(Ontario,Welland County;1912;1941;1956)--On the Canadian side of the Niagara River, about 15 feet north of the middle tree of the three northernmost maple trees of a group of five. The station is about 10 feet from the path which runs along the river bank and about 30 feet from the edge of the bank. It is 24.8 feet from the nearest part of the of the northwest maple, 13.1 feet from the nearest part of the middle maple, and 25.2 feet from the nearest part of the east maple. The station is in azimuth 118° 31' distant 146.58 feet from station "PARK-SUB" which was substituted for it in the main triangulation scheme of 1941. (See description of "PARK-SUB")

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter. The subsurface mark is a brass screw in the top of a concrete cylinder set on bedrock 18 inches underground. Disk 3 inches above ground in 1956.

PARK-SUB (Ontario,Welland County;J.G.Hefty,1941;1956)--On the Canadian side of the Niagara River, near the northeast corner of the Electrical Development Company power house (cornerstone laid May 8, 1906 by Sir William Mortimer Clark, K. C., Lt. Gov. of Ontario). The station is 6 feet from the edge of the river bank and lies between the bank and a fence running along the river near the edge. The bank at this point is protected by large cut-stone blocks. Station mark 3 inches underground in 1956.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 2 feet in depth. The subsurface mark is a brass screw set 2 feet underground in the top of an 8-inch cylinder of concrete. There are two references. No. 1 is a drill hole in the bottom stone of a cut-stone ornamental fence northeast of a set of circular stone steps. No. 2 is the northwest corner of the bottom step of a set of four steps leading up to a terrace. Azimuths and distances to the references are:

	Azimuths	Distances
Reference No. 2	7° 20'	149.48 feet
*"Park-I.W.C."	118 31	146.58 feet
Reference No. 1	307 15	42.5 feet

*See description of station "PARK-I.W.C."

BENCH-SUB (New York,Niagara County;J.G.Hefty;1941;n.r.in 1956) On the United States side of the boundary, on the rock reef extending south from the upper end of Goat Island. With the river at normal stage, the reef and the station are covered by water. The station is about 20 feet south of the normal shore line and about 145 feet from the upper end of the island. It is directly south of a group of five willows growing from a single root. Buried 2 feet in 1956.

Station mark: An I.B.C. standard bronze-disk station mark cemented flush with the surface of the ground in a drill hole in the ledge rock. There is one reference, station "GOAT-U.S.L.S." The direction and the distance from the station are:

	Direction	Distance
Station "GRASS-I.W.C."	0° 00' 00"	
Station "GOAT-U.S.L.S."	195 59 06.8	62.50 feet

GOAT-U.S.L.S.(New York,Niagara County;1912;1941;n.r.in 1956)--The description of "GOAT-U.S.L.S.", recovered in 1941, differs from the descripton of "GOAT-U.S.L.S.", established in 1906. The 1941 description reads:

On the United States side of the boundary, on the extreme upper point of Goat Island. The station is 8 feet from the bottom of the bank, 25 feet from the high-water

mark, and 113 feet east of a blaze on an elm tree 2 feet in diameter. Tree O.K. in 1956.

Station mark: A one-half-inch square iron bolt stamped "39", projecting 2 inches above a rock or concrete surface 1.4 feet below the surface of the ground in a piece of 10-inch drain tile. The drain tile has a loose cover of concrete. There is one reference, a U. S. Lake Survey standard bronze-disk reference mark 4.12 feet northeast of the station, set in the top of a piece of concrete-filled stovepipe. Station "BENCH-SUB" is 62.50 feet southeast of the station. All marks under 2 feet of fill in 1956.

HIGH-I.W.C. (Ontario, Welland County; 1912; 1941)--On the Canadian side of the Niagara River, on the high bank of the river just above the Upper Rapids. The station is about midway between the curve of the road at the crest of the hill above the south end of Queen Victoria Park and the culvert near the road bend southeast of the station. It is about 5 feet from the edge of the river bank, about 90 feet from the road, and 88.00 feet slope distance from the nearest corner of the Hydroelectric Power Company cable house (a 4 by 4 by 7 foot concrete building).

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 2 feet in depth. The subsurface mark is a brass screw set 2 feet underground in the top of a cylinder of concrete 8 inches in diameter. There are two references. No. 1 is a cross cut on the end of a railroad rail set upright at a point about 30 feet from the road and 2 feet from the fence which runs along the road. The reference is on the opposite side of the road from the station. No. 2 is a drill hole in the top of a buried rock about 8 by 8 by 14 inches, with its top flush with the surface of the ground. Directions and distances to the references are:

	Directions			Distances
Station GRASS-I.W.C.	0°	00'	00"	
"BANK-U.S.L.S."*	53	08		54.69 feet
Reference No. 1	170	50	45.0	177.55 feet
Reference No. 2	216	05	00.0	63.65 feet

*See description.

BANK-U.S.L.S., 1906: On the Canadian side of the Niagara River on a point a short distance above the intake works of the Ontario Power Company. It is near the edge of the bank between the electric railway tracks and the river. The center is marked by a quarter-inch copper bolt leaded into a flat limestone about 9 inches across and 3 inches thick buried with its surface 16 inches underground. The surface mark is a cross on the top of a copper bolt leaded

in the top of a dressed stone set with its top flush with the surface of the ground. The letters "U. S. L. S." are cut, one in each corner, in the top of the stone.

HOG (Ontario,Welland County;J.G.Hefty,1941;n.r.in 1956)--On the Canadian side of the Niagara River, on the northern part of the peninsula that was formerly Hog Island. The station is on the western side of the canal at Chippawa, Ontario. At the north end of the peninsula a concrete weir with a water gate extends eastward to the mainland. Lost or buried under fill in 1956.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 2 feet in depth. The subsurface mark is a brass screw set 2 feet underground in the top of a cylinder of concrete 8 inches in diameter. There are four references. No. 1 is a brass screw cemented in a drill hole in a round-topped rock, 1 foot in diameter, whose top is flush with the surface of the ground. No. 2 is a similar mark in an irregularly-topped rock measuring 2 by 3 feet on the top and projecting about 6 inches above the surface of the ground. No. 3 is the inside corner of the intersection of the concrete weir with a concrete retaining wall on the island. No. 4 is the outside corner of the south end of the concrete retaining wall. Directions and distances to the references are:

	Directions	Distances
Station BENCH-SUB	0° 00' 00"	
Reference No. 1	106 02	8.66 feet
Reference No. 3	125 03	214.5 feet
Reference No. 4	215 09	122.0 feet
Reference No. 2	286 02	23.09 feet

GRASS-I.W.C.;U.S.L.S.(New York,Niagara County;1906;1940;1941) Found as described in 1940 and revised to read as follows:

On the United States side of the boundary, on the west end of Grass Island, near the entrance to the intake canal of the Niagara Falls Power Company's upper plant. The station is 56 feet from the southeast corner of the bridge over the canal.

Station mark: A cross cut on a U. S. L. S. standard bronze disk station mark set flush with the surface of the ground in the top of a cylinder of concrete. There are four references. No. 1 is a U. S. L. S. standard bronze-disk reference mark set 2 inches above the surface of the ground in the top of a cylinder of concrete. The reference is 25 feet from a timber revetment at the west end of the island and on line from the station to the tower of the Shredded Wheat Building. No. 2 is a similar mark approximately on line to the northeast corner of a powder house

nearby. No. 3 is the northwest corner of the stone gage-house. No. 4 is the northeast corner of the powder house. Directions and distances to the references are:

	Directions			Distances
Station CONNER-SUB	0°	00'	00"	
Reference No. 1	204	06	10.0	33.120 feet
Reference No. 2	79	36	10.0	10.805 feet
Reference No. 3	36	55	30.0	140.0 feet
Reference No. 4	79	26	40.0	79.20 feet

CONNER-SUB (New York,Niagara County;J.G.Hefty;1941)--On the southeast rounded extremity of Conners Island in the Niagara River. Diligent search failed to recover the original station "CONNER I.W.C. 1909" for which this new station is a substitute. The new station is 25 feet from the edge of the marsh grass and 30 feet from the edge of the water.

Station mark: The station is located on soft ground where it is not feasible to maintain a permanent mark. Therefore, the station was marked with a nail in a wooden hub and permanently referenced. The reference marks are: No. 1 is a 3/4-inch drill hole 3/4-inch deep in a rock 4 by 5 feet in area and 2 feet above ground at the edge of the land in the marsh west of the station. Reference mark No. 2 (Conner-1941) is an I.B.C. standard bronze-disk station mark set nearly flush with the ground in top of a cylinder of concrete 8 inches in diameter and 15 inches in depth. There is a subsurface mark, a brass screw set in a block of concrete 15 inches underground. This mark is on the highest part of the island, 40 feet from the south bay, 60 feet from the north shore and 80 feet from the east end of the island. Reference mark No. 3 is a navigation mark consisting of cross-arms on a steel I-beam post. The directions and distances to the references are:

	Directions			Distances
Station FOOT-SUB	0°	00'	00"	
Reference No. 1	104	46	40	38.14 feet
Reference No. 3	174	53	00	104.59 feet
Reference No. 2 (Conner-1941)	176	37	20	89.96 feet

The distance between reference marks 2 and 3 is 14.63 feet.

LOWER-SUB (New York,Erie County;J.G.Hefty;1941;1956)--On the United States side of the boundary, on the northern side of Buckhorn Island, about 800 feet east of the western tip of the island and about one-half mile west of the north Grand Island bridge. The station is about 18 feet from the water's edge and about 600 feet north of an east-west gravel road. Under 2 feet water in 1956.

Station mark: An I.B.C. standard bronze-disk station mark set 1 inch above the surface of the ground in the top of a cylinder of concrete 7 inches in diameter and 16 inches in depth. The subsurface mark is a brass screw set 18 inches underground in the top of a cylinder of concrete 7 inches in diameter and 18 inches in depth. There are two references. No. 1 is a 1-inch drill hole, 7.54 feet east of the station, in the top of a 1-foot square boulder whose top projects about 6 inches above the surface of the ground. An arrow cut in the rock points toward the station. No. 2 is a navigation signal consisting of a vertical steel I-beam 10 feet in height, having two cross-arms. The signal, which is painted white, is 55.22 feet west of the station. Directions and distances to references are:

	Directions	Distances
Station BURNT-SUB	0° 00' 00"	
Reference No. 2	102 54 34	55.22 feet
Station TRIPLE-U.S. Eng. *	301 05 39	167.50 feet
Reference No. 1	330 01 24	7.54 feet

*See description of "TRIPLE-U.S. ENG."

TRIPLE-U.S.ENG: The mark recovered in 1941 is an iron rod 1-1/4 inches in diameter projecting vertically about 18 inches out of a cylinder of concrete about 10 inches in diameter firmly set in the ground. The ground has been eroded from around it and the concrete has weathered away until its top is about level with the present ground level. The top of the original mark was found lying on the ground nearby. It consisted of a disk of concrete about 10 inches in diameter and 6 inches thick. In it was a U. S. Engineers standard bronze-disk station mark stamped "TRIPLE." See description of "Lower-Sub." Probably lost in 1956.

FOOT-I.W.C.(Ontario,Welland County;1909;1940;1941;1956)--Found as described in 1940 and revised to read as follows:

On the extreme north end of Navy Island in the Niagara River, at the edge of the brush and opposite Conners Island.

Station mark: The original station mark as recovered was a brass bolt 3/8 inch in diameter set 6 inches above the surface of the ground in the top of a cylinder of concrete. The concrete cylinder was broken off at the ground surface but was still in place on the base. The old concrete with the station mark was reset in new concrete 20 inches underground and the original surface finder marked "I.W.C. 1909" was placed, with its top flush with the ground, over the station mark. See description of "FOOT-SUB."

FOOT-SUB (Ontario,Welland County;J.G.Hefty;1941;1956)--On the extreme north end of Navy Island in the Niagara River.

The station was established to avoid clearing lines of sight. It was in soft ground where it was not practicable to permanently mark it. Two permanent references were made. Reference mark No. 1 is an I.B.C. standard bronze-disk station mark set in a drill hole in a rock showing about 16 by 16 inches of surface 1 inch above the ground and located about 10 feet inside the tree line and about 8 feet outside the small marshy creek that flows back of the station and into the river a little to the west of the station. Reference No. 2 is station "FOOT-I.W.C." (see description of that station). The directions and distances to the references are:

	Directions	Distances
Station HOG	0° 00' 00"	
Reference No. 1	295 24 27	28.60 feet
FOOT-I.W.C.	346 46 40	42.71 feet

BURNT-SUB (New York,Erie County;J.G.Hefty;1941)--On the United States side of the boundary, near the northeast corner of Grand Island, about 500 feet north of a lone tree on the corner of the island. The station was in shaky ground and could not be permanently marked. A nail in the top of a 2 by 2 inch wooden hub was left as station mark.

BAILEY-I.W.C.(Ontario,Welland County;1909;1941;1956)--Found as described by angle and distance from Monument 22. The revised description reads as follows:

On the Canadian side of the boundary, on the northern shore of Navy Island in the Niagara River, about 100 yards below the remains of an old farmhouse on the island.

Station mark: A brass plug 3/8 inch in diameter set 2 feet below the surface of the ground in the top of a cylinder of concrete. There are no references. The station is in azimuth 79° 34', 36.70 feet from Reference Monument 22.

BOOM-I.W.C.(New York,Erie County;1909;1941;1956)--Found at the 1909 distance (163.38 feet) and azimuth (54° 03') from Monument 23. The 1909 description is revised to read as follows:

On the United States side of the boundary, on the western shore of Grand Island, about 2,000 feet south of the mouth of Burnt Ship Creek. The station is 9 feet from the river's edge (edge of grass). It is 1.1 feet west of an 8-inch cylinder of concrete marked "I.W.C. 1909" whose top is 1 inch below the surface of the ground. In vines under fallen tree in 1956.

Station mark: A 3/8-inch brass plug set flush with the surface of the ground in the top of a concrete-filled iron pipe 2 inches in diameter and 4 feet in length. A concrete

collar was built around the pipe as a marker. An elm tree is 63.75 feet from the station in azimuth 5° 14' 30" (center of tree).

CAMP-I.W.C.(Ontario,Welland County;1909;1940;1941;1956)--Found as described in 1940. Description revised to read as follows:

On the Canadian side of the boundary, on the southeast side of Navy Island in the Niagara River, about 100 feet south of the south end of the ruins of an old dock. The station is at the edge of the river bank which is rapidly breaking down and there is danger that the station will soon be gone. For this reason it was permanently referenced in 1941. The station is 70 feet north of a 7-inch elm, 46 feet south of a 20-inch oak, and 76 feet southeast of a 26-inch oak. It is 1 foot southeast of an 8-inch cylinder of concrete marked "I.W.C. 1909," whose top is flush with the surface of the ground.

Station mark: A 3/8-inch brass bolt set 15 inches underground in the top of a cylinder of concrete. There are two references. Reference No. 1 is the 3/4-inch drill hole 3/4 inch deep in the top of the north wing of the old concrete dock foundation. Reference No. 2 (referred to in the field notes as "CAMP-1941") is an I.B.C. standard bronze-disk station mark set in a drill hole in a rock showing 15 by 15 inches flush with the ground 28 feet from the high bank of the river in a little clearing near the approach to the old dock and 67.7 feet southeast of a 3-foot oak tree. Directions and distances to the references are:

	Directions	Distances
Boundary Reference Monument No. 23	0° 00' 00"	
Reference No. 1	84 01 00	34.61 feet
Reference No. 2 (CAMP-1941)	184 12 30	32.20 feet

COBB-I.W.C.(New York,Erie County;1909;1940;1941;1.in 1948)-Found from 1940 description which is revised to read as follows:

On the northwest end of Grand Island, one-half mile north of the intersection of Bedell and West River Roads, and about 125 feet south of the driveway to M. Carver's house. Across the road from M. Carver's house at a point northeast of the station a summer camp house and boathouse have been built. The station is 30 feet west of West River Road, 6 feet from the edge of the river bank, and 1 foot west of a cylinder of concrete set with its top 1 inch below the surface of the ground. Under graded parkway in 1956.

Station mark: A brass bolt 3/8 inch in diameter set 6 inches below the surface of the ground in the top of a

cylinder of concrete. There are two references. No. 1 is a U. S. L. S. standard bronze-disk reference mark set 2 inches above the surface of the ground in the top of a cylinder of concrete. The reference is situated in a line of elms on the east side of the road and bears N-61°-E from the station, distant 112.84 feet. No. 2 is a similar mark bearing S-30°-E from the station, distant 64.64 feet. No. 2, also, is in a line of elms on the east side of the road.

NAVY-SUB (Ontario,Welland County;J.G.Hefty;1941)--On the Canadian side of the boundary, on the southeast point of Navy Island, about 15 feet from the water's edge. Because of the condition of the ground, the station could not be marked. Monument 24 sees all the stations visible from "NAVY-SUB" except those east of the island.

SPRUCE-I.W.C.(Ontario,Welland County;1909;1940;1941;1956)--On the Canadian side of the Niagara River, about 2 miles north of the village of Chippawa. The station is 0.3 mile north of a schoolhouse at a road intersection and opposite the south end of a row of spruce trees growing along the west side of Queen Victoria Parkway. Two of these trees, directly across the parkway from the station, are blazed. The station is 18 feet east of the center of the parkway, 3 feet from the river bank, 25 feet from the water's edge, and 163 feet north of an arrow cut on a concrete culvert. It is about 4 feet east of the third post of the east guard rail of the parkway, counting north from the southern end of the guard rail.

Station mark: A brass bolt 3/8 inch in diameter set 6 inches below the surface of the ground in the top of a cylinder of concrete. There are two references. No. 1 is a U. S. L. S. standard bronze-disk reference mark set, with the arrow pointing toward the station, 2 inches above the surface of the ground in the top of a cylinder of concrete. It is on the east side of the parkway at the south end of the guard rail and bears S-23°-W from the station, distant 22.30 feet. No. 2 is a similar mark situated in the row of spruce trees on the west side of the road. It bears N-60°-W from the station, distant 41.72 feet.

WOODPILE-I.W.C.(New York,Erie County;1909;1940;1941;p.1.in 1956)--Found as described in 1940. Description is revised to read as follows:

On the west side of Grand Island, about 900 feet south of the intersection of West River Road and Bedell Road and in front of the residence of C. Reed. The station is 36 feet west of the center of West River Road, on the slope of a high bank at a point 6 feet from the top. A cylinder of concrete flush with the surface of the ground is 1 foot west of the station. Under new parkway.

Station mark: A brass bolt 3/8 inch in diameter set 1 foot underground in the top of a cylinder of concrete. The ground around the station is firm and the concrete cylinder is firmly in place. The top of the cylinder, however, is on a slope parallel to the surface of the bank and there are indications that the station mark may have moved. There are two references. No. 1 is a U. S. L. S. standard bronze-disk reference mark set 2 inches above the surface of the ground in the top of a cylinder of concrete. The reference is on the east side of West River Road near a junction telephone pole and bears S-84°-E from the station, distant 77.3 feet. It is near the intersection of a small side road with West River Road. No. 2 is a similar mark 18 feet west of West River Road and 10 feet east of the edge of the bank. The reference is on a line from the station to the northeast corner of A. A. Reed's residence and bears S-12°-E from the station, distant 41.4 feet.

WINDSOR-I.W.C.(New York,Erie County;1909;1941;1956)--Found as described in 1909; description revised to read as follows:

On the United States side of the boundary, on the western shore of Grand Island about 2,000 feet below Cooks Point and just below Whitehaven Road. The station is on the west side of West River Road at a point about one-half mile below Eagle Park. It is on the slope of a high bank, about 6 feet from the top. An 8-inch diameter concrete cylinder, whose top is 4 inches below the surface of the ground, is situated 1.1 feet northeast of the station. It is marked "I.W.C. 1909." At grade in 1956.

Station mark: A brass plug 3/8 inch in diameter set 14 inches underground in the top of a cylinder of concrete. The mark is firmly in place, but the top of the cylinder slopes parallel to the surface of the bank. There are three references. No. 1 is a thorn bush just west of the station. No. 2 is a 24-inch oak tree northeast of the station. No. 3 is an I.B.C. standard bronze-disk reference mark set flush with the surface of the ground, with an arrow pointing toward the station, in the top of a cylinder of concrete 10 inches in diameter and 3 feet in depth. The reference lies between the highway and the river at a point 10 feet west of the highway. It is 27.92 feet east of the station. Directions and distances to the references are:

	Directions	Distances
Station LEE-SUB	0° 00' 00"	
Reference No. 1	88 01	19.8 feet
Reference No. 2	185 26	143.0 feet
Reference No. 3	265 41 18	27.92 feet

LUTZ-I.W.C.(Ontario,Welland County;1909;1941)--Found by angle and distance from "LUTZ-SUB" (established in 1941)

because of the disappearance or destruction of all the 1909 references. The 1941 description is as follows:

On the Canadian side of the Niagara River, about 1-1/4 miles above Navy Island, on the top of the high bank of the river. The station is 24 feet west of the edge of the bank and 13.60 feet east of River Road. It is 13.20 feet southwest of a 10-inch elm and 50.30 feet northwest of a 12-inch elm. The station is 1.1 feet north of an 8-inch cylinder of concrete, marked "I.W.C. 1909," whose top is 4 inches below the surface of the ground.

Station mark: A 3/8-inch brass plug set 15 inches underground in the top of a cylinder of concrete. The station is referenced from "LUTZ-SUB." See description of that station.

LUTZ-SUB (Ontario,Welland County;J.G.Hefty;1941;1956)--On the Canadian side of the Niagara River, about 1-1/4 miles above Navy Island, on the top of the high bank of the river where a small point projects a short way into the river. The station is about 25 feet from the edge of the bank just above the point and 35 feet from the river. It is 35 feet east of River Road. The station is 41.00 feet southeast of the nearest face of a 20-inch horse-chestnut tree, 26.25 feet east of the nearest face of another 20-inch horse-chestnut tree, and 6.85 feet north of the nearest face of a 14-inch elm tree.

Station mark: An I.B.C. standard bronze-disk station mark set 1 inch above the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 14 inches in depth. The subsurface mark is a brass screw set 14 inches underground in the top of a similar cylinder of concrete. "LUTZ-I.W.C." is 241.00 feet distant from the station in azimuth 47° 02' 50".

MEYERS-SUB (Ontario,Welland County;J.G.Hefty;1941;1956)--On the Canadian side of the Niagara River, about 2 miles above Navy Island. The station is 6 feet from the edge of the high bank of the river, 30 feet from the river, and 12 feet southeast of the macadam road surface of the Queen Victoria Parkway. It is directly across the road from the only barn on Fox Head Farm which faces the main road. The station is 1 foot south of the extension across the main road of the ditch line along the south side of the driveway leading from the road to this barn. It is about 3 feet west of a large rock outcrop, 6 by 3 feet on the top, at the edge of the river bank. Across the road from the station is a drain pipe which lies in the ditch along the road and passes under the driveway at right angles. 400 feet south of side road in 1956.

Station mark: An I.B.C. standard bronze-disk station mark set 2 inches above the surface of the ground in the top

of a cylinder of concrete 8 inches in diameter and 14 inches in depth. The subsurface mark is a brass screw set 14 inches underground in the top of a similar cylinder of concrete. There are two references. No. 1 is a drill hole flush with the surface of the ground in the top of the rock outcrop. No. 2 is the center of the top of the south end of the drain pipe across the road. Distances and directions to the references are:

	Directions	Distances
Station LUTZ-SUB	0° 00' 00"	
Reference No. 1	14 29 07.8	6.25 feet
Reference No. 2	245 48 52.8	41.35 feet

EAGLE-SUB (New York,Erie County;J.G.Hefty,1941)--On the United States side of the boundary, on the west shore of Grand Island, about one-fourth mile south of Cook Point and one-fourth mile north of Eagle Park. The station is 17.75 feet west of the highway which runs along the river and 8 feet from the edge of the bank which slopes to the water's edge. It is 23.40 feet southeast of a thorn-apple tree 6 inches in diameter at the butt. The station is 12.5 feet northeast of an electric light pole and 51.57 feet north of a drill hole, 1 inch in diameter and 1 inch in depth, in the top of a pink and black granite boulder 2-1/2 feet square, whose top projects about 6 inches above the surface of the ground. Probably lost under parkway in 1956.

Station mark: An I.B.C. standard bronze-disk station mark set 2 inches above the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 16 inches in depth. The subsurface mark is a brass screw set 18 inches underground in the top of a cylinder of concrete 8 inches in diameter and 18 inches in depth.

LEE-SUB (Ontario,Welland County;J.G.Hefty;1941;1956)--On the Canadian side of the Niagara River about 3 miles above Navy Island, where the high bank of the river forms a small point. The station is 6 feet from the edge of the bank, 25 feet from the river, 54.8 feet from the highway along the river, and 150 feet north of a concrete drain under the highway. It is 8.45 feet northwest of an 8-inch elm tree, 9.65 feet northeast of another 8-inch elm tree, and 37.10 feet east of a 12-inch elm tree. It is northeast of a group of many 4-inch elms. In 1956, 2 feet from bank, 10 feet from river.

Station mark: An I.B.C. standard bronze-disk station mark set 2 inches above the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 12 inches in depth. The subsurface mark is a brass screw set 12 inches underground in the top of a similar cylinder of concrete. There are three references. No. 1, distant

139.90 feet, is the southernmost willow tree of a row of willows north of the station. No. 2, distant 150.75 feet, is the center of the top of the east end of the concrete drain. No. 3, distant 170.09 feet, is the center of the iron cover on the drain in the ditch on the west side of the highway.

ROAD-I.W.C.(New York,Erie County;1909;1940;1941)--Found as described in 1940 and description revised to read as follows:

On the United States side of the boundary, on the west side of Grand Island, about 3 miles south of the mouth of Burnt Ship Creek. The station is 66 feet southwest of the intersection of Staley and West River Roads, 12 feet from the edge of the bank, 32 feet east of a blazed 15-inch willow tree, and 140 feet northwest of the northwest corner of a yellow house. It is one foot north of an 8-inch cylinder of concrete marked "I.W.C. 1909," whose top is 2 inches below the surface of the ground. Lost or under parkway in 1956.

Station mark: A 3/8-inch brass bolt set 15 inches below the surface of the ground in the top of a cylinder of concrete. There is one reference, a U. S. L. S. standard bronze-disk reference mark set 2 inches above the surface of the ground in the top of a cylinder of concrete. It is situated 33 feet east of the center of West River Road and 40 feet south of the center of Staley Road and bears N-75°-E from the station, distant 63.38 feet.

MENNONITE-SUB and
MENNONITE-1941 (Ontario,Welland County;J.G.Hefty;1941;1956)--On the west bank of the Niagara River, about 1/4 mile south of Boyers Creek (Snake Creek), and about 150 feet south of a side road dead-ending into Queen Victoria Parkway. The station is about 55 feet east of the macadam roadway of the parkway and 16 feet east of the line of willow trees along the east side of the roadway. The soil was so subject to erosion that the station could not be marked. There are three witnesses to the station. The first is a 3/4-inch drill hole 1 inch deep in a rock 3 by 2 feet by 1 foot above ground south of the station and just outside of the line of willow trees. The second is the center of the iron top of a drainage sump in the ditch on the west side of the roadway and about opposite the first witness. The third witness, designated as Mennonite-1941, is an I.B.C. standard bronze-disk station mark set in a drill hole in a rock 3 feet by 3 feet by 1 foot high just outside of the line of willow trees and between the two most northern ones of the line. The directions and distances to the witnesses are:

	Directions			Distances
Station LEE-SUB	0°	00'	00"	
Reference No. 1	183	13	54	143.13 feet
Reference No. 2	213	14	54	163.20 feet
Mennonite-1941	336	24	44	57.69 feet

MONUMENT 27-ECC.(New York,Erie County;J.G.Hefty;1941)--On the United States side of the boundary, on the western shore of Grand Island at Sheenwater. The station is about 30 feet southeast of the intersection of Love Road with the highway which runs along the river. It is 81.17 feet south of Monument 27.

Station mark: An I.B.C. standard bronze-disk station mark set 1 inch above the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 14 inches in depth. The subsurface mark is a brass screw set 14 inches underground in the top of a cylinder of concrete 8 inches in diameter and 18 inches in depth. There are three references. No. 1, which is 6.73 feet north of the station, is a maple tree 1 foot in diameter. No. 2, which is 134.55 feet north of the station, is a drill hole, 1 inch in diameter and 3/4 inch in depth, in the east end of a concrete culvert under the highway. No. 3, which is 98.75 feet south of the station, is a similar mark in the east end of another concrete culvert. Nos. 2 and 3 are also marked by arrows which point toward the station. Tree gone and culverts under parkway in 1956.

BLACK-I.W.C.(Ontario,Welland County;1909;1940;1941;1956)--The station was found as described by the U. S. Lake Survey in 1940 and the description revised to read as follows:

On the Canadian side of the Niagara River about 100 feet below the mouth of Black Creek, on a small point of land. The station is 102 feet northeast of the center of Queen Victoria Parkway and 50 feet from the water's edge, in a graded park.

Station mark: A brass bolt 3/8 inch in diameter set 15 inches underground in the top of a cut stone monument. There are three references. No. 1 is a U. S. L. S. standard bronze-disk reference mark set 2 inches above the surface of the ground, with the arrow pointing toward the station, in the top of a cylinder of concrete. The reference bears N-10°-W from the station, distant 3.33 feet. No. 2 is a similar mark situated 18 feet west of the center of Queen Victoria parkway, on a line between two elm trees and opposite a gate. It bears S-59°-W from the station, distant 84.20 feet. No. 3 is an arrow cut on the northeast corner of the wing wall of the bridge over Black Creek. It bears N-7°-W from the station, distant 169 feet. In 1956 station and reference 2 O.K. reference No. 1 and arrow not recovered.

STALEY-I.W.C.(New York,Erie County;1909;1940;1941;1956)--On the west side of Grand Island in the Niagara River, opposite the mouth of Black Creek, about 1/2 mile above Love Road. The station is in front of the residence of S. E. Selle, 18 feet west of the center of West River Road, and 6 feet from the river bank. Covered 2 inches; trees and reference 2 gone in 1956.

Station mark: A 3/8-inch brass bolt in the top of a concrete monument at the surface of the ground. There are two references. Reference No. 1 is a U. S. L. S. standard bronze-disk reference mark set with the arrow pointing toward the station in the top of a concrete monument a little above the surface of the ground, 15 feet west of the center of West River Road. Reference No. 2 is a similar bronze disk set 2 inches above the surface of the ground in the top of a concrete monument 24 feet east of the center of West River Road and in a row of horse-chestnut trees, 4.5 feet from the most southern tree. The directions and distances to the references are:

	Directions	Distances
Boundary Ref. Mon. 28	0° 00' 00"	
Reference No. 1	112 05 30	17.65 feet
Reference No. 2	195 36 20	42.95 feet

BLUFF-SUB (Ontario,Welland County;J.G.Hefty;1941;1956)--On the high bank of the Niagara River about 1/3 mile upstream from the mouth of Baker Creek, on the most prominent point of the high bank along this section of the river. The station is about 35 feet north of the road in Queen Victoria Park, 6 feet from the edge of the high bank of the river, and 30 feet upstream from the east end of the guard rail along the road.

Station mark: An I.B.C. standard bronze-disk station mark set 2 inches above ground in the top of a cylinder of concrete 8 inches in diameter and 15 inches in depth. The subsurface mark is a brass screw set in the top of cylinder of concrete 15 inches underground. There are five references. No. 1 is a 3/4-inch drill hole 1 inch deep in the top of a boulder 2 feet by 3 feet and 1-1/2 feet high. The boulder is the second from the east of a long row of boulders on the south road limit. Reference No. 2 is the center of an iron cover to a drainage sump in the gutter on the south side of the road. Reference No. 3 is the center of a similar iron cover in the gutter on the north side of the road. Reference No. 4 is the east end-post of the guard rail along the north side of the road. Reference No. 5 is the east end of a drainage pipe under a side road that goes to a field. In 1956, surface mark gone, subsurface mark O.K. reference No. 1 moved, others O.K. The distances to the references are:

	Distances
Reference No. 1	129.79 feet
Reference No. 2	80.80 feet
Reference No. 3	57.60 feet
Reference No. 4	32.94 feet
Reference No. 5	63.32 feet.

CLUB-I.W.C.(New York,Erie County;1909;1940;1941;1956)--Found as described in 1940 and description revised to read as follows:

On the United States side of the boundary, on the west side of Grand Island, about 600 feet above the end of Fix Road, and near the edge of a clay bank. Several willows and hickories grow nearby. Tree gone; all markers buried in 1956.

Station mark: A brass bolt 3/8 inch in diameter set 1 inch below the surface of the ground in the top of a cylinder of concrete. There are three references. No. 1 is a U. S. L. S. standard bronze-disk reference mark set 2 inches above the surface of the ground in the top of a cylinder of concrete. The reference is 9 feet from the edge of the bank and bears N-82°-E from the station, distant 24.32 feet. No. 2 is a similar mark bearing N-23°-W from the station, distant 114.75 feet. No. 3 is an 18-inch willow 120.5 feet northwest of the station.

PERSONS-I.W.C.(New York,Erie County;1909;1940;1941;1956)--Found as described in 1940 and description revised to read as follows:

On the United States side of the boundary, on the west side of Grand Island, 0.6 mile north of the end of Bush Road. The station is in front of Person's residence on the top of a concrete dock at a point 62 feet from the outer end and 1.2 feet from the northwest face.

Station mark: A brass bolt 3/8 inch in diameter set in the bottom of a 2-inch hole drilled in the concrete of the dock. The concrete used to close the hole after the placing of the mark in 1909 was removed in 1941 and the hole left open.

OAKFIELD-I.W.C.(New York,Erie County;1909;1940;1941;1956)--Found as described in 1940 and description revised to read as follows:

On the United States side of the boundary, on the west side of Grand Island. The station is 0.8 foot northwest of an 8-inch cylinder of concrete, marked "I.W.C. 1909", whose top is flush with the surface of the ground. The old Oakfield clubhouse used as reference in 1909 has burned and a new clubhouse has been built in its place.

Station mark: A 3/8-inch brass bolt set 18 inches underground in the top of a cylinder of concrete. The southwest corner of the clubhouse bears S-75°-W from the station, distant 179 feet. The northwest corner of the clubhouse bears S-14°-W from the station, distant 219 feet. A bronze disk in the concrete base of the flagpole is 47.55 feet due north of the station.

PALMER-I.W.C. (Ontario, Welland County; 1909; 1940; 1941; 1956)--Found as described in 1940 and description revised to read as follows:

On the Canadian side of the Niagara River, about 0.6 mile below the mouth of Miller Creek, in front of the residence of H. Work. The station is on a low marshy point, 317 feet from the center of the road which runs along the river, and about 50 feet from the river itself. The station is 1.5 feet northeast of a cylinder of concrete marked "I.W.C. 1909" whose top is flush with the surface of the ground. A row of 17 maples borders the road near the station. Tree O.K. mark in weeds 3 feet high in 1956. Probably O.K.

Station mark: A brass bolt 3/8 inch in diameter set 18 inches underground in the top of a cylinder of concrete. There is one reference. It is a U. S. L. S. standard bronze-disk reference mark set 4 inches above the surface of the ground in the top of a piece of concrete-filled stovepipe. It is situated on a line from the station to a lone maple and bears N-44°-W from the station, distant 11.78 feet. The maple, about 2 feet in diameter, divides about 2 feet above the surface of the ground into four stems, each 6 inches to 1 foot in diameter. A blaze on the bottom of the tree is 137.8 feet distant.

SIDWAY-SUB (New York, Erie County; J.G. Hefty; 1941; n.r. in 1956)--On the southwest shore of Grand Island about 1/4 mile northwest of the northern tip of Beaver Island. The station is on the beach just above the water level and is just on the north edge of a rocky path where the old Sidway dock left the shore. It was impracticable to mark the station in a permanent manner. The station can be recovered from the two reference marks which are described as follows: Reference No. 1 is an I.B.C. standard bronze-disk station mark with arrow pointing toward the station set in the top of the concrete retaining wall north of the station. Reference mark No. 2 (designated as Sidway-1941) is a similar mark set in the top of the concrete retaining wall southeast of the station. A 12-inch horse-chestnut tree in the lawn at the top of the high bank is northeast of the station 69.6 feet slope distance. A 12-inch maple tree on the lawn at the top of the high bank is east of the station

73.3 feet slope distance. The directions and distances to the two references are:

	Directions	Distances
Stockdale-I.W.C.	0° 00' 00"	
Reference No. 1	173 34 25	232.25 feet
Reference No. 2 (Sidway, 1941)	322 50 38	107.35 feet

SHIPYARD-I.W.C. (Ontario, Welland County; 1909; 1940; 1941; 1956)--Found as described in 1940 and description revised to read as follows:

On the Canadian side of the Niagara River, about 4 miles below the international bridge. The station is 400 feet above the mouth of Miller Creek, 45 feet northeast of the center of Queen Victoria Parkway, and 25 feet from the river bank. It is one foot north of a cylinder of concrete whose top is flush with the surface of the ground.

Station mark: A brass bolt 3/8 inch in diameter set 1 foot underground in the top of a cylinder of concrete. There are two references. No. 1 is a U. S. L. S. standard bronze-disk reference mark set 2 inches above the surface of the ground in the top of a cylinder of concrete. The reference is situated in a row of small maples 20 feet northeast of the center of Queen Victoria Parkway and bears S-63°-W from the station, distant 26.79 feet. No. 2 is an arrow cut on the stone coping of the southeast wing wall of the bridge over Miller Creek. It bears N-32°-W from the station, distant 369.53 feet. The arrow in bridge is O.K. the reference cylinder of concrete is broken off 6 inches underground. It is in a hole 21 feet upstream from the 6th tree south of the bridge.

BEAVER-SUB (New York, Erie County; J.G.Hefty, 1941; p.1. in 1956)--On the southeastern corner of Beaver Island, about 300 feet west of the most eastern point of the island. The station is near a large clump of willow trees in a group of willow trees all over 24 inches in diameter. It is between the shore line of the river and the driveway paralleling the shore, about 15 feet from the water's edge and 3 feet above the water level at normal stages of the river. The largest of the willow trees along the shore line is 32.6 feet east of the station. The largest willow in the clump before mentioned is 16 feet southwest of the station. Willows mostly gone in 1956.

Station mark: An I.B.C. standard bronze-disk station mark set 2 inches above the ground in the top of a cylinder of concrete 7 inches in diameter and 18 inches in depth. The subsurface mark is a brass screw set 18 inches underground in the top of a block of concrete. There is one reference mark, and I.B.C. standard bronze-disk station mark

with an arrow pointing toward the station set in a drill hole in a rock 2 by 2 feet by 6 inches high, 8 feet north of the largest willow tree (the one east of station). The directions and distances to the reference are:

	Direction	Distance
Island-I.W.C.	0° 00' 00"	
Reference mark	1 10 35	30.13 feet

STOCKDALE-I.W.C.(Ontario,Welland County;1909;1940;1941;1956) Found as described in 1940 and description revised to read as follows:

On the Canadian side of the Niagara River, about 3 miles below the international bridge, on a small wooded point opposite Beaver Island state park. The station is 18 feet from the edge of the river bank, 45 feet from the center of Queen Victoria Parkway, and 2.7 feet northeast of an 8-inch cylinder of concrete whose top is 3 inches below the surface of the ground.

Station mark: A cross, 1 foot below the surface of the ground, on the top of a 6-inch cut stone monument. There are nine references. No. 1 is a U. S. L. S. standard bronze-disk reference mark set 2 inches above the surface of the ground in the top of a cylinder of concrete. An arrow cut into it points about 8 feet east of the station. The reference is on the north side of Queen Victoria Parkway at a point 3 feet west of a blazed elm. It bears S-47°-E from the station, distant 50.7 feet. No. 2 is a cross cut on the east end of a culvert. It bears S-68°-E from the station, distant 145 feet. No. 3, a triangular blaze on a 16-inch elm, bears S-49°-E from the station, distant 54.5 feet. No. 4, an 18-inch elm, bears S-15°-E from the station, distant 19.2 feet. No. 5, another 18-inch elm, bears S-62°-W from the station, distant 36.2 feet. No. 6, a 12-inch elm, bears N-26°-W from the station, distant 8.9 feet. No. 7, a 9-inch ash, is 29.75 feet northwest of the station. No. 8, a 12-inch ash, is 35.68 feet northeast of the station. No. 9, an 18-inch elm, double at the bottom, is 34.52 feet east of the station. One tree of the double elm gone in 1956.

PLEASANT-I.W.C.(Ontario,Welland County;1909;1940;1941;1956)-- On the Canadian side of the Niagara River, in Bertie Township, 2.3 miles below the international railroad bridge and opposite Beaver Island state park. The station is in front of W. J. Stockdale's barn, 20 feet from the center of Queen Victoria Parkway and 5 feet from the edge of the river bank. It is 5.15 feet from the middle tree of three maples, 17.8 feet from the southwestern tree and 20.7 feet from the northern one. It is 1.4 feet southeast of an 8-inch cylinder of concrete marked "I.W.C. 1909", whose top is 6 inches

underground. In the recovery of the station, a deep pail was found inverted over the mark with about 8 inches of earth over it. It was necessary to break the bottom out of the pail to place a signal on the station.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 2 feet in depth. Subsurface mark is a brass bolt set 2 feet underground in the top of a cylinder of concrete. There are two references. No. 1 is a U. S. L. S. standard bronze-disk reference mark set 2 inches above the surface of the ground in the top of a cylinder of concrete. It is in the north road line at a point 3 feet west of a 3-foot maple stump and is 50.65 feet S-51°-W of the station. No. 2 is a similar mark situated near the fence corner at the southeast corner of the road intersection. It bears S-43°-E from the station, distant 189.2 feet.

ISLAND-I.W.C.(New York,Erie County;1909;1940;1941;1956)--Found as described in 1940 and description revised to read as follows:

On the United States side of the boundary, on the south end of Grand Island, about 900 meters east of the bathhouse at the state park and in the center of the terminal loop of the road. It is 1.2 feet west of a cylinder of concrete whose top is 2 feet underground.

Station mark: A 3/8-inch brass bolt set 2-1/2 feet underground in the top of a cylinder of concrete. There are two references. No. 1 is a U. S. L. S. standard bronze-disk reference mark set 6 inches above the surface of the ground in the top of a cylinder of concrete. The reference is 18 feet north of the center of the road and on line to the Buffalo city hall. It bears S-23°-E from the station, distant 196.69 feet. No. 2 is a U. S. L. S. standard bronze-disk reference mark set 6 inches above the surface of the ground in the top of a cylinder of concrete. This reference is 18 feet west of the center of the road and on line to the Dunlop water tank. It bears N-64°-E from the station, distant 342.65 feet.

STRAWBERRY-SUB (New York,Erie County;J.G.Hefty;1941;p.1.in 1956)--On the highest point of Strawberry Island in the Niagara River, about 45 feet north of the only trees on the island (a group of willow trees growing from one root), and about 60 feet east of the water. The island has been dredged away for sand and gravel until it is not more than half its original size.

Station mark: An I.B.C. standard bronze-disk station mark set 2 inches above the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 20

inches in depth. The subsurface mark is a brass screw set 20 inches underground in the top of a concrete block. The reference is a brass screw set flush with the surface of the ground in the top of a cylinder of concrete 12 inches in depth 10 feet east by north of the center of the group of willow trees before described. An arrow pointing toward the station is carved on the top of the reference. The direction and distance to the reference is:

	Direction	Distance
Hertel-1941	0° 00' 00"	
Reference mark	180 07 00	41.685 feet

NETTLE-I.W.C.(Ontario,Welland County;1909;1941)--The station was originally described as being on the west side of the Niagara River about 1/3 mile below Frenchmans Creek and opposite the middle of Strawberry Island; just west of the macadam road and south of an old orchard owned by Mr. Nettle.

Station mark: The center of a 3/8-inch brass plug set 1 foot below the surface of the ground in the top of a concrete monument. A concrete marker 8 inches in diameter and marked "I.W.C. 1909" was set with its top flush with the ground 1.3 feet south of the station. An apple tree in the southwest corner of the orchard is in azimuth 79° 06', 162.5 feet distant. An apple tree in the southeast corner of the orchard (next to road) is in azimuth 137° 46', 103.8 feet distant. In 1941 the station mark was recovered about flush with the surface of the ground 2 feet below the roadbed in the bottom of the ditch on the west side of the road. One side of the concrete monument was broken away about an inch from the brass plug. The "marker" was not found. The station was found 150 feet north of the south end of the guard fence on the river side of the highway and 60 feet south of a turn-off to the west. On account of the apparent disturbance of the station mark and the obstruction of lines of sight by tree growth the station was not used. A new station, "NETTLE-SUB", was established about 720 feet to the southeast.

NETTLE-SUB (Ontario,Welland County;J.G.Hefty;1941)--On a prominent point on the west shore of the Niagara River, about 1-1/4 miles downstream from the international railroad bridge (Buffalo-Bridgeburg) and about 1/4 mile upstream from Pleasant Point. The station is 8 feet from the high bank of the river, 12 feet upstream from the northerly of the two projections of the shore line on the point and 60 feet from the macadam road in Queen Victoria Parkway. There is solid bedrock 21 inches below the surface of the ground.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of

a cylinder of concrete 8 inches in diameter and 14 inches in depth. The subsurface mark is a brass screw set 14 inches underground in the top of a block of concrete resting on bedrock. The references to the station are:

	Directions			Distances
Station ISLAND-IWC	0°	00'	00"	
12-inch maple tree	194	27		47.60 feet
10-inch maple tree	266	38		38.56 feet
15-inch maple tree	304	01		66.73 feet
"NETTLE-IWC"	331	36	36	721.26 feet
8-inch maple tree	342	58		33.05 feet

HOYT-I.W.C. (Ontario, Welland County; 1909; 1941; 1956)--About 1/2 mile below the international railroad bridge, about opposite the north corner of Bowen Road and Niagara Street in Bridgeburg. The station is between Niagara Street and the river bank, 48 feet from the large horse-chestnut tree on the north corner of Bowen Road and Niagara Street.

Station mark: A 3/8-inch brass plug set 18 inches underground in the top of a concrete monument. In 1941 a surface mark was set over the original mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 18 inches in depth. There are two references. Reference No. 1 is a lead plug in a concrete sewer outlet. No. 2 is a land marker stone, 7 by 7 inches square and with a pyramidal top showing 5 or 6 inches above ground near the south corner of Bowen Road and Niagara Streets. The directions and distances to the references are:

	Directions			Distances
Island-I.W.C.	0°	00'	00"	
Reference No. 1	160	31	50	69.94 feet
Reference No. 2	201	48	45	95.03 feet

HERTEL-I.W.C. and
HERTEL-1941 (New York, Erie County; 1909; 1941)--On the east side of the Niagara River, opposite the foot of Hertel Avenue, Buffalo, at the southwest corner of the dock of the Buffalo Gravel Corporation. The station is at the northwest corner of the slip, 1.8 feet from the west face and 1.7 feet from the south face of the concrete dock.

Station mark: The original station mark was a 3/8 inch brass plug set in a drill hole in the concrete. In 1941 the concrete was found broken away from the mark and the mark was gone, leaving half of the hole showing. The conditions were such that the mark could not be replaced and a new mark designated "Hertel-1941" was set. The new mark is an I.B.C. standard bronze-disk station mark set in a drill hole in the surface of the concrete dock 5.67 feet northeast of the I.W.C. station, 6.05 feet from the south face, and 5.05 feet

from the west face of the dock. There is an iron snubbing post on the dock between the two stations.

PIER-I.W.C. (Ontario,Welland County;1909;1940;1941;1956)--On the top of the second pier from the Canadian side of the international bridge (R.R. Bridge) across the Niagara River between Buffalo, New York, and Bridgeburg, Ont. The station is on the north side of the bridge, 4.9 feet from the northeast corner, and 4.7 feet from the northwest corner of the pier.

Station mark: The center of a 3/8-inch brass plug set in the bottom of a hole 2 inches in diameter and 1 inch deep in the concrete surface of the pier.

FILL-SUB (New York,Erie County;J.G.Hefty;1941)--On Squaw Island in the Niagara River. The original station "FILL-I.W.C." could not be recovered. The new station was established as a substitute. It is on the railroad fill across Squaw Island approaching the international railroad bridge across the Niagara River from Buffalo, New York, to Bridgeburg, Ont. The station is 385 feet east of the bridge and 14.42 feet north of the northern rail of the tracks.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the ground in the top of a cylinder of concrete 7 inches in diameter and 18 inches in depth. The subsurface mark is a brass screw set 33 inches underground in the top of a like cylinder of concrete 18 inches in depth. There is about 15 inches of sand between the two cylinders of concrete. There are two references. Reference No. 1 is the northern iron gate post on the road on the south side of the railroad. Reference No. 2 is a signal light post about 20 feet high on the north side of the railroad tracks. The directions and distances to the references are:

	Directions	Distances
Station PIER-I.W.C.	0° 00' 00"	
Reference No. 1	214 38	109.0 feet
Reference No. 2	353 33	181.57 feet

LITTLE-SUB (Ontario,Welland County;J.G.Hefty,1941;1956)--In the village of Fort Erie, about 200 feet north of the north side of the Peace Bridge across Niagara River, in the filled land between Niagara Boulevard and the sea wall along the river, 32 feet east of the east curb of Niagara Boulevard.

Station mark: An I.B.C. standard bronze-disk station mark set nearly flush with the ground in the top of a cylinder of concrete 9 inches in diameter and 18 inches in depth. The subsurface mark is a brass screw set 18 inches underground in the top of a like cylinder of concrete. There are four references. Each of them is a cross cut in

the top of the road curbs of Niagara Boulevard. Nos. 2 and 3 are in line with the station. No. 4 is opposite the south side of the side street north of the bridge. There are new curbs so the references are gone. The station is a little above flush with the surface of the park and opposite the second ornamental tree in a row of ornamental trees spaced about 40 feet apart, the first tree being about 150 feet north of the Peace Bridge. The directions and distances to the references were:

	Directions	Distances
Station "ERIE"	0° 00'	
Reference No. 1	203 30	72.48 feet
Reference No. 2	271 06	80.04 feet
Reference No. 3	271 06	32.93 feet
Reference No. 4	326 28	65.38 feet

ERIE (Ontario,Welland County;J.G.Hefty;1941;1956)--In the village of Fort Erie, Ontario; east and about opposite the entrance of Forsythe Street into Niagara Boulevard. The station is in the filled land between the west shore of the Niagara River and the north-and-south alley in the rear of the buildings facing on Niagara Boulevard; it is about 33 feet from the edge of the river, 20 feet from the roadbed of the alley, and about 165 feet south of the old ferry dock. In 1956 the three references O.K. Station probably lost by erosion.

Station mark: An I.B.C. standard bronze-disk station mark set nearly flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 18 inches in depth. The subsurface mark is a bronze wedge, with its thin edge up and marked with a cut across its center, set in the top of a similar cylinder of concrete 18 inches underground. There are three references. Reference No. 1 is the southeast corner of the concrete building used as a customs office. Reference No. 2 is the southeast corner of the southern part of the first building north of the east-and-west alley connecting the north-and-south alley with Niagara Boulevard. Reference No. 3 is the northeast corner of the base of the concrete block building standing the fifth south of the east-and-west alley. The directions and distances to the references are:

	Directions	Distances
Station "MOLE"	0° 00' 00"	
Reference No. 1	239 55 15	172.89 feet
Reference No. 2	193 37 10	105.10 feet
Reference No. 3	94 49 30	126.46 feet

MOLE (New York,Erie County;J.G.Hefty;1941;1956)--On the mole or levee between the Erie Barge Canal and the Niagara River; about midway between the "Peace Bridge" and

the island on which the ferry and the customs house are located; about 1/2 mile south of the ferry dock. The mole is mostly constructed of huge blocks of stone, but there is a section about 55 feet long that is constructed of concrete with an ogee crest. The station is on the lower level of the crest. The station is 13.83 feet from the southeast corner of the concrete section, 13.2 feet from the southwest corner, 6.65 feet from the west edge, 44.27 feet from the northwest corner, 44.63 feet from the northeast corner, and 8.48 feet from the east edge of the concrete section of the mole.

Station mark: An I.B.C. standard bronze-disk station mark set in a drill hole in the concrete.

PLANT (New York,Erie County;J.G.Hefty,1941)--On the sea wall on the river side of the Buffalo city sewage disposal plant. The station is about 200 feet north of the northerly building of the plant and about 200 feet south of the right angle turn of the sea wall at the northern end of the made land or fill. It is directly west of the tall chimney (of the plant) near the Erie Barge Canal. The station is at a point where there is a square buttress on the inside of the wall. It is just back of an anvil shaped snubbing iron or bit. It is 2.23 feet west of the east face of the buttress, 2.70 feet east of the west face of the wall, 2.97 feet south of the north face of the buttress, 3.12 feet north of the south face of the buttress, and 0.5 foot east of the iron snubbing bit. Measurements are to the outside of the beveled edges of the concrete.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the concrete.

FORT PORTER-I.W.C.(New York,Erie County;1909;1941)--West of the officer's quarters at old Fort Porter, Buffalo, New York. Just outside the sidewalk running along the top of the steep bank sloping down to the river. The station is 3.22 feet west of the edge of the sidewalk, 86.15 feet north of Boundary Reference Monument 34, 31.77 feet southwest of an elm tree, 22.55 feet northwest of another elm tree, and 27.57 feet west of the east edge of the curb along the west side of the road.

Station mark: A brass plug set 18 inches underground in the top of a concrete monument. A concrete marker 8 inches in diameter is set 1 foot north of the station with its top a little below the surface of the ground.

POPLARS-I.W.C.(Ontario,Welland County;1909;1941;1956)--In the village of Fort Erie, Ontario, about 1/2 mile upstream from the Peace Bridge, on the highway next to and paralleling the river front, an extension of Niagara Boulevard.

The station is on the west side of the highway and between the highway and the sidewalk. When the highway is repaved as planned in the near future the station will be covered by the paving. The three poplars originally listed as references now measure from the station as follows: The south poplar, now a stump, 31.5 feet to its face; the middle poplar 28.7 feet to its face; the north poplar 40.9 feet to its face. The tree is in place but all curbs gone. The road has been widened and station lost. Poplars 1941 surface mark is gone but subsurface mark probably O.K.

Station mark: A 3/8-inch brass plug set in a small concrete monument a few inches underground. There are two references. Reference mark No. 1, referred to as "POPLARS 1941" in the notes, is an I.B.C. standard bronze-disk station mark set flush with the surface of the ground in top of a cylinder of concrete 8 inches in diameter and 18 inches in depth. The subsurface mark is a brass screw set in the top of a block of concrete 18 inches underground. The mark is in a recess of the fence line on the south side of an entrance driveway, 21 feet south of a 2-1/2 foot poplar tree, and 4.25 feet west of the concrete sidewalk. Reference mark No. 2 is a drill hole in the top of the concrete curb on the west side of the highway, at the north end of a drainage grill. The directions and distances to the references are:

	Directions	Distances
Station FORT PORTER-I.W.C.	0° 00' 00"	
Reference No. 1 (Poplars 1941)	181 03 40	26.10 feet
Reference No. 2	291 01 25	109.15 feet

BREAKWATER I.W.C.(New York,Erie County;1909;1940;1941)--At the entrance to Buffalo Harbor, on the north end of North Breakwater, 9 feet from the northeast corner and 7 feet from the face of the wall.

Station mark: A 3/8-inch brass bolt set in the bottom of a hole 2 inches in diameter and 1/2 inch deep in the concrete.

U.S. ENGINEERS,43-CATHERINE (Ontario,Welland County,1941)--In Fort Erie, Ontario, on the concrete head-wall of sewer at shore of Niagara River approximately on the center line of Catherine Street extended.

Station mark: A United States Engineer Office standard brass-marker set in the top surface of the concrete head-wall.

U.S. ENGINEERS,45 (New York,Erie County;1941)--On Squaw Island, on the southwest corner of the westerly abutment of the International Bridge (railroad) over Black Rock Canal.

Station mark: A United States Engineer Office standard brass-marker set in the top surface of the abutment.

BUFFALO CITY HALL TOWER;1875 (U.S.L.S.) (New York, Erie County;1909;1941;1956)--The old city hall is a large granite building on the square inclosed by Eagle, Franklin, Church, and Delaware Streets in the city of Buffalo, New York.

The geodetic point is the apex of the tall tower.

BUFFALO (U.S.L.S.) (Erie County,New York;1875;1941)--The then new (1875) City Hall tower was used as a station at this point. The City Hall is a large granite building on the square inclosed by Eagle, Franklin, Church, and Delaware Streets in the city of Buffalo, New York. The geodetic point is marked by a cross cut in a piece of brass leaded into the granite shelf at the base of the pedestals of the statues on the top of the tower on the north side. It is 0.175 meter from the inner edge of the stone shelf, 0.744 meter from the outer edge, and 1.212 meters from the base of the pedestal of the statue on the northeast corner of the tower. Its height above the ground is 160.5 feet. The height of ground at the station above the mean level of Lake Ontario is 358.6 feet. Probably O.K. in 1956.

BOUNDARY REFERENCE MONUMENTS

NIAGARA RIVER

MONUMENT 1-41 (Ontario,Lincoln County;1912;1941;1956)--On the Canadian side of the boundary, directly south of the Naval Museum of Fort George, Niagara-on-the-Lake, and about one-eighth mile east of Fort George. The monument was found in good condition. Fort Niagara Light, Fort Niagara water tank, Youngstown water tank, and marked triangulation stations "QUARTERS-SUB", "NORTH BASE (YOUNGSTOWN)-I.W.C.", "SOUTH BASE (YOUNGSTOWN)-I.W.C.", "VINCENT PIER", and "GEORGE-SUB" are visible from the monument. In the autumn of 1938 this monument was removed from its position to facilitate parking operations. In the spring of 1939 the monument was reset in its original position, but at a lower elevation. Observations in 1941 show it was accurately reset in its original position.

MONUMENT 2-41 (New York,Niagara County;1912;1941;1956)--On the United States side of the boundary, about three-fourths mile south of Youngstown, New York. The monument was found in good condition. It is intervisible with Monument 3 and with marked triangulation stations "OAK-1941" and "STEPS-I.W.C."

MONUMENT 3-41 (Ontario,Lincoln County;1912;1941;1956)--On the Canadian side of the boundary on Point Elinor about two miles south of Fort George, Niagara-on-the-Lake. The monument was found in good condition. It is intervisible with Monuments 2 and 4 and marked triangulation station "WOOD-SUB".

MONUMENT 4-41 (New York,Niagara County;1912;1941;1956)--On the United States side of the boundary at a point about 2-1/2 miles south of Youngstown, New York, on the sloping lawn of a summer home. The monument was found in good condition. It is not intervisible with other monuments without clearing lines of sight. Triangulation stations "JACK-SUB" and "ROSE-SUB" are intervisible with the monument.

MONUMENT 5-41 (Ontario,Lincoln County;1912;1941;1956)--On the Canadian side of the Boundary, about 4 miles south of Niagara-on-the-Lake, on a prominent point on the high bank of the west shore of the Niagara River. The monument was found in good condition. It is not intervisible with any other monuments. It is intervisible with marked triangulation station "STELLA-I.W.C."

MONUMENT 6-41 (New York,Niagara County;1912;1941;1956)--On the United States side of the Niagara River about five-eighths mile north of Lewiston, New York. The monument was found nearly buried in a fill and projecting only a few inches above ground. In consideration of the surrounding conditions, it was deemed best not to disturb it. The view from the monument to monuments and marked triangultion stations across the river is blocked by a nearby house and fence. This difficulty was eliminated by the establishment of an eccentric station "MONUMENT 6-ecc". The eccentric station is just east of a north and south concrete retaining wall and near the south end of the wall. It is about equidistant from the concrete garage just north of the station and the fence by the house just south of the station.

Station mark: An I.B.C. standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 18 inches in depth. The subsurface mark is a brass screw set 18 inches underground in a similar cylinder of concrete. Directions and distances from the eccentric station to other marks are:

	Directions	Distances
Triangulation station "ROOT-SUB"	0° 00' 00"	
Southwest corner of garage		44.01 feet
Monument 6	200 47 28	47.245 feet

MONUMENT 7-41 (Ontario,Lincoln County;1912;1941;1956)--On the Canadian side of the Niagara River about three-eighths mile north of Queenston, Ontario, in an open field in sight of the river road between Queenston and Niagara-on-the-Lake. The monument was found in good condition. It is intervisible with Monument 8, Brock's Monument, and marked triangulation stations "NELL-SUB" and "HEIGHTS-SUB".

MONUMENT 8-41 (New York,Niagara County;1912;1941;1956)--On the United States side of the Niagara River on the top of the rocky ledge on the southeast side of the road leading to the toll bridge (suspension) between Lewiston, New York, and Queenston, Ontario. It is 150 feet south of the east anchorage of the bridge, in the rear of and above the United States Customs House. The monument was found in good condition. Monument 7, Brock's Monument and marked triangulation station "CHANCE-1941" are visible from it.

MONUMENT 9-41 (New York,Niagara County;1912;1941;1956)--On the United States side of the Niagara River on the top of the high cliff overlooking the river and about five-eights mile south of the Lewiston Suspension Bridge. The monument was found very badly cracked. It was repaired by cleaning and washing the cracks and then filling with neat cement grout. In spite of its appearance, the monument should last for a long time. The following marked triangulation stations are visible from it: "OGDEN-SUB", "BOLT-SUB", "TRANS-I.W.C.", and "BROCK'S MONUMENT".

MONUMENT 10-41 (New York,Niagara County;1918;1941;1956)--On the United States side of the Niagara River on the top of the high cliff overlooking the river and opposite the Ontario Hydroelectric Power Station. This monument was established in 1918 in lieu of Monument 10 on the opposite side of the river. It was found in good condition. The following marked triangulation stations can be seen from it: "MONUMENT 11", "COLLEGE-I.W.C.", "BOLT-SUB", and "KILN-SUB".

MONUMENT 11-41 (New York,Niagara County;1912;1941;1956)--On the United States side of the river, directly east of the now abandoned New York Central and Hudson River Railroad tracks and about 500 feet west of the present location of the tracks. It is about three-eighths mile north of Niagara University. The monument was found in good condition. It is intervisible with Monument 12, Monument 10-41, and marked triangulation stations "DEVIL-SUB", "BOLT-SUB", "TRANS-I.W.C.", "OGDEN-SUB"; and "KILN-SUB".

MONUMENT 12-41 (Ontario,Welland County;1912;1941;1956)--About 1-3/4 miles north of the Whirlpool Rapids, on the Canadian side of the river on a point across the river from Niagara University. The monument was found in good condition. Monument 11, Monument 13, and marked triangulation stations "COLLEGE-I.W.C.", "DEVIL-SUB", and "TIE-SUB" are visible from the monument.

MONUMENT 13-41 (New York,Niagara County;1912;1941;1956)--On the United States side of the boundary about five-eighths mile southwest of Niagara University and on the top of the high bank overlooking the Niagara River. The monument was found in good condition. It is intervisible with Monument 12 and marked triangulation stations "TIE-SUB", "COLLEGE-I.W.C.", and "DEVIL-SUB".

MONUMENT 14-41 (Ontario,Welland County;1912;1941)--On the Canadian side of the Niagara River about seven-eighths mile northeast of the Whirlpool. The monument was found somewhat pitted on the surface but otherwise in good condition. Marked triangulation stations "TIE-SUB", "DEVIL-SUB", "MOSES-SUB", and "DEVEAUX-I.W.C." are visible from the monument. From a point a few inches eccentric, Monument 13 and marked triangulation station "BESS-I.W.C.", now hidden from the monument by the posts of a nearby summer house, can be seen.

MONUMENT 15-41 (New York,Niagara County;1912;1941;1956)--On the United States side of the Niagara River, on DeVeaux Point, opposite the Whirlpool. The monument was found in good condition but half-buried in the eastern edge of a bed of ornamental shrubbery. It is intervisible with marked triangulation stations "MOSES-SUB", "JUNIOR-SUB", "DAVID-SUB", "POOL-SUB", "WHIRL-SUB", and "RAPID", but the lines of sight are slightly obstructed by foliage and small shrubs.

MONUMENT 16-41 (Ontario,Welland County;1912;1941;1956)--On the Canadian side of the Niagara River about five-eighths mile southeast of the Whirlpool. The monument was found in good condition. It is intervisible with Monument 17 and marked triangulation stations "POOL-SUB", "BURR-SUB", and "CUSTOM". In 1956, reference monument is on top of the high bank about 6 feet outside the wall on river side of the river road, and about 50 feet north of the intersection of the river road and Elgin Street.

MONUMENT 17-41 (New York,Niagara County;1912;1941;1956)--On the United States side of the Niagara River, about 300 feet north of the east end of the Whirlpool Rapids Railway Bridge. The monument was found in good condition, but

almost completely buried with its top about level with the surface of the ground. A hole 6 feet in diameter and 1 foot in depth was dug around the monument as center. Monument 16 and marked triangulation stations "POST-SUB", "CUSTOM", "RAPID", and "BURR-SUB" are visible from the monument.

MONUMENT 18-41 (Ontario,Welland County;1912;1941;1956)-- On the Canadian side of the Niagara River about 1/2 mile due north of the "American Falls". The monument is a short distance northeast of the Canadian end of the Rainbow Arch Bridge erected in 1941. It is at the foot of Bender Street and just outside a stone wall along the east edge of River Road. The monument was found in good condition. Marked triangulation stations "TUG-SUB", "ROPE-SUB", "GIANT-SUB", "POWER", "RAINBOW", "STATE-SUB" and "ARCH" can be seen from the monument. Monument 19 is just hidden by a post of the Rainbow Arch Bridge but both Monuments 18 and 19 may be seen from a point on the deck of the bridge on line between the two monuments.

MONUMENT 19-41 (New York,Niagara County;1912;1941;1956)-- On the United States side of the Niagara River at Prospect Point, near the crest of the American Falls. The monument was found in good condition. It is intervisible with Monument 20 and marked triangulation stations "QUEEN-SUB", "CLIFTON-SUB", "ARCH", "STATE-SUB", and "TERRAPIN-I.W.C." Lost in 1956.

MONUMENT 20-41 (Ontario,Welland County;1912;1941;1956)-- On the Canadian side of the Niagara River, near the crest of the Horseshoe Falls, on the grounds of the Ontario Hydroelectric Power Company. The monument was found in good condition. Monument 19, Monument 21, and marked triangulation stations "QUEEN-SUB", "ARCH", "CLIFTON-SUB", "RAINBOW", "STATE-SUB", "LUNDY-SUB", and "TERRAPIN-U.S.L.S", are visible from the monument. In 1956, found buried to 1 foot of top.

MONUMENT 21-41 (New York,Niagara County;1912;1941;1956)-- On the United States side of the boundary, on the southwest side of Goat Island. The monument was found in good condition. Monument 20 and marked triangulation stations "HIGH-I.W.C.", "PARK-I.W.C.", and "PARK-SUB" are visible from the monument. Top removed in 1955. Station re-marked as follows: A standard bronze-disk I.B.C. station mark set in the base of the monument, 3 inches below ground surface, in an 8-inch cast iron valve box set flush with the ground at north edge of the 10 foot macadam walk. It is 36.29 feet easterly from the nearest bolt stud in the base of the east (easterly) iron fence post between the walk and

the top of the steep bank; 11.87 feet north of a nail in an 8 inch elm tree at top of bank and outside the wood fence; 10.10 feet south of the road face of the Medina curb along the 18 ft. macadam road.

MONUMENT 22-41 (Ontario,Welland County;1912;1941;1956)--
On the Canadian side of the boundary, on the northeastern-most shore of Navy Island. The monument was found in good condition. Monument 23 and marked triangulation stations "LOWER-SUB", "BOOM-I.W.C.", and "BAILEY-I.W.C" are visible from the monument.

MONUMENT 23-41 (New York,Erie County;1912;1941;1.in 1956)--
On the United States side of the boundary, on the northwest end of Grand Island about three-eighths mile south of the mouth of Burnt Ship Creek. The monument was found in good condition. Monument 22 and marked triangulation stations "BAILEY-I.W.C.", "BOOM-I.W.C.", and "CAMP-I.W.C." can be seen from the monument. Lost in grading for Grand Island Parkway.

MONUMENT 24-41 (Ontario,Welland County;1912;1941;p.1.1956)--
On the Canadian side of the boundary on the south end of Navy Island. The monument was found in good condition. The ground around the monument had receded about 2 inches, but the monument was firmly in place. Monument 25 (1941) and marked triangulation stations "COBB-I.W.C.", "WOODPILE-I.W.C.", and "SPRUCE-I.W.C." can be seen from the monument. Reported lost.

MONUMENT 25-41 (New York,Erie County;J.G.Hefty;1941;1.in 1956)
On the United States side of the boundary on the west side of Grand Island, about 150 feet southwest of the mouth of Little Sixth Creek. The monument was found in good physical condition but only about 4 feet from the edge of the river bank. The base of the monument was 1 foot out of the ground, and the top leaned about 3 inches toward the river. Because the monument was liable to further disturbance by the erosion of the bank, it was moved to a new and more stable position across the highway. The new position is on the east side of the highway, about 4 feet inside the road limits. The monument, in its new position, is intervisible with Monument 24, Monument 26, and marked triangulation stations "LUTZ-SUB", "WOODPILE-I.W.C.", "LUTZ-I.W.C.", "SPRUCE-I.W.C.", and "MEYER-SUB". The new courses and distances to the boundary line are given in tabular form on other pages of this report. Lost or buried in Parkway.

MONUMENT 26-41 (Ontario,Welland County;1912;1941;1956)--
On the Canadian side of the Niagara River about a mile north

of the mouth of Snake Creek, in the fence line at the rear of the park along the river. The monument was found in good condition other than its base was exposed about 4 inches above the surface of the ground. Monument 25 (1941) and marked triangulation stations "COBB-I.W.C.", "WOODPILE-I.W.C.", "WINDSOR-I.W.C.", "EAGLE-SUB", and "ROAD-I.W.C." are seen from the monument.

MONUMENT 27-41 (New York,Erie County;1912;1941;1.1956)-- On the United States side of the boundary on the west side of Grand Island at Sheenwater, New York. The monument was found in good condition except for a slight chipping of the concrete under the number. The ground around the monument has settled about 2 inches. Marked triangulation stations "BLACK-I.W.C.", and "MONUMENT 27-ECC" are visible from the monument. Lost or buried under Parkway.

MONUMENT 28-41 (Ontario,Welland County;1912;1941;1956)-- On the Canadian side of the Niagara River about one-quarter mile southeast of the mouth of Black Creek. The monument was found in good condition other than 2 inches of the base was exposed by the settling of the ground. It is now on the lawn of a new residence. Marked triangulation stations "MENNONITE-SUB", "STALEY-I.W.C.", and "CLUB-I.W.C." are seen from the monument.

MONUMENT 29-41 (New York,Erie County;1912;1941;1956)--On the United States side of the boundary on the southwest side of Grand Island about 3/4 mile northwest of the lower end of Beaver Island. The monument is about on the boundary line between the lawns of two summer cottages. It was found in good condition. Marked triangulation stations "BLUFF-SUB" and "SHIPYARD-I.W.C." are visible from the monument.

MONUMENT 30-41 (Ontario,Welland County;1912;1941;1956)-- On the Canadian side of the Niagara River directly opposite Beaver Island and about 1/4 mile east of Shipyard, Ontario. The monument was found in good condition although the bank had settled nearly two inches from the base. Marked triangulation stations "SHIPYARD-I.W.C." and "ISLAND-I.W.C." are seen from the monument.

MONUMENT 31-41 (Ontario,Welland County;1912;1941;1956)-- On the Canadian side of the Niagara River about 1/2 mile northwest of the mouth of Frenchmans Creek. The monument was found in good condition. Marked triangulation stations "ISLAND-I.W.C.", "BEAVER-SUB", "HERTEL-1941", "HERTEL-I.W.C.", "STRAWBERRY-SUB", "NETTLE-SUB" and "NETTLE-I.W.C." are seen from the monument.

MONUMENT 32 (MAINLAND)-41 (Ontario,Welland County;1912;1941; 1956)--On the Canadian side of the Niagara River about 300 feet southeast of the mouth of Frenchmans Creek. The monument was found in good condition. It was found broken in 1933 and was repaired in August of that year. (See Commissioners' Annual Joint Report for 1933, page 24). Marked triangulation stations "ISLAND-I.W.C.", "STRAWBERRY-SUB", "HERTEL-I.W.C.", "HERTEL-1941", and "NETTLE-SUB" can be seen from the monument.

MONUMENT 32 (STRAWBERRY): The monument was destroyed by the dredging away of Strawberry Island to obtain sand and gravel. It was not needed and was not replaced.

MONUMENT 33-41 (Ontario,Welland County;J.G.Hefty;1941;1956)--On the Canadian side of the Niagara River, about 3/8 mile south of the west end of the International Railroad Bridge. The monument was found covered with vines but in good condition in the front yard of Dr. Lowell Butters' residence. At Dr. Butters' request, it was moved to a new position across the road and slightly downstream. In its new position, it stands between the road and the top of the high bank above the river. Monument 34 and marked triangulation stations "FORT PORTER-I.W.C.", "PLANT", "MOLE", and "FILL-SUB" are visible from the monument in its new position. Its relation to the turning points of the boundary in its new position is given in tabular form on another page of this report.

MONUMENT 34-41 (New York,Erie County;1912;1941)--On the United States side of the Niagara River at Fort Porter, Buffalo, New York. The monument is about 6 feet east of the sidewalk and 5 feet west of the road curb. It was found in good condition. Monument 35 (1941), Monument 33 (1941), and marked triangulation stations "PIER-I.W.C.", "POPLARS-I.W.C.", "FORT PORTER-I.W.C.", "POPLARS-1941", "MOLE", "LITTLE-SUB", and "ERIE" are visible from the monument.

MONUMENT 35-41 (Ontario,Welland County;J.G.Hefty;1941;1956)--On the Canadian side of the Niagara River about one-half mile north of Limekiln Reef. The monument was found buried in a dirt fill with its top flush with the surface of the fill. The top had been scarified badly by a scraper. The monument was moved about 6 feet north and raised above the surface of the fill to its normal height. Monument 34 and marked triangulation stations "BREAKWATER-I.W.C.", "FORT PORTER-I.W.C.", "POPLARS-I.W.C.", and "POPLARS-1941" are visible from the monument.

LOST STATIONS

NIAGARA RIVER

The stations listed hereunder were established in the years 1909-1913 by the International Waterways Commission. Their sites were carefully inspected by the International Boundary Commission in 1941, when a diligent search was made for them without success. The stations are therefore considered to be lost.

QUARTERS-I.W.C. (New York, Niagara County;1912;lost 1941)

VINCENT-I.W.C. (New York, Niagara County;1912;lost 1941)

GEORGE-I.W.C. (Ontario, Lincoln County; 1912;lost 1941)

OAK-I.W.C. (Ontario, Lincoln County; 1912;lost 1941)

WORTH-I.W.C. (New York, Niagara County;1912;lost 1941)

BOW-I.W.C. (New York, Niagara County;1912;lost 1941)

GULLY-I.W.C. (Ontario, Lincoln County; 1912;lost 1941)

ELINOR-I.W.C. (Ontario, Lincoln County; 1912;lost 1941)

VIEW-I.W.C. (New York, Niagara County;1912;lost 1941)

WOOD-I.W.C. (New York, Niagara County;1912;lost 1941)

JACK-I.W.C. (New York, Niagara County;1912;lost 1941)

ROSE-I.W.C. (Ontario, Lincoln County; 1912;lost 1941)

SNOW-I.W.C. (New York, Niagara County;1912;lost 1941)

MONUMENT 5-ECC.-I.W.C. (Ontario, Lincoln County)

DAGON-I.W.C. (New York, Niagara County;1912;lost 1941)

GYPSY-I.W.C. (Ontario, Lincoln County; 1912;lost 1941)

LEFT-I.W.C. (New York, Niagara County;1912;lost 1941)

ROOT-I.W.C. (Ontario, Lincoln County; 1912;lost 1941)

MEDINA-I.W.C. (New York, Niagara County;1912;lost 1941)

ACORN-I.W.C. (Ontario, Lincoln County; 1912;lost 1941)

NELL-I.W.C. (New York, Niagara County;1912;lost 1941)

HEIGHTS-I.W.C. (New York, Niagara County;1912;lost 1941)

CHANCE-I.W.C. (Ontario, Welland County; 1912;lost 1941)

OGDEN-I.W.C. (New York, Niagara County;1912;lost 1941)

BOLT-I.W.C. (Ontario, Welland County; 1912;lost 1941)

KILN-I.W.C. (New York, Niagara County;1912;lost 1941)

DEVIL-I.W.C. (New York, Niagara County;1912;lost 1941)

TIE-I.W.C. (Ontario, Welland County; 1912;lost 1941)

GLEN-I.W.C. (Ontario, Welland County; 1912;lost 1941)

MOSES-I.W.C. (Ontario, Welland County; 1912;lost 1941)

JUNIOR-I.W.C. (Ontario, Welland County; 1912;lost 1941)

DAVID-I.W.C. (Ontario, Welland County; 1912;lost 1941)

WHIRL-I.W.C. (Ontario, Welland County; 1912;lost 1941)

POOL-I.W.C. (New York, Niagara County;1912;lost 1941)

BURR-I.W.C. (New York, Niagara County;1912;lost 1941)

SLATER-I.W.C. (Ontario, Welland County; 1912;lost 1941)

STEWART-I.W.C. (New York, Niagara County;1912;lost 1941)

POST-I.W.C. (Ontario, Welland County; 1912;lost 1941)

CLOVER-I.W.C. (New York, Niagara County;1912;lost 1941)

ROPE-I.W.C. (Ontario, Welland County; 1912;lost 1941)

GIANT-I.W.C. (New York, Niagara County;1912;lost 1941)

ROOF-I.W.C. (New York, Niagara County;1912;lost 1941)

TANK-I.W.C. (New York, Niagara County;1912;lost 1941)

SPIR-I.W.C. (Ontario, Welland County; 1912;lost 1941)

CLIFTON-I.W.C. (Ontario, Welland County; 1912;lost 1941)

QUEEN-I.W.C. (Ontario, Welland County; 1912;lost 1941)

BENCH-I.W.C. (New York, Niagara County;1912;lost 1941)

CHIPPAWA-I.W.C. (Ontario, Welland County; 1912;lost 1941)

CONNER-I.W.C. (New York, Niagara County;1909;lost 1941)

LOWER-I.W.C. (New York, Niagara County;1909;lost 1941)

BURNT-I.W.C. (New York, Erie County; 1909;lost 1941)

NAVY-I.W.C. (Ontario, Welland County; 1909;lost 1941)

MEYERS-I.W.C. (Ontario, Welland County; 1909;lost 1941)

EAGLE PARK-I.W.C. (New York, Erie County; 1909;lost 1941)

LEE-I.W.C. (Ontario, Welland County; 1909;lost 1941)

MENNONITE-I.W.C. (Ontario, Welland County; 1909;lost 1941)

SHEENWATER-I.W.C. (New York, Erie County; 1909;lost 1941)

BLUFF-I.W.C. (Ontario, Welland County; 1909;lost 1941)

SIDWAY-I.W.C. (New York, Erie County; 1909;lost 1941)

BEAVER-I.W.C. (New York, Erie County; 1909;lost 1941)

STRAWBERRY-I.W.C. (New York, Erie County; 1909;lost 1941)

SQUAW-I.W.C. (New York, Erie County; 1909;lost 1941)

MONUMENT NO. 32
(STRAWBERRY) I.W.C. (New York,Erie County;1909;lost 1941)

FILL-I.W.C. (New York, Erie County; 1909;lost 1941)

RAIL-I.W.C. (Ontario, Welland County; 1909;lost 1941)

STREET-I.W.C. (New York, Erie County; 1909;lost 1941)

LITTLE-I.W.C. (Ontario, Welland County; 1909;lost 1941)

SOUTH BASE-
BUFFALO-I.W.C. (New York, Erie County; 1909;lost 1941)

NORTH BASE-
BUFFALO-I.W.C. (New York, Erie County; 1909;lost 1941)

TRIANGULATION STATIONS
INTERNATIONAL WATERWAYS COMMISSION

NIAGARA RIVER

MOTOR (I.W.C.Survey;1909)--This station is situated on lower end of Motor Island. Station established in 1909.

Geodetic point is center of 3/8 inch brass plug cemented in top of 2 inch, hollow, galvanized iron pipe, that was filled with concrete after being driven in ground. Top of pipe is 8 inches below surface, but being on sand bar, depth below sand is uncertain. No marker.

	Azimuth
BEDELL	137° 39' 02".72
Smokestack of Wickwire Plant	169 05 00
Rattlesnake Lt. No. 1	210 57 40
Rattlesnake Lt. No. 2	266 02 10
Cupola of Bedell Ho.	134 16 40

GRAND (I.W.C.Survey;1909)--This station is situated on American mainland, 272 feet above Grand Island Ferry Bridge, on west side of road between low board fence and trolley line. Station established in 1909.

Geodetic point is center of 3/8 inch brass plug cemented in concrete monument, top of plug projecting 1/4 inch above surface of concrete. Top of monument is 1-1/2 feet below surface of the ground. Marker, concrete, 8 inches diameter, marked "I.W.C. 1909", 1.2 feet northwest of station, 3 inches below surface.

	Azimuth
RATTLESNAKE	137° 37' 33".59
Smokestack on Wickwire Steel Plant	144 11 00
Tank at Bridgeburg	357 11 30
Rattlesnake Lt. No. 2	103 14 30
Cupola of Bedell Ho.	114 41 30

BEDELL (I.W.C.Survey;1909)--This station is situated on Grand Island at river's edge about 400 feet below Bedell House.

Geodetic point is center of 3/8 inch brass plug cemented in concrete monument, top of the plug projecting 1/4 inch above surface of concrete. Top of monument is 1-1/2 feet below surface of the ground. Station established in 1909. Marker concrete, 8 inches diameter, marked, "I.W.C. 1909", 1.2 feet northwest of station and flush with surface of ground.

	Azimuth
SCHWARTZ	175° 21' 30".35
Smokestack on Wick-wire Plant	205 54 30
Rattlesnake Lt. No.2	302 06 30
W. tower, State Insane Asylum	314 07 30

RATTLESNAKE (I.W.C.Survey;1909)--This station is situated on American mainland on west side of tow path at second bend in canal below Grand Island Ferry Bridge over canal. Station established in 1909.

Geodetic point is center of 3/8 inch, brass plug cemented in concrete monument, top of the plug projecting 1/4 inch above surface of concrete. Top of monument 1 foot below surface. Marker concrete, 8 inches diameter, marked "I.W.C. 1909", 1.2 feet southeast of station and flush with the ground.

	Azimuth
GRAND	317° 37' 10".18
Rattlesnake Lt. No.2	341 00 40
Water tank at Bridgeburg	348 37 20
Rattlesnake Lt. No.1	10 51 20
Cupola Bedell Ho.	90 57 20

WICKWIRE (I.W.C.Survey;1909)--This station is situated on American mainland between south and middle railroad tracks west of plate girder bridge at Wickwire Iron Plant. Station established in 1909.

Geodetic point is center of 3/8 inch brass plug cemented in top of galvanized 2-inch iron pipe that had been filled with concrete and driven in railroad fill. Top of pipe 1 foot below surface of fill. Marker concrete, 8 inches diameter, marked "I.W.C. 1909", 1.2 feet east of station and 6 inches below slag.

	Azimuth
CORN	179° 22' 07".6
Cupola of Bedell House	26 33 30
Smokestack of Wick-wire Plant	45 31 00

CORN (I.W.C.Survey;1909)--This station is situated on American mainland at river's edge about 1/4 mile below Wickwire Iron Plant. Station was established in 1909.

Geodetic point is center of 3/8 inch brass plug cemented in concrete monument, top of the plug projecting 1/4 inch above surface of concrete. Top of monument is 1-1/2 feet below surface of ground. Marker is 1.2 feet south of station and flush with surface. Is concrete, 8 inches diameter, marked "I.W.C. 1909".

	Azimuth
WICKWIRE	359° 22' 07".23
Smokestack Wick-wire Plant	09 31 30
N cupola on Electric Beach Hotel	218 19 00

SCHWARTZ (I.W.C.,1909; U.S.L.S.,1940)--Located on the east side of Grand Island, 0.4 mile south of intersection of Love Road and East River Road, 20 ft. east of center of East River Road, at edge of bank, in front of house of J. Fitzpatrick, marked by 3/8 inch brass bolt in concrete monument one foot below the surface of the ground. A concrete post is two feet northeast of the station.

Reference mark No. 1, a bronze disk in concrete monument projecting two inches above the ground, in line of poles, 13 feet east of center of road, bears N-63°-W, 6.3 feet. Reference mark No. 2, similar to No. 1, 18 feet east of center of road, 5 feet west of maple tree, bears S-28°-W, 36.1 feet.

SCHOOL (I.W.C.Survey;1909)--This station is situated on Grand Island on slope of steep bank 1-1/2 miles above Electric Beach Hotel and about 150 yards below schoolhouse. Station established in 1909.

Geodetic point is center of 3/8 inch brass plug cemented in concrete monument, top of the plug projecting 1/4 inch above surface of concrete. Top of monument is 1-1/3 feet below surface of ground. Marker is concrete, 8 inches diameter, marked "I.W.C. 1909". Is 1.2 feet northeast of station and 2 inches below surface.

	Azimuth
STACK	227° 41' 35".2
N Cupola Electric Beach Hotel	231 28 40
Cupola on large dome, Ton'da.	240 16 00
Chim'y of Wickwire Steel Plant	00 53 40

WILLOW (I.W.C.Survey;1909)--This station is situated on American mainland 1/4 mile above Perue's saloon at river's edge. Station established in 1909.

Geodetic point is center of 3/8 inch brass plug cemented in concrete monument, top of the plug projecting 1/4 inch above concrete. Top of monument is 1-1/2 feet below surface of ground. Marker is concrete, 8 inches diameter, marked "I.W.C. 1909". Is 1.4 feet south of station and flush with surface.

	Azimuth
STACK	185° 34' 18".1
N cupola, Electric Beach Hotel	216 10 30

WILLOW (I.W.C.,1909; U.S.L.S.,1940)--Station located on the east side of the river, about one-fourth mile below the upper bridge to Grand Island, 300 ft. above the dock of the Frontier Oil Co., on low ground, about 50 feet from water's edge, marked by 3/8 inch brass bolt in concrete monument 18 inches below the surface of the ground.

Reference mark No. 1, a bronze disk in concrete monument projecting 3 inches above the ground, on line to east transmission tower, bears N-58°-E, 7.2 feet. Reference mark No. 2, similar to No. 1, at edge of brush on line to double blazed 48-inch elm, bears S-15°-E, 62.2 feet.

ELECTRIC (I.W.C.Survey,1909; lost 1941)--This station is situated on snubbing post on lower end of dock at Electric Beach. Grand Island, New York; station established in 1909.

Geodetic point is center of 3/8-inch brass plug driven in top of snubbing post and surrounded by 4 nails.

HICKORY (I.W.C.,1909; U.S.L.S.,1940)--Station located on the east side of the river, one-half mile above the southern limits of Tonawanda, about 570 feet northeast of a transmission tower, 4 feet northwest of edge of concrete pavement of River Road, 6 feet from edge of bank, 58 feet northeast of a double blaze on 30-inch oak, marked by 3/8-inch brass bolt in concrete monument 4 feet below the surface of the ground on the shoulder of the road. In 1940 a bronze disk in a concrete monument flush with the surface of the ground was placed directly over the center.

A bronze disk, in the pavement, 6 inches from the northwest edge, bears S-59°-E, 4.9 feet.

STACK (I.W.C.,1909; U.S.L.S.,1940)--Station located on east side of Grand Island, about 260 feet above intersection of Staley Road and East River Road, at water's edge, in front of house of G. A. Weber, 15 feet southwest of steps down the bank, marked by 3/8 inch brass bolt in concrete monument flush with the surface of the ground.

Reference mark No. 1, a bronze disk in concrete post projecting two inches above the ground, 20 feet from water's edge, 10 feet south of 36-inch willow, 45 feet from foot of bank, bears N-52°-W, 21.9 feet. Reference mark No. 2, similar to No. 1, 15 feet from water's edge, 40 feet from foot of bank, bears N-30°-E, 60.5 feet.

CANAL (I.W.C.Survey;1909)--This station is situated on American mainland, about opposite Electric Beach Hotel (station is little below). Station is on south side of canal. Station established in 1909.

Geodetic point is center of 3/8 inch brass plug cemented in concrete monument, top of the plug projecting 1/4 inch above surface of concrete. Top of monument is 1-1/3 feet below surface of ground. Marker is concrete, 8 inches diameter, marked "I.W.C. 1909". Is 0.9 foot northeast of station and 2 inches below surface.

	Azimuth
HICKORY	59° 31' 59".7
N cupola Electric Beach Hotel	135 03 00
Tall smokestack, Wickwire Steel Plant	39 15 00

ELM (I.W.C.Survey;1910)--This station is situated on American mainland near elm tree, 1/3 mile east of Six-Mile Creek and 1/2 mile SSW Tonawanda Brewery. Station established in 1910.

Geodetic point is center of 1 inch iron bolt driven in ground. Top of bolt is 10 inches below surface of ground. No marker at this station.

	Azimuth
CANAL	116° 09' 07".9
Chim'y.on Ton'da. Brewery	195 19 50
Flagpole on Armory	239 12 10

LITTLE OAK (I.W.C.Survey;1910)--This station is situated on east side of road that joins river road at corner of small saloon and barns. It is 2/5 mile south of river road. Station established in 1910.

Geodetic point is center of top of 1 inch iron bolt driven in ground. Top of bolt is 10 inches below surface of ground. No marker or reference posts.

	Azimuth
SHRUBBERY	208° 55' 38".5
Water tank on ball-bearing works	341 03 50
Chim'y., Wickwire Steel Plant	60 40 30

SHRUBBERY (I.W.C.Survey;1910)--This station is situated on American mainland 1/2 mile southeast of Tonawanda Brewery and 1/8 mile south of transmission line, near corner in shrubbery. Station established in 1910.

Geodetic point is center of 1 inch iron bolt driven in ground. Top of bolt is 6 inches below surface of ground. No marker.

	Azimuth
BREWERY	143° 33' 58".5
Flagpole of Armory	229 47 20
Chim'y., Wickwire Iron Plant	57 10 30

TONAWANDA (U.S.L.S.,1875; U.S.L.S.,1940)--A primary station of the U. S. Lake Survey, in Tonawanda, New York about 1.5 miles south of the Barge Canal, 0.3 miles west of Military Road, 0.25 miles south of Spaulding Fibre Co., 250 feet north of an old quarry, now flooded, in an open field, marked by a lead plug in top of a square stone post, 2-1/2 feet below the surface of the ground.

An iron bolt in a concrete post 10 inches in diameter projecting four inches above the ground, bears N-19°-E, 56.0 feet. A similar mark bears N-57°-E, 33.2 feet.

BUCKHORN (I.W.C.Survey;1909)--This station is situated on upper end of Buckhorn Island at river's edge about 150 yards above large red barn. Station was established in 1909.

Geodetic point is center of 3/8 inch brass plug cemented in top of 2-inch galvanized iron pipe that has been driven in ground and filled with concrete. Top of pipe is 4 inches below surface of the ground. Marker is concrete, 8 inches diameter, marked "I.W.C. 1909". Is 1.0 foot southwest of station and 2 inches below surface.

	Azimuth
LOWER	92° 18' 24".7
Cupola on Loretta Abb...	99 04 50
Cupola on Shredded Wheat Plant	108 47 00
Church spire at La Salle, N.Y.	222 14 10

CAYUGA (I.W.C.Survey;1909)--This station is situated on the foot of Cayuga Island on the south side of the island.

Geodetic point is center of 3/8 inch brass plug cemented in top of 2-inch galvanized iron pipe that has been driven in ground and filled with concrete. Top of pipe is 6 inches below surface of ground. After using, cap was screwed on top of pipe. Marker is concrete, 8 inches diameter, marked "I.W.C. 1909". Is 1.2 feet west of station and 1 inch below surface.

	Azimuth
BUCKHORN	21° 08' 51".46
Tall smokestack Chippawa Smelting Co.	71 33 50
Cupola of Lorretta Abbey	92 33 20
Cupola Shredded Wheat Plant	99 53 50

SUNKEN (I.W.C.Survey;1909)--This station is situated on upper end of Grand Island about one-half mile above Sunken Island at river's edge in front of large willows. Station was established in 1909.

Geodetic point is center of 3/8 inch brass plug cemented in concrete monument, top of the plug projecting about 1/4 inch above surface of concrete. Top of monument is 1-1/2 feet below surface of ground. Marker is concrete, 8 inches diameter, marked "I.W.C. 1909". Is 1.0 foot south of station and flush with surface.

	Azimuth
MANGS	243° 05' 44".1
Cupola of Loretta Abbey	97 47 50
Cupola Shredded Wheat Plant	104 52 10
Church spire at La Salle, N.Y.	137 45 50

UPPER (I.W.C.Survey;1909)--This station is situated on the upper end of Cayuga Island at Niagara River's edge about 150 yards above small landing. Station was established in 1909.

Geodetic point is center of 3/8 inch brass plug cemented in top of galvanized iron pipe (2 inch diameter) that had been driven in ground and filled with concrete. Top of pipe is 4 inches below surface of ground. Cap placed on top of pipe after using. Marker is concrete, 8 inches diameter, not lettered. Is 0.7 foot north of station and is flush with surface.

	Azimuth
MANGS	280° 33' 34".3
Church spire at N Tonawanda	301 54 40
Tall chim'y. N Tonawanda Steel Plant	302 55 30
Church Spire at Chippawa	82 23 34.7

UPPER (I.W.C.1909; U.S.L.S.,1940)--In Niagara Falls, New York, on the south side of Cayuga Island, about 350 feet southeast of intersection of Riverside Drive and Champlain Avenue, on property of J. C. Pernert, 50 feet from water's edge, 67 feet southeast of northeast corner of house, marked by a 3/8-inch brass bolt in a two-inch iron pipe filled with concrete, 4-1/2 feet below the surface of the ground. In 1940, a bronze disk in a concrete monument flush with the surface of the ground was set directly over the center point.

Reference mark No. 1, a bronze disk in top of concrete monument projecting two inches above the ground, on line

of the south side of porches of two cottages to the west, on west lot line, bears N-78°-W, 30.6 feet. Reference mark No. 2, similar to Mark No. 1, on north side of Riverside Drive, in line of poles, bears N-36°-E, 58.2 feet.

OAK GROVE (I.W.C.Survey;1909)--This station is situated on Grand Island about 1/2 mile below Electric Beach Hotel, on top of bank of highway. Station established in 1909.

Geodetic point is center of 3/8 inch brass plug cemented in concrete monument, top of plug projecting 1/4 inch above surface of concrete. Top of monument is 2 feet below surface of ground. Marker is concrete, 8 inches diameter, marked "I.W.C. 1909". Is 1.3 feet northwest of station and 3 inches below surface.

BREWERY (I.W.C.Survey;1910)--This station is situated on American mainland, east of river road about 300 yards south of Tonawanda Brewery. Station established in 1910.

Geodetic point is center of top of 1 inch iron bolt driven in ground. Top of bolt 10 inches below the surface of ground. No marker.

BREWERY (I.W.C.1910; U.S.L.S.,1940)--Station located in Tonawanda, New York, 845 feet southwest of Frontier Brewery Co., 66 feet southeast of center of Niagara Street, marked by a cross in bronze disk in top of concrete monument projecting two inches above the ground by which the original bolt was replaced in 1940.

Reference mark No. 1, a bronze disk in concrete monument projecting two inches above the ground on line to stack at Sewage Disposal Plant, bears N-63°-E, 4.7 feet. Reference mark No. 2, a cross on iron flange on southeast side of manhole, 33 feet south of center of road, bears N-43°-W, 36.7 feet.

MANGS (I.W.C.Survey;1909)--This station is situated on mainland about 1-1/2 miles above La Salle, New York, in Mang's Grove No. 47, at river's edge.

Geodetic point is center of 3/8 inch brass plug cemented in concrete monument, top of the plug projecting 1/4 inch above surface of concrete. Top of monument is 1-1/2 feet below surface of ground. Station was established in 1909. Marker is concrete, 8 inches diameter, marked "I.W.C. 1909". Is 1.1 feet east of station and is 2 inches below surface.

	Azimuth
SUNKEN	63° 06' 23".0
Church spire at Chippawa	85 45 00
Cupola on Loretta Abbey	93 47 00

DELIVERY (I.W.C.1909; U.S.L.S.,1940)--Station located on east side of Grand Island, about 1.1 miles below Edgewater Beach, on low marshy point, opposite residence of S. O. Ozimak, on line of east face of house, 12 feet from water's edge, 105 feet from center of East River Road, marked by a 3/8-inch brass bolt in two-inch pipe filled with concrete, four inches below the surface of the ground. A concrete post one inch below the ground is one foot northeast of the station.

Reference mark No. 1, a bronze disk in concrete monument, projecting 4 inches above the ground, on line to weather-vane on barn at "Wheatfield Farms", bears N-88°-E, 4.1 feet. Reference mark No. 2, similar to Mark No. 1, in row of Horse Chestnut trees on south side of road, on line of east face of Ozimak's house, bears S-30°-W, 135.6 feet.

WHEATFIELD (I.W.C.Survey;1909)--This station is situated on American mainland at river's edge about 220 yards below Dold's Barns at Wheatfield, New York. Station was established in 1909.

Geodetic point is center of 3/8 inch brass plug cemented in concrete monument, top of the plug projecting 1/4 inch above surface of concrete. Top of monument is 1 foot below surface of ground. Marker is concrete, 8 inches diameter, marked "I.W.C. 1909". Is 1.2 feet east of station and 2 inches below surface.

	Azimuth
EDGEWATER	10° 42' 16".3
Cupola Shredded Wheat Plant	102 24 20
Tall chim'y. on Ton'da Iron Plant	317 46 40

WHEATFIELD (I.W.C.1909; U.S.L.S.,1940)--Located on east side of Grand Island, 0.3 miles below Edgewater Beach, 7 feet northeast of spike in blaze on 36-inch oak, on weir bank, protected by a short concrete retaining wall, marked by 3/8 inch brass bolt in concrete monument 15 inches below the surface of the ground. A concrete post, flush with the surface of the ground, is two feet southeast of the station.

A reference mark, a bronze disk in concrete monument projecting two inches above the ground in fence line between two large oaks, bears S-41°-W, 66.6 feet.

RANSON (I.W.C.Survey;1909)--This station is situated on Grand Island at river's edge, opposite North Tonawanda and just above Ranson Road. Station established in 1909.

Geodetic point is center of 3/8-inch brass plug cemented in concrete monument, top of the plug projecting 1/4 inch above surface of concrete. Top of monument is

1-1/2 feet below surface of ground. Marker is concrete, 8 inches diameter, marked "I.W.C. 1909". Is 0.9 foot west of station and 2 inches below surface.

	Azimuth
GRATWICK	240° 13' 01".1
Chim'y on Ton'da. Iron Plant	275 22 40
Lower intake	328 01 20
Middle intake	337 12 50
Middle Ch. spire at Gratwick	205 57 40

TONAWANDA ISLAND (I.W.C.Survey;1909)--This station is on lower end of Tonawanda Island at river's edge. Station was established in 1909.

Geodetic point is center of 3/8 inch brass plug cemented in concrete monument, top of the plug projecting 1/4 inch above surface of concrete. Top of monument is 1-1/4 feet below the surface of the ground. No marker.

	Azimuth
POINT	136° 49' 55".9
Tall chim'y. on Ton'da Iron Plant	197 09 50
Upper intake	14 32 10
Middle intake	16 41 30
Lower intake	88 38 50

UPPER TONAWANDA (I.W.C.Survey;1909)--This station is situated on the upper end of Tonawanda Island at river's edge in lumber yard of Great Northern Lumber Company. Station established in 1909.

Geodetic point is center of 3/8 inch brass plug cemented in top of concrete monument. Top of monument is under a piece of planking 10 inch by 6 inch that is laid down on the dock. Piece of lumber marked by "+".

	Azimuth
THORN	115° 30' 54".4
Lower intake	145 59 50
Upper intake	56 23 40
Middle intake	109 58 00

UPPER TONAWANDA (I.W.C.1909; U.S.L.S.,1940)--Located on southwest corner of Tonawanda Island, 476 feet south of reservoir, 341 feet west of southwest corner of Hill-Manning Boat Works, marked by a 3/8-inch brass bolt in concrete monument, 16 inches below the surface of the ground.

Reference mark No. 1, a bronze disk in a concrete monument projecting two inches above the surface, bears N-45°-W, 4.9 feet. Reference mark No. 2, similar to Mark No. 1, bears N-76°-E, 50.4 feet.

CENTRAL (I.W.C.Survey;1909)--This station is situated on the American mainland, 1/4 mile west of depot Gratwick on the N.Y.C.H.R. R.R. right-of-way near public highway.

Geodetic point is center of 3/8 inch brass plug cemented in concrete monument, top of the plug projecting 1/4 inch above surface of concrete. Top of monument is 3 feet below surface of ground. Station established in 1909. Marker is concrete, 8 inches diameter, marked "I.W.C. 1909". Is 1.4 feet east of station and 4 inches below surface.

	Azimuth
EDGEWATER	89° 14' 14".5
Cupola of Shredded Wheat Plant at Falls	104 18 00
Chim'y. Ton'da. Iron Co.	340 03 10

EDGEWATER (I.W.C.1909; U.S.L.S.,1940)--Station located on east side of Grand Island, 0.3 mile below Edgewater Beach, 7 feet northeast of spike in blaze on 36-inch oak, on weir bank, protected by a short concrete retaining wall, marked by 3/8-inch brass bolt in concrete monument 15 inches below the surface of the ground. A concrete post, flush with the surface of the ground, is two feet southeast of the station.

THORN (I.W.C.Survey;1909)--This station is situated on Grand Island at river's edge, opposite Upper Tonawanda Waterworks and 200 yards (approximately) below Spicer Creek.

Geodetic point is center of 3/8 inch brass plug cemented in top of concrete monument, top of the plug projecting 1/4 inch above surface of concrete. Top of monument is 2 feet below the surface of the ground. Station established in 1909. Marker is concrete, 8 inches diameter, marked "I.W.C. 1909". Is 1.2 feet west of station and 1 inch below surface.

	Azimuth
RANSON	165° 06' 44".8
Chim'y. Ton'da. Iron Plant	210 09 40
Middle intake	303 37 00
Upper intake	346 36 50
Lower intake	184 11 30

NIAGARA (I.W.C.Survey;1909)--This station is situated on the American mainland across road from 367 Niagara Street, Tonawanda, New York. Station established in 1909.

Geodetic point is center of 3/8 inch brass plug cemented in concrete monument, top of the plug projecting 1/4 inch above surface of concrete. Top of monument is 1.0 foot below surface of ground. Marker is concrete, 8

inches diameter, marked "I.W.C. 1909". Is 1.3 feet from station and 3 inches below surface.

	Azimuth
MAINLAND	65° 12' 23".2
Tall chim'y. Ton'da Iron Co.	189 43 20

FERRY (I.W.C.Survey;1909)--This station is situated on Grand Island, about 75 yards above Tonawanda ferry landing and opposite Mr. Kropp's residence. Station established in 1909.

Geodetic point is center of 3/8 inch brass plug cemented in concrete monument, top of the plug projecting 1/4 inch above surface of concrete. Top of monument is 1-1/2 feet below surface of ground. Marker is concrete, 8 inches diameter, marked "I.W.C. 1909". Is 1.1 feet northwest of station and 1 inch below surface.

MAINLAND (I.W.C.Survey;1909)--This station is situated on American mainland about 410 yards above ferry bridge and between towpath and Erie Canal. Station established in 1909.

Geodetic point is center of 3/8 inch brass plug cemented in concrete monument, top of the plug projecting 1/4 inch above concrete. Top of monument is 1-1/6 feet below surface of ground. Marker is concrete, 8 inches diameter, marked "I.W.C. 1909". Is 1.0 foot northeast of station and is 3 inches below surface.

GRATWICK (I.W.C.1909; U.S.L.S.,1940)--In North Tonawanda, on southwest corner of dock in front of Buffalo Bolt Co., 92.6 feet southeast of Front Range Light, 50 feet from face of dock, 41 feet north of slip, 41 feet from 6-inch iron pipe filled with concrete, 79 feet from railroad rail projecting 1-1/2 feet above dock, marked by cross on top of 1-1/2 inch iron bar at surface of the ground surrounded by a concrete slab.

A reference mark, a bronze disk in a concrete monument projecting two inches above the ground on line to tank of Buffalo Bolt Co., bears N-48°-E, 115 feet.

POINT (I.W.C.Survey;1909)--This station is situated on Grand Island at river's edge one mile above Edgewater and opposite lower Tonawanda Lumber Yards.

Geodetic point is center of 3/8 inch brass plug cemented in top of hollow galvanized iron pipe (2 inch diameter) that has been driven in ground and filled with concrete. Top of pipe is 6 inches below surface. Station established in 1909. Marker is concrete, 8 inches diameter, marked "I.W.C. 1909". Is 1.1 feet west of station and flush with surface.

	Azimuth		
CENTRAL	206°	18'	26".2
Cupola of bldg. with clock	219	56	20
Tall chim'y. Ton'da Iron Co.	298	48	20

INTERNATIONAL BOUNDARY COMMISSION

Descriptions of References to the Boundary

LAKE ERIE

The stations are the center of the lights and visible from points 15 feet above low water at distances from 15 to 18 miles.

HORSESHOE REEF LIGHT (New York,Erie County;J.G.Hefty,1941; 1945)--This lighthouse is on a frame and sheet iron cabin on a platform supported by a skeleton frame about 9 feet above a cut stone foundation built on Horseshoe Reef just above the head of Niagara River. This reef was ceded to the United States by Canada in 1850 for lighthouse purposes. The lighthouse is no longer in use and deteriorating.

LONG POINT LIGHT (old)(Ontario,Norfolk County;USLS;IBC 1945)--This lighthouse was burned in 1929. The site, now partly under water, is outlined by eight iron bolts. The center was referenced in 1945.

LONG POINT LIGHT (new)(Ontario,Norfolk County;1916;G.S.C. 1921;IBC 1945)--On the marshy east end of Long Point, SE of the old light. It is in a white octagonal pyramidal concrete tower with a red lantern. Referenced in 1945.

PRESQUE ISLE LIGHT (Penna.,Erie County;1873;IWC 1912;IBC 1945)--On the northwest shore of the peninsula north of Erie, Pennsylvania. It is in a square brick tower on a brick foundation, painted white. Referenced in 1945.

FAIRPORT LIGHT (old,on bank)(Ohio,Lake Co.;USLS 1910;IBC 1945)--In an old lighthouse at the northwest corner of High and Second Sts., Fairport, Ohio. The building is a circular brick tower, faced with cut stone. Referenced in 1945.

FAIRPORT LIGHT (new,on pier)(Ohio,Lake Co.;USLS 1910;IBC 1945)--In a lighthouse built in 1910 on the breakwater, on the west side of the harbor entrance to Fairport, Ohio. It is in a white square tower on the corner of a square building. Referenced in 1945 to same marks as old light.

PELEE PASSAGE LIGHT (Ontario,Essex Co.;USLS 1910;IBC 1945)-- In a lighthouse about 4 miles NE of Pelee Island, built on cribwork on solid rock 14 ft. below water level. It is a red lantern on a white circular tower on a brown cylindrical

pier, of concrete with steel sheath, on top of a concrete deck 2 feet thick.

PERRYS MONUMENT LIGHT (Ohio,Ottawa Co.;USC&GS 1928;IBC 1945)--The light on top of the Perry Monument near Put-in-Bay on South Bass Island. This monument is a memorial and is 352 feet high.

MIDDLE ISLAND LIGHT (Ohio,Ottawa Co.;USLS 1910;IBC 1945)--The light in the abandoned lighthouse on Middle Island. The old lighthouse is a square, wooden frame building covered with shingles on a cut stone foundation about 10 feet high. Beginning to deteriorate. Referenced in 1945.

COLCHESTER REEF LIGHT (Ontario,Essex Co.;USLS 1910;IBC 1945)--The light in the lighthouse on Colchester Reef about 4 miles southeasterly from Colchester, Ontario. It is unoccupied and serviced once every three months. The structure is white, hexagonal, wood covered by wooden shingles, on a circular stone pier built on rock below water level. The first deck is concrete with two breaks in it, and the second deck of stone, 10 feet high.

TOLEDO HARBOR LIGHT (Ohio,Lucas Co.;USC&GS 1904;IBC 1945)--This is the light on the lighthouse usually referred to as "Maumee Bay, Harbor Lighthouse, light", and is in Maumee Bay, 8 miles from the Coast Guard station in Toledo, Ohio. The structure is a buff, square 3-story brick building, surmounted by a cylindrical tank and has a metal roof. It is build on a platform 11 ft. above the water. The base is of concrete on cribwork.

DETROIT RIVER

DETROIT RIVER LIGHTHOUSE--U.S.L.S. (Michigan,Monroe Co.; 1925;1942;1956)--The center of the top of the lighthouse, opposite Point Mouillee, where the dredged channels in Lake Erie diverge from the channel into the river.

BAR POINT--U.S.L.S. (Ontario,Essex Co.;1877;1910;1942; 1956)--At Summit Beach, on Bar Point at the mouth of the Detroit River. It is located just outside the bank of the river on a 7-foot by 7-foot concrete platform which is protected by piles of rocks on the water faces. It is about 70 ft. from Ref. Mon. 2.

Station mark: The cross in the top of a 1-inch iron bar set in a concrete base 18" in diameter, raised 6" above the concrete platform. Raised base is marked "U.S.L.S. 1877."

QUICK--U.S.L.S. (Michigan,Wayne Co.;1925;1942;lost in 1956)--On a small point on the west shore of the Detroit River, 3 miles south of Gibraltar, Mich., on the property known as Maple Beach, formerly owned by James Quick. It is 50 ft. S of the center of the road to Maple Beach extended, 61.2 ft. N of the north end of the breakwater, and 3 ft. W of the line of this north-and-south breakwater extended.

Station mark: A nail in the center of a 3-inch iron pipe 6 ft. long, filled with concrete and driven into the ground, projecting 1 inch above the ground. The station was under 1 foot of water in 1942. The references are as follows:

	Bearing	Distance
1-inch iron pipe projecting 6 inches above ground	N.36°35'W.	20.9 feet
7-inch wooden post	S.58 40 W.	11.9 feet
4-inch wooden post	S.13 45 W.	19.4 feet

See "QUICK 1942" for additional references.

QUICK 1942 (Mich.,Wayne Co.;F.H.B.,1942;1956)--On a private beach reserved by James Quick for the use of the lot owners at Maple Beach, 3 miles S of Gibraltar, Mich. It is 20 ft. from river; 5 ft. from high bank of river; 30 ft. N of the center of the road past the Quick residence extended; 120 ft. to the center of the road between the private beach and the houses. Station and reference buried in 1956.

This station and Reference mark No. 1 also act as references to Quick U.S.L.S.

Station mark: An IBC standard bronze-disk station mark set flush with the ground in the top of a cylinder of concrete 6 inches in diameter and 18 inches in depth. The subsurface mark is the bottom of a 12-gauge gun shell in a similar concrete cylinder 18 inches underground.

Reference mark No. 1 is 15 ft. N of a clump of 7 large willow trees; 80 ft. from the river, 68 ft. SW of a second clump of 7 large willow trees growing from same stump; 45 ft. NE of a 36-inch poplar. Connections with Quick U.S.L.S. are as follows:

At QUICK 1942	Directions	Distance
Detroit River Lt. Ho.	0°00'00"	
Ref. Mark No. 1	226 42 02	212.62 feet
Quick U.S.L.S.	249 57 25	
At Ref. Mark No. 1		
Quick U.S.L.S.	0 00 00	238.96 feet
Quick 1942	136 10 04	212.62 feet

CELERON--U.S.L.S. (Mich.,Wayne Co.;1925)--A concrete-filled 2-inch iron pipe driven 2 ft. into the ground, top 2 inches above the surface near the extreme southeastern point of Celeron Island, off the southern point of Grosse Ile, near the mouth of the Detroit River.

This station was under water in 1942 and hence not recovered.

SUGAR ISLAND--U.S.L.S. (Mich.,Wayne Co.;1873;1925;1942; 1956)--On the eastern side of Sugar Island opposite the southern part of Grosse Ile, near the mouth of the Detroit River. The island is now in the custody of the State Land Office Board. It is about 25 ft. from the high bank of the river at a place about 100 ft. downstream from the extreme eastern part of the island.

Station mark: The undisturbed cut stone monument set in 1873 is in place 2 ft. under the surface. An iron bolt, flush with the surface has been placed over the station. The reference stones project several inches above the surface, the western mark being undisturbed and the southern one leaning slightly toward the northeast.

	Azimuth	Distances
South R.M.	20°59'	29.35 feet
West R.M.	116 49	39.23 feet

SUGARDIKE (Mich.,Wayne Co.;F.H.B.,1942)--On the center of the top of the dike leading E from near Sugar Island to the dike on the west side of the Livingstone Channel opposite Bois Blanc Island. It is about 770 ft. W of this Livingstone Channel dike, and about 20 ft. on United States side of the boundary.

Station mark: The center of the top of a discarded chisel driven flush with the surface of the dike. A flat rock was placed over the marker to preserve it. Lost in 1944.

DANCEHALL--U.S.L.S. (Ontario,Essex Co.;1925;1942;1956)--It is on the roof of the large stone dancehall on Bois Blanc Island between the Livingstone and Canadian Channels near the mouth of the Detroit River. It is an X-cut in the fourth tile east of the eastern ornament on ridge, and 4 inches from the base of the ridge tin on the south side of the ridge.

DEDUCE (Ontario,Essex Co.;F.H.B.,1942;1956)--On the west dike of Livingstone channel opposite Amherstburg, Ontario; about midway between lights 17 and 19; 14 ft. E of top of high bank on U.S. channel side of dike, and 15 ft. W of the top of the Livingstone Channel side of dike.

Station mark: An IBC standard bronze-disk station mark set flush with top of rock in a drill hole in a rock 2 ft. by 1-1 ft., projecting 2 inches above surface of dike.

DELAY (Ontario,Essex Co.;F.H.B.,1942;1956)--On the dike on the E side of the Livingstone Channel opposite Amherstburg, Ontario, about 400 ft. upstream from Light No. 22 and 1000 feet downstream from the high rock dump on the dike. It is 25 ft. W of the high bank of the Canadian Channel of the river, and 55 ft. E of the Livingstone Channel.

Station mark: A cross cut in the top of a bronze cylinder 3/4 inch in diameter and 3 inches long set in a drill hole, flush with top of rock, in a solid rock showing 4 feet by 1-1/2 feet and projecting 3 inches above dike.

DINGLE--1942 (Mich.,Wayne Co.;F.H.B.,1942)--On the east dike of the Livingstone Channel, about 300 ft. S of the high deposit of dredged material and 10 ft. E of the Livingstone Channel.

Station mark: A 3/4-inch pipe projecting 6 inches above the surface, surrounded by a triangle of cobblestones on a level section of the dike.

DUMP (Mich.,Wayne Co.;F.H.B.,1942;p.1.1956)--On the east side of the top of the rock dump on the east side of Livingstone Channel between Lights 22 and 24, opposite Amherstburg, Ontario. It is on a hummock near the southern end of the rock dump.

Station mark: An IBC standard bronze-disk station mark set in a drill hole in a rock.

KNUD (Mich.,Wayne Co.;F.H.B.,1942;1956)--Opposite the residence of A.B. Lowrie on the east shore of the south central part of Grosse Ile, Mich., slightly south of the south side of Stony Island. It is on the edge of the high bank of the river on the east side of the river road, and 1/2 mile south of Grosse Ile Parkway.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in the top of a cylinder of concrete 8 inches in diameter and 16 inches in depth. The subsurface mark is a 1/4-inch copper tube set in the top of a similar concrete cylinder 16 inches underground. Angles and distances to references are:

	Directions	Distances
STONY--U.S.L.S.	0° 00' 00"	
Maple trees	158 12	84.0 feet
North stone gate post	175 11 00	154.90 feet
Basswood tree across road	234 58	34.5 feet
Fire hydrant	325 22 00	179.95 feet

STONY--U.S.L.S. (Mich.,Wayne Co.;1925;1942;1956)--An iron bolt in the south capstone of the long part of the east abutment of the former Stony Island railroad bridge, on the western point of Stony Island, opposite the southern edge of Tenton, Mich. It is 2.5 ft. from the western edge and 3.5 ft. from the southern edge of the capstone.

STONEHEAP--U.S.L.S. (Mich.,Wayne Co.;1925)--About 1 mile downstream from the Grosse Ile Light on the central one of three heaps of rock in the water in a line at right angles to the shore line.

Station mark: A drill hole in the upper surface of the highest large limestone rock. This rock might be shifted by ice, and was not searched for in 1942.

CANARD--U.S.L.S. (Ontario,Essex Co.;1925;1942;1.1956)--A little south of the mouth of the Riviere aux Canards, west of a canal, and on a plot of filled ground reached by a bridge across the canal. It is 60 ft. from the N edge of the plot and 5 ft. from the E edge. A new cottage is west of the station cutting off a view of the river, hence the station was not used in 1942.

Station mark: A 3-inch iron pipe filled with concrete with a spike in the center, about flush. Following are 1925 measurements to references:

	Azimuth	Distances
Peak of gray boulder	15°42'	73.60 feet
X cut on yellow granite boulder	120 07	38.08 feet
Peak of gray boulder	186 05	45.10 feet
Corner of Canal	198 30	130 feet

NORTH GROSSE--U.S.L.S. (Mich.,Wayne Co.;1925;1942;1956)--On Grosse Ile 1 mile downstream from the head of the island, 7 feet from the high bank and 15 ft. from the river, 24 inches from the east and south edges of the 8-foot by 8-foot concrete foundation of the oil house, 95 ft. N of the Grosse Ile South Channel Range, Front Light.

Station mark: The head of a Western Field 12-gauge shell set in a drill hole in the concrete platform which is about 4 inches above surface of the ground.

TURKEY---1942 (Ontario,Essex Co.;F.H.B.,1942)--About the center of Turkey Island in the part having a few trees. Directions and distances to references follow:

	Directions	Distances
Ref. Mon. 4	0° 00' 00"	
Turkey Island USLS (1873)	99 54 12	492.53 feet
First Oak tree	145 00	76.6 feet
Second Oak tree	269 42	264.5 feet
Third Oak tree	325 14	42.7 feet
Pear tree		161.2 feet

Station mark: An IBC standard bronze-disk station mark set 2 inches above the surface in a cylinder of concrete 6 inches in diameter and 18 inches in depth. The metal subsurface mark is set in a similar concrete cylinder 20 inches underground.

TURKEY ISLAND--U.S.L.S. (Ontario,Essex Co.;1873;1925; 1942)--In the north central part of Turkey Island 19.24 ft. northwest of the low stump of the maple tree, originally near the station. It is 492.53 ft. from Turkey 1942 in azimuth 164°12'04".

Station mark: The original cut stone monument, slightly below the surface has been disturbed a little, and was relocated in 1942.

NELLIS--1942 (Ontario,Essex Co.;F.H.B.,1942)--On the north side of the canal across Fighting Island south of the waste beds. Not marked except by 2-inch by 2-inch hub flush.

HENNEPIN--U.S.L.S. (Mich.,Wayne Co.;1924;1942;1956)--On the high bank near the upper end of Grosse Ile, where the north and south piling bends to the NW toward extreme northern point of the island. It is 10 ft. from top of high bank and 40 ft. from the piling.

Station mark: The original mark was replaced in 1930 by a bronze disk labelled "U.S. Harbor Line Reference No. 33" set in a handhole 8 inches in diameter and 6 inches deep in a 8-foot by 3-foot concrete base nearly flush with surface.

GRASSY--U.S.L.S. (Mich.,Wayne Co.;1924;1942)--Opposite Wyandotte; on the western tip of Grassy Island; on the northeast corner of the concrete foundation for the steel truss supporting the Grassy Island North Channel South Range Light. It is 1.9 ft. from the north and east edges of the concrete.

Station mark: The metal part of a shotgun shell set in a drill hole in the concrete.

ECORSE CHURCH--U.S.L.S. (Mich.,Wayne Co.;1923;1942)--The spire of the St. Francis Xavier Roman Catholic Church, red brick, built in 1882, on High Street, Ecorse. Recovered in 1942 but not used. Gone in 1956.

ROUGE SCHOOL--U.S.L.S. (Mich.,Essex Co.;1923;1942;1956)--On the roof of the high tower on the River Rouge High School on the Coolidge Highway, between Jefferson Ave. and Division St., River Rouge, Mich. Also a new school in 1956.

Station mark: The original station mark was gone, and was replaced in 1942 by a nail head driven in the tar and stone roof. It is at intersection of joints, in the tile roof and is the following distances from the inside of the stone coping:
4.88 feet to north coping, 9.49 feet to west, and 8.88 feet to east (these are original distances and were used to relocate the center mark).

WHAMPAS, 1942 (Ontario,Essex Co.;F.H.B.,1942;1.1956)--Four miles downriver from the Ambassador Bridge, on the grounds of the Canadian Steel Co., on a point of the shore. The station is 10 ft. from the downriver side of the point and 20 feet from the upriver side. It is 31 feet from a large willow stump on the tip of the point; 26 feet downriver from a 44-inch willow near the upriver side of the poing; and 34 feet from a 46-inch willow near the downriver side of the point.
Station mark: A 3-inch concrete-filled pipe, with its top battered, driven flush with the surface of the ground. This is the original station mark, but it had shifted and was relocated in 1942.

WALL--U.S.L.S. (Mich.,Wayne Co.;1919;1944)--This station reported recovered by removal of much covering material by the U.S.G.S. in 1944.

OJIBWAY--U.S.L.S. (Ontario,Essex Co.;1923;1942;1956)--About 3 miles downriver from the Ambassador Bridge, on the concrete dock north of the slip at the plant of the Canadian Steel Co. The station is near the middle of the river side of the dock; about 137 feet S of a wooden pile at the north end of the dock; 99.58 ft. N of a steel pole carrying a light at the south end of the dock; 9.08 ft. upriver from an iron snubbing post; 4.42 ft. from the river edge of the dock; and 3.61 ft. from the opposite edge.
Station mark: A bronze plug leaded into a drill hole in the concrete.

SULPHITE--U.S.L.S. (Mich.,Essex Co.;1923)--Center of pole on the concrete sulphur tower of the Detroit Sulphide Paper Co., Detroit, Mich. In 1942 the pole wasn't visible above the coping from other stations, but the site wasn't examined to see if station could be recovered.

OAKWOOD--U.S.L.S. (Mich.,Wayne Co.;1923;1942;1956)--A nailhead in the tar and gravel roof of the "clinic" penthouse on top of the Oakwood Hunter Schoolhouse; 44-5/8 inches from the coping on the south side. The station

could be replaced, if destroyed, by the following measurements to the peak of ventilator and the inside corners of the coping:

	Azimuth	Distances
Ventilator peak	143°	25.80 feet
S.E. corner coping	261	13.88 feet
S.W. corner coping	56	21.41 feet
N.W. corner coping	117	33.83 feet
N.E. corner coping	182	29.58 feet

TRINITATIS--U.S.L.S. (Mich.,Wayne Co.;1923;1942;1956)--Near the center of the square-topped spire of the Evangelische Trinitatis Kirche, near the corner of Fort Street and Woodmere Ave., Detroit. It is on the fourth tin from the west side of the roof, 3-9/16 inches from the east edge and 9-9/16 inches from the south edge. It can be located at any time by the above or the following measurements to the corners of the stone coping, checked in 1942:

	Azimuth	Distances
S.E. corner	288°	7.89 feet
S.W. corner	18	7.96 feet
N.W. corner	108	7.83 feet
N.E. Corner	198	7.98 feet

PROCESS--U.S.L.S. (Mich.,Essex Co.;1923;1942;1956)--On the SE corner of the concrete dock of the Solvay Process Co., on the S side of Jefferson St., between Crossley and Solvay Streets, Detroit; 1.5 feet from eastern (river) face or dock; 2.4 ft. from southern side of dock; 4.4 ft. from corner of tool house on the dock.

Station mark: A U.S.L.S. bronze tablet set in the concrete dock flush with surface.

EUCLID (Ontario,Essex Co.;F.H.B.,1942)--About 40 feet downstream from south side of McKee St. and 15 feet toward river from Euclid St., Windsor, Ontario. It is about 30 ft. from bank of river, south of Mulling coal yard, and in southerly end of a group of small poplars. Buried. Instrument needed to find.

Station Mark: An IBC standard bronze-disk station mark set in top of a cylinder of concrete 6 inches in diameter and 2 feet in depth, set flush. Subsurface mark is a stove bolt set in similar concrete cylinder 2 feet underground.

BROCK--U.S.L.S. (Ontario,Essex Co.;1923;1942;1956)--On the roof of the Brock Schoolhouse, Sandwich, Ontario. Should the station mark be lost it can be replaced by the following references:

	Azimuths	Distances
N.W. corner of ventilator house 3 feet up	269°	12.34 feet
Cross in lowest brick S.W. corner of brickwork	124	27.14 feet
Cross in lowest brick S.E. corner of brickwork	106	16.77 feet
Cross in cornice decoration inside of stone coping, south side		17.27 feet

Station mark: The head of a copper nail set in the tar roof of the schoolhouse.

SCOTTEN (Mich.,Wayne Co.;F.H.B.,1942)--In southern part of Detroit, Michigan, 3 ft. from the river face of a concrete loading wharf on the river front about midway between Scotten Ave. and Clark St. extended. It is 6 ft. from the upstream end of this concrete dock, used by the Detroit Harbor Terminals, Inc., whose main building is at the downstream end of the dock. It is near the upstream end of a storehouse on shore end of the wharf.

Station mark: A 1/4 inch hole in the bottom of a hole 1 inch in diameter and 1/2 inch deep in the center of the top of an iron snubbing post.

REF. MON. 48--DETROIT HARBOR LINE (Mich.,Essex Co.;1930; F.H.B.,1942)--At the foot and SW corner of West Grand Boulevard, extended, Detroit. It is 4.7 ft. from the river and about 7 ft. upstream from the fence between it and the coal yard.

Station mark: A bronze tablet set in bottom of a handhole in a concrete slab 4-feet by 4-feet flush with ground. The hole is 8 inches in diameter and about 6 inches deep and was originally covered with a handhole cover.

GAS--1942 (Mich.,Wayne Co.;F.H.B.,1942)--On the property of the Michigan Consolidated Gas Co., near the foot of 21st St., Detroit, on the location of the center of the hole in ground left by the gas pipe marking site of "Gas, U.S.L.S." in 1922. It is 30.75 ft. from the south end of the east face of the brick pump house; 28.47 ft. from the north end of this east face; and 46.16 ft. from the river side of the piling along the river where the line fence on east of gas company property intersects this piling.

Station mark: An IBC standard bronze-disk station mark set flush with surface of ground in top of a cylinder of concrete 6 inches in diameter and 18 inches in depth. The subsurface mark is a nail in similar concrete cylinder with top 18 inches underground.

UNION--U.S.L.S. (Mich.,Wayne Co.;1919)--About 500 meters below 12th St., Detroit, just above the first ferry slip; 53.65 ft. from surface of sea-wall; 67.1 ft. from the outer corner; and 54.9 ft. from outer edge of the wall at south side of the apron; 4.8 feet from nearest rail of R.R. Not searched for in 1942, and reported slightly disturbed in 1925.

Station mark: A spike in the center of a concrete filled 3-inch iron pipe, about flush with surface.

SANDWICH WEST BASE--U.S.L.S. (Ontario,Essex Co.;1922)--On the east side of Huron Line Road, Sandwich, Ontario; 124.09 ft. N of the south edge of the N curb on Sandwich St. on a line parallel to the fence; 3.92 ft. W of the fence; 99.9 ft. from a 15-inch tree near the fence. The station was recovered but not used in 1942, and reported slightly disturbed in 1928.

Station mark: A cross in the top of a copper bolt, protected by an iron plate, and set in the top of a concrete monument 4 ft. deep, 18 inches square at base, and 8 inches square at top, flush with the surface.

SANDWICH MIDDLE BASE--U.S.L.S. (Ontario,Essex Co.;1922; 1942;1956)--It is 2.99 ft. N of the curb on the north side of Sandwich St., Sandwich, Ontario; 3.35 ft. E of the line of the west edge of the east curb on Sunset Ave. 29.70 ft. from a nail driven into the curb on the south side of Sandwich St. Recovered but not used in 1942.

Station mark: A cross cut on the top of a copper bolt set in concrete in the top of a 3-inch iron pipe, driven 4 ft. into the ground with top flush with the surface.

SANDWICH EAST BASE--U.S.L.S. (Ontario,Essex Co.;1922; 1942;1956)--On the deep concrete curb foundation on the south side of Sandwich St., Windsor, about 60 ft. W of its junction with Ramkin St. It is 1.2 ft. from curb and 0.8 foot from sidewalk, 58.3 ft. from the corner brick house at the corner nearest the street intersection. Buried 7 inches in 1956.

Station mark: A cross cut in the top of a copper bolt set in concrete resting on the concrete curb foundation. The copper bolt is midway between 2 iron bolts 6 inches apart in an iron plate set in the concrete to protect the station mark.

PRINCED--U.S.L.S. (Ontario,Essex Co.;1923;1942;1956)--Near the northwestern corner of a small roof, north of the elevator tower of the Prince Edward Hotel, Windsor, Ontario. It is 5.1 ft. from a cross in the fifth brick from west end of north coping; 3.56 ft. from cross in the seventh brick from north end of west coping; 10.05 ft.

from northwest corner of elevator shaft; 11.50 ft. from southwest corner of a covered brick projecting from north coping near east end.
Station mark: A nail head set in the tar roof.

SIEGEL--U.S.L.S. (Mich.,Essex Co.;1923;1942)--Near the SW corner of the tank tower on the Ben Siegel Building 217-21 Woodward Ave., Detroit, used in 1942 by the Vernor Gingerale Mfg. Co.
Station mark: An anchor bolt set in the tar roof of the tank tower from which tank has been removed. The mark is now covered (in 1942) by tar and gravel, but can be recovered or relocated by the following measurements: 25.62 feet from a lead plug in the top of the NW corner of the stone coping; 3.01 ft. from a similar plug in the top of the southern stone coping; and 2.91 ft. to nearest point of the inside of the eastern stone coping.

GLENGWO--U.S.L.S. (Mich.,Wayne Co.;1923;1942)--On the SW corner of the concrete deck of the first platform of the tank tower of the Great Lakes Engineering Works, at the foot of Rivard St., Detroit. The distance to the gaspipe uprights of the railing, at points just above the flanges of the deck are: SW corner 3.18 ft.; first pipe N of corner, 3.63 ft.; first pipe east of corner, 3.90 feet.
The nail head in the tar originally marking the station is gone or covered, but the station could be located from these dimensions. It was used in 1942.

WALKERIN--U.S.L.S. (Ontario,Essex Co.;1923;1942)--On the roof of the old Windsor water intake building, Walkerville, Ontario. The following distances measured in 1930 were found O.K. in 1942: 5.92 ft. to the ventilator at roof level; 4.95 ft. to inside of coping on the north side of the road; 9.70 ft. to a cross in the first row of bricks NW from station; 9.35 ft. to a similar cross NE from station. Recovered but not used in 1942.
Station mark: A nail head set in the tar roof near the northern side of the roof.

PEABODY--U.S.L.S. (Ontario,Essex Co.;1923;1942;1956)--Near the northwestern corner of the higher part of the Walker Power Bldg., Walkerville, Ontario. The old station mark, a nail in tar roof, is now under 2-1/2 inches in insulating material and a new tar roof, but station was relocated by use of following measurements which had been determined in 1930; 7.05 ft. from inside NW corner of parapet around roof; 4.36 ft. fron inside of W parapet wall; 4.54 ft. from inside of N parapet wall.

BUHL--U.S.L.S. (Mich.,Wayne Co.;1923;1942;1956)--On the warehouse of the Buhl Hardware Co. at the foot of Adair St., Detroit. The following horizontal distances measured in 1930, were found correct in 1942. They are measured to crosses in the concrete coping 0.7 ft. above the roof: 3.72 ft. to post east of station; 12.25 ft. to southeast corner post, and 17.54 ft. to post on south side.
Station mark: A nail head set in the tar roof of the warehouse.

FORD TANK (Ontario,Essex Co.;F.H.B.,1942;1956)--The finial on the highest water tank of the Ford Plant near the river in the northern part of Walkerville, Ontario.

JIMSCOTT--U.S.L.S. (Mich.,Wayne Co.;1923;1942;1956)--On the north part of the top step, on the west side of Scott Memorial Fountain on west end of Belle Isle. It can be reset by the following measurements: 36.0 inches from the SW corner of the square base on the north end of the step; 31-15/16 inches from the SE corner of this same square base; and 20.0 inches from the west edge of the stone step. Scott,1942, is 53.43 ft. distant in azimuth 277°49'23" from Jimscott, U.S.L.S.
Station mark: Not permanently marked.

MONIA--U.S.L.S. (Mich.,Wayne Co.;1923;1942;1956)--On the eastern side of the dock of a coal company occupying the property of the Michigan Ammonia Works at the foot of Beaufait St., extended, Detroit. It is 8.18 ft. to Harbor Line Reference Mon. No. 23, a tablet in the southeastern corner of the dock; 15.36 ft. to a cross cut in the sea-wall on river side of the dock at a point 10.65 ft. from the Harbor Line Reference Mark, and 12.3 ft. from corner of dock.
Station mark: A punch hole in the center of the top of the iron snubbing post at the eastern side of dock.

SCOTT (Mich.,Wayne Co.;F.H.B.,1942;1956)--On the platform on the west side of the Scott Memorial Fountain on the west end of Belle Isle. It can be reset by the following measurements: 49.86 ft. from the SE corner of the first square post north of the west steps; 38.75 ft. from the NE corner of the first post south of the west steps; 50.00 ft. from the NE corner of the third post south of the west steps; 53.43 ft. from Jimscott,U.S.L.S., in azimuth 277°49'23".
Station mark: Not permanently marked.

BELLE ISLE, WEST BASE--U.S.L.S. (Mich.,Wayne Co.;1923; F.H.B.,1942)--On the north side of Belle Isle about 273 feet W of station BATHHOUSE between the bridge to Detroit and the island bathhouse.

Station mark: A bronze mark, with the words "City of Detroit Monument and Bench Mark", set in a smooth, square block of concrete about 2 inches below the surface of the ground. Bathhouse, U.S.L.S., is 8.33 meters distant in azimuth 232"44'53".

BATHHOUSE--U.S.L.S. (Harbor Line Mon. 4 B.I.)(Michigan, Wayne Co.;1923;F.H.B.,1942)--About 200 ft. from north shore of Belle Isle and 600 ft. W of the Bathhouse on the north side of the main road along north side of island. Recovered but not used in 1942.

Station mark: A Harbor Line bronze disk marked "4 B.I." set in a hand hole in a 4-foot square concrete base, a little above surface. This mark replaces original mark for Bathhouse.

LATIMER--U.S.L.S. (Ontario, Essex Co.;1919;1942;1956)--In the lawn of the Latimer residence, between Sandwich St. and the high bank of the river, in Ford, Ontario. It is 23.8 ft. from northwest corner of the house, 39.4 ft. from the SW corner; 5.7 ft. from a 16-inch tree toward the house from station; and 61.5 ft. from the center of a concrete post at the intersection of the street line and the west lot line.

Station mark: A spike in the center of a concrete filled 3-inch iron pipe driven 4 ft. into the ground, with the top just below the surface.

PILLETTE (Ontario ,Essex Co.;F.H.B.,1942;1956)--In Resume Park, on river side of Riverside Ave. nearly opposite the foot of Pillette St., Walkerville, Ontario. It is about 70 ft. toward river from the foot of the bank where park level drops from approximately the road level to general level of the park along the river, and the same distance upriver from the walk leading from the road to the river about the middle of the park.

Station mark: An IBC standard bronze-disk station mark set flush with surface of ground in the top of a cylinder of concrete 8 inches in diameter and 14 inches in depth. The sub-surface mark is a bottle top set in a similar concrete cylinder, 14 inches underground. There are three references: No. 1 is a 3/4 inch drill hole in the seventh stone step along path from road to river above mentioned. No. 2 is the nearest part of the base of the flag pole set in concrete in center of park. No. 3 is the nearest corner of the concrete block tool house upstream from the station. References O.K.

	Directions			Distances
FORD TANK	0°	00'	00"	
Ref. Mon. 2	41	09	20	136.25 feet
Ref. Mon. 3	172	24	45	97.95 feet
Ref. Mon. 1	313	07	10	235.97 feet

MEMORIAL--U.S.L.S. (Mich.,Wayne Co.;1923)--In the southeastern corner of Memorial Park, Detroit, in the part along the river front used as a parking lot, about 160 feet westerly from the eastern concrete sea-wall and about 60 ft. northerly from the river sea-wall. Not needed in 1942, but can doubtless be recovered by use of an auxiliary station.

A bronze tablet of the U.S. Lake Survey in an 8-inch hand hole in a 2-foot square concrete slab. This is covered at present by a few inches of fine stone, drawn in to form a parking lot.

NORTH BELLE--U.S.L.S.=
HARBOR LINE MONUMENT 1 B.I. (Mich.,Wayne Co.;1919;F.H.B., 1942)--In the NE corner of Belle Isle, 10 ft. from river and at edge of the high bank of the river; 132 ft. E of a small dock; 29.49 ft. from Detroit Harbor Line Monument No. 8 in azimuth 267°57', at edge of river.

Station mark: A Harbor Line disk marked "1 B.I." set in an 8-inch hand hole, 6 inches deep in the center of a 4-foot square cement base, with top 6 inches above the surface.

DETROIT WATERWORKS, tower (Mich.,Wayne Co.;F.H.B.,1942)--The tall slim finial on the observation tower in the Water Works Park, in the northern part of Detroit. This tower was being razed in 1945.

EDISON--U.S.L.S. (Mich.,Wayne Co.;1923)--On the wharf of the Detroit Edison Co., under the judges' stand at the foot of Lycaste Ave. extended, in northern Detroit. A wooden floor has been placed over the station and the judges' stand enclosed, hence station was not found or used in 1942.

Station mark: A cross cut in a bronze cap, set in concrete flush with the surface.

WINDMILL POINT LIGHT HOUSE (Mich.,Wayne Co.;F.H.B.,1942; 1956)--The center of the park of the lighthouse, which is 250 ft. from the old light, and near the southeast corner of the dock.

CAMPBELL--U.S.L.S. (Ontario,Essex Co.;1923)--On the northern side of Peach Island at the east end of a base line, set by the Detroit Edison Co. The references are gone due to growth of brush. An auxiliary station would doubtless be needed to locate the station.

Station mark: A small concrete monument.

TECUMSEH CATHOLIC CHURCH, cross (Ontario,Essex Co.;F.H.B. 1942; 1956)--The cross on the spire of the Catholic church in Tecumseh, Ontario. This station was occupied in the bell tower, and center of cross projected down by theodolite on the ground.

PUCE (Ontario,Essex Co.;F.H.B.,1942;1956)--On the southern shore of Lake St. Clair in the northern edge of the villag of Puce, Ontario. The first road east of the bridge over the Puce River leads to the lake near the station, which is 71 ft. from Puce River, 70 ft. to center line of this road and 22 ft. from the lake.. It is across the Puce River and 40 ft. downstream from Ref. Mon. 14. Buried in 1956. Instrument needed.

Station mark: An IBC standard bronze-disk station mark set 1 inch above ground in the top of a cylinder of concrete 7 inches in diameter and 18 inches in depth. The sub-surface mark is a 1/4 inch copper pipe projecting 1/4 inch above, and set in the center of a similar concrete cylinder 20 inches underground.

BELLE RIVER, tank (Ontario,Essex Co.;F.H.B.,1942;1956)--The knob of the top of the high black water tank in the village of Belle River, Ontario.

DEERBROOK--U.S.L.S. (Ontario,Essex Co.;1909;1942)--The schoolhouse is now gone and the station is now in a farm field. The surface mark has been plowed out, but the subsurface mark was apparently not disturbed though no effor was made to dig for same in 1942.

Reference Mark 1 was in good shape and found as describ

Reference Mark 2 was found in place but on the edge of a deep ditch dug between it and the road, and liable to destruction by frost action.

VERNIER (Michigan,Wayne Co.;F.H.B.,1942;1956)--The statio is the center of the apex of the bell tower on the south end of the building of the Gross Pointe Yacht Club, Gross Pointe, Mich., at the end of the Vernier Rd. The station was occupied in the lower bell room, the center being located by instruments set on the ground at right angles.

DETROIT AIRPORT, tank (Mich.,Wayne Co.;F.H.B.,1942)--The small cupola in the top center of the gas tank of the Detroit airport. The tank is painted in large black and orange squares and visible for a long distance.

MID (Mich.,Wayne Co.;F.H.B.,1942;1956)--The center of the light on the Lake St. Clair Lighthouse on a concrete pier on the west side of the dredged ship channel across Lake St. Clair; opposite Gaukler Point. (Occupied eccentrically.)

GAUKLER (Mich.,Macomb Co.;F.H.B.,1942;p.1.1956)--On Gaukler Point on the west shore of Lake St. Clair, about 300 yards N of the line between Wayne and Macomb Counties. The station is on the lawn of the Edsel Ford estate, 7 ft. from the shore. It is 45.7 ft. N of an 18-inch maple tree near the shore; 27.4 ft. from a 20-inch elm, which is back from the shore; and 47.4 ft. S.of a 24-inch elm near the shore.
Station mark: An IBC standard bronze-disk station mark 1 inch below the surface of the ground, set in a cylinder of concrete 6 inches in diameter and 24 inches in depth. The sub-surface mark is a copper tube set in a 6-inch cylinder of concrete 27 inches underground.

ROSA (Mich.,Macomb Co.;F.H.B.,1942;1.1956)--On the west shore of Lake St. Clair, on a narrow artificial point on the property of Stanley Olenzek. The station is about 60 ft. N of the tip of the point, on an enlargement of the fill which projects eastward into the water. The station is 2.8 ft. W of an ornamental post; 40.4 ft. SE of an angle in the sea-wall on the west side of the point; 4.96 ft. from the outside, north corner of a stone seat; and 16.7 ft. NE from the edge of a stone bench.
Station mark: An IBC standard bronze-disk station mark 1 inch below the surface of the ground, set in a cylinder of concrete 6 inches in diameter and 20 inches in depth. The sub-surface mark is a piece of copper tubing set in a 6 inch cylinder of concrete 22 inches underground.

ST. CLAIR SHORES, water tank (Mich.,Macomb Co.;F.H.B.; 1942)--The knob on the top center of the slim black water tank between the river road and the lake in the northern part of the village of St. Clair Shores, Mich., formerly belonging to the Masonic Club. It has the word "PARADISE" on the side of the tank. Reported gone in 1956.

MACOMB (Mich.,Macomb Co.;F.H.B.,1942;1956)--The center of the chimney on the highest part of the Macomb County Bldg., Mt. Clemens, Mich. This station was occupied eccentrically.

SELFRIDGE FIELD, tank (Mich.,Macomb Co.;F.H.B.,1942; 1956)--The finial on the Selfridge Field gas tank, Selfridge Field, Michigan, on the north side of the mouth of Clinton River. The tank is painted in large black and orange squares.

BEACON (Mich.,St. Clair Co.;F.H.B.,1942;1956)--The old channel beacon on the north side of the old channel into the mouth of the St. Clair River, west of the Old Club and about 11 miles below Algonac. The light has been removed and the glass is out of the windows, and the iron floor is formed of four quarters fastened together and forming a solid footing.

Station mark: The station is the finial on the pointed roof of the beacon and the point occupied directly under this finial is 0.13 ft. along the junction of the plates, south of the place where all four plates meet.

COLONY TOWER (Mich.,St. Clair Co.;F.H.B.,1942;1956)--The old tower on the south side of the Algonac-Mt. Clemens road, 4 miles W of Algonac, at the point where the road running west from Algonac along the north channel of the St. Clair River turns north for 2 or 3 miles along Anchor Bay. The station is the center of the conical roof.

REFERENCE MONUMENT 1-42 (Mich.,Monroe Co.;1911;1942)--Found flat and nearly covered with water. Moved about 80 ft. W and reset on the highest part of the sand bar about 30 ft. from the Detroit River, 600 ft. S of the mouth of the Huron River, and about 100 ft. from the channel on the shore side of the bar.

The monument is in good condition and is intervisible with Ref. Mon. 2, and stations "Quick, U.S.L.S."; "Quick 1942"; "Celeron"; "Sugar Island"; "Bar Point"; and "Detroit River Light".

REFERENCE MONUMENT 2-42 (Ontario,Essex Co.;1911;1942; 1956)--On the river side of Sunset Beach, on Bar Point, east of the northern end of the concrete wall along the river front and about 70 ft. east of "Bar Point U.S.L.S." on the extreme point of Bar Point.

The monument is in good condition and is intervisible with Ref. Mon. 1 and stations "Point Mouillee", "Detroit River Light", "Quick", and "Bar Point".

REFERENCE MONUMENT 3-42 (Ontario,Essex Co.;1911;1942; 1956)--1-1/2 miles N of Amherstburg, Ontario, on the east side of the river highway; 300 ft. S of a gravel side road; near the SW corner of the farm occupied by William Gillespie, on which a large brick house is located.

It is just inside the fence along the road right-of-way and 8 ft. N of the property line fence on the south side of the farm, in the shade of a large horse-chestnut tree in the corner of the lot and 4 ft. E of the monument.

The monument is in good condition and intervisible with stations "Sugardyke", "Sugar Island", "Deduce", "Delay", "Knud", "Dingle 1942", and "Dump".

BOUNDARY MONUMENT 1, SUGAR ISLAND DIKE (Michigan-Ontario; N.W.S.,1944,1956)--This monument was set on the international boundary in the center of the top of the dike extending from near Sugar Island in the Detroit River to the west dike of the Livingstone Channel, and is about 4 ft. from each side of the dike. This dike is disintegrating and unless repaired, will disappear in a few years. It was constructed in the old concrete form used for all the monuments in the Great Lakes area. A boundary tablet is set in the top of this monument, which is about 250 meters W of the junction of the dikes. The concrete base of this monument also holds the wooden boundary post in place.

BOUNDARY MONUMENT 2, WEST DIKE OF LIVINGSTONE CHANNEL (Michigan-Ontario;N.W.S.,1944,1956)--This monument was set on the international boundary about 10 ft. from the west side of the top of the dike on the west side of the Livingstone Channel and 20 ft. from its east side. It is 7.375 ft. northwesterly of Deduce triangulation station. It is the regulation conical concrete monument with hemispherical top, with a boundary tablet set in the top. It is about 200 meters south of the old channel of the river.

BOUNDARY MONUMENT 3, EAST DIKE OF LIVINGSTONE CHANNEL (Michigan-Ontario;N.W.S.,1944,1956)--This monument was set on the International Boundary about 21 ft. west of the top of the east dike of Livingstone Channel, and about 600 meters north of the place the old channel crosses the Livingstone Channel. A boundary reference mark is set in the top of the monument.

REFERENCE MONUMENT 4-42 (Mich.,Wayne Co.;1911;1942;1956)--Thirty feet from the east shore of Grosse Ile, opposite Riverview, Mich., on the river side lawn of O. Reinvaldt's summer home, directly toward river from the center of the house. The driveway to this house is on Park Lane 300 ft. N of its intersection with the Bridge Road leading to Riverview, and is the first driveway on Park Lane north of this intersection.

The monument is in good condition and is intervisible with "Turkey Island, U.S.L.S.", "Turkey 1942", and "North Grosse".

REFERENCE MONUMENT 5-42 (Ontario,Essex Co.;1925,1942)--On the northern part of Fighting Island on a high ridge running parallel with the rim 250 ft. from the west shore of island; 50 ft. W of a telegraph line running north and south along the island, and about 500 ft. downstream from Fighting Island, north light.

The monument is in good condition and is intervisible with stations "Whampas 1942", "Rouge School", "Ecorse R.C. Church", "Grassy", and "Hennepin".

REFERENCE MONUMENT 6-42 (Ontario,Essex Co.;1925;1942; 1956)--On the high bank of Detroit River, 7 ft. above the water surface and 25 ft. back from highwater mark, on the Canadian shore, about 1 mile downstream from the mouth of the Rouge River.

The monument is in good condition and is intervisible with stations "Whampas 1942", "Rouge School", "Ojibway", "Inner Entrance Light", "Oakwood", and "Trinitatis".

REFERENCE MONUMENT 7-42 (Ontario,Essex Co.;1911;1942; 1956)--On the grounds of Canadian Industries, Ltd., on land used for storage of coal. The monument is under a stock-pile of coal and is seldom uncovered. On June 15, 1942, the engineers at the plant removed the coal with their steam shovel so that the existence and approximate position of the monument could be determined. The angles measured by the U.S. Lake Survey were used in determining its position. The monument was in good condition and when uncovered is intervisible with station "Process". When needed, stations "Process" and "Euclid" can be used instead of the monument.

In 1956 about a foot of the top of the monument was found sheared off and the top of remainder as found was about 3 inches above ground; 38 ft. to the concrete bumper at end of old railroad track and in line with the north end of the two R.R. bumpers. All the nearby mills are out of use and a loading dock for ships is toward river from station.

REFERENCE MONUMENT 8-42 (Ontario,Essex Co.;1911;1942; 1956)--In Sandwich, Ontario, 1/4 mile downriver from the Ambassador Bridge. Near the river's edge, at the north edge of a narrow, earth road, called Chewitt Street--the first road that runs from the main highway towards the river south of the bridge.

The monument is in good condition and is intervisible with stations "Scotten", "Harbor Line Reference Mon.48", and "Gas 1942". Buried to 8 inches of top in 1956.

REFERENCE MONUMENT 9-42 (Ontario,Essex Co.;1911;1942; 1956)--In Sandwich, Ontario, on the north side of Sandwich Street, 30 ft. east of Campbell Ave., near the edge of the top of the steep river bank and 3 ft. from the curbe of the paved street.

The monument is in good condition and is intervisible with triangulation stations "Gas", "Union", and "Siegel".

REFERENCE MONUMENT 10-45 (Ontario,Essex Co.;R.K.L.,1945; p.l. 1956)--On the Canadian shore of the Detroit River nearly opposite the foot of the downstream slope of the overpass on which the River Road crosses the C.N.R. tracks in Walkerville, Ontario. There is one track of the railroad between the monument and the river. Lost or under junk in 1956.

The monument is intervisible with stations "Penobscot", "Peabody", and "Scott".

REFERENCE MONUMENT 11-42 (Mich.,Wayne Co.;1911;1942; 1956)--On the south corner of Belle Isle about 11 feet toward river from the curb of the River Road, and directly across the canal from a high tower on the island. It is in good condition and is intervisible with stations "Pillette", "Ford Tank", and "Latimer". A concrete cone C.P. No. 3, of the Detroit Harbor Line is 129.965 feet easterly of monument.

REFERENCE MONUMENT 12-42 (Mich.,Wayne Co.;1911;1942; 1956)--On the Coast Guard property near the southeastern end of Belle Isle and within about 6 ft. of the SE corner of the new Coast Guard station now being built. The monument is in good shape and is intervisible with Ref. Mon. 13, and stations "Windmill Point Light", "Pillette", "Edison, U.S.L.S.", "Ford Tank. It is 25 feet from the sea-wall along the river, and 80 ft. from sea-wall up river. Only 8 inches of top above ground in 1956.

REFERENCE MONUMENT 13-42 (Ontario,Essex Co.;1911;1942)-- In open ground near west end of Peach Island at the entrance to the Detroit River. It is in good condition and is intervisible with Ref. Mon. 12, and stations "Pillette", "Ford Tank", "Whittier", "Detroit Waterworks Tower", "Edison", and "Windmill Point Light".

REFERENCE MONUMENT 14-42 (Ontario,Essex Co.;1911;1942; 1.1956)--On the property of R. F. Stover, R.F.D. No. 1, Belle River, Ontario. This property is on the west side of Puce River, across the river from the hamlet of Puce. It is 2 ft. from edge of Lake Huron, and in good condition, but base is about 15 inches out of ground. It is intervisible with "Windmill Point Lighthouse", "Belle River Tank", and triangulation stations "Mid" and "Vernier".

REFERENCE MONUMENT 15-42 (Mich.,Macomb Co.;1911;1942; 1956)--On the lakeside lawn of Mr. Edsel Ford on Gaukler Point, on the lake side of a large pine tree and in the edge of the low branches of this tree, directly toward lake from Mr. Ford's house.
It is in good condition and intervisible with stations "Gaukler" and "Mid".

BOIS BLANC LIGHTHOUSE (Ontario,Essex Co.;F.H.B.,1942)-- The center of the finial on this lighthouse at the southern end of Bois Blanc Island near the mouth of the Detroit River.

AMHERSTBURG CHURCH, spire (Ontario,Essex Co.;F.H.B.,1942; 1956)--The finial on the only prominent church spire in Amherstburg, Ontario.

UPPER ENTRANCE LIGHTHOUSE (Ontario,Essex Co.;F.H.B.,1942; 1956)--The finial on this lighthouse at the upper junction of the Livingstone and Amherstburg Channels of the Detroit River 1/2 mile NE of Stony Island.

DETROIT RIVER LIGHT NO. 13 (Ontario,Essex Co.;F.H.B., 1942;1956)--The center of the light on the truss on concrete base on the west dike of the Livingstone Channel, 800 ft. upstream from the southern end.

DETROIT RIVER LIGHT NO. 14 (Ontario,Essex Co.;F.H.B., 1942;1956)--Center of the light on the truss on concrete base on the east dike of the Livingstone Channel, 800 ft. upstream from the southern end.

DETROIT RIVER LIGHT NO. 15 (Ontario,Essex Co.;F.H.B., 1942;1956)--The center of the light on the truss on concrete base on the west dike of the Livingstone Channel nearly opposite the southern end of Bois Blanc Island.

DETROIT RIVER LIGHT NO. 16 (Ontario,Essex Co.,F.H.B., 1942;1956)--The center of the light on the truss on concrete base on the east dike of the Livingstone Channel nearly opposite the southern end of Bois Blanc Island.

DETROIT RIVER LIGHT NO. 17 (Ontario,Essex Co.;F.H.B., 1942;1956)--The center of the light on a steel truss on a concrete base on the west dike of the Livingstone Channel opposite the north central part of Bois Blanc Island.

DETROIT RIVER LIGHT NO. 18 (Ontario,Essex Co.;F.H.B., 1942;1956)--The center of the light on a steel truss on a concrete base on the east dike of the Livingstone Channel opposite the north central part of Bois Blanc Island.

DETROIT RIVER LIGHT NO. 20 (Ontario,Essex Co.;F.H.B., 1942;1956)--The center of the light on a steel truss on a concrete pier on the east side of the Livingstone Channel at its junction with the southern side of the old dredged channel leading past Sugar Island; opposite the northern end of Bois Blanc Island.

DETROIT RIVER LIGHT NO. 19 (Mich.,Wayne Co.;F.H.B.,1942; 1956)--The center of the light on the northern end of the west dike of Livingstone Channel on southern side of the old dredged channel past Sugar Island; opposite the north end of Bois Blanc Island.

DETROIT RIVER LIGHT NO. 21 (Mich.,Wayne Co.;F.H.B.,1942; 1956)--The center of the light on the west dike of Livingstone Channel about 1200 ft. N of the old dredged channel past Sugar Island.

DETROIT RIVER LIGHT NO. 22 (Mich.,Wayne Co.;F.H.B.,1942; 1956)--The center of the light near east dike of Livingstone Channel about 1200 ft. N of the old dredged channel past Sugar Island, about 45 ft. on U.S. side of boundary.

DETROIT RIVER LIGHT NO. 24 (Mich.,Wayne Co.;F.H.B.,1942; 1956)--The center of the light on a truss on a concrete base near the east dike of the Livingstone Channel nearly opposite the southern edge of Stony Island.

FIGHTING ISLAND, south light (Mich.,Wayne Co.;F.H.B., 1942;1956)--The center of the light on top of the truss on a concrete pier in the river 1/3 mile downstream from the lower end of Fighting Island.

GROSSE ILE LIGHT (Mich.,Wayne Co.;F.H.B.,1942;1956)--The center of the light on top of the lighthouse on the east side of Grosse Ile 1/2 mile downstream from Riverview, Michigan.

SOUTH CHANNEL RANGE LIGHTS (Mich.,Wayne Co.;F.H.B.,1942; 1956)--The center of the lights on top of the lighthouses on the northern part of Grosse Ile, forming the front (southerly) and the rear (northerly) range lights for the Ballards Reef Channel on east side of Grosse Ile.

FIREMANS AERIAL (Mich.,Wayne Co.;F.H.B.,1942)--The center of the Firemans Aerial at the firemans hall in Wyandotte, Michigan.

ROUGE R. C. CHURCH, cross (Mich.,Wayne Co.;F.H.B.,1942; 1.1956)--The cross on the Catholic church in Rouge River, Michigan.

INNER ENTRANCE LIGHT (Mich.,Wayne Co.;F.H.B.,1942;1956)--The light on top of an eccentric to the center of the truss in a concrete base on Michigan shore on southern side of the mouth of the Rouge River.

PENOBSCOT BUILDING, Red Ball--C.&G.S. (Michigan,Wayne Co.; 1932;1942;1956)--The red ball on the radio tower on the Penobscot Building. This point is 0.232 meters from "Penobscot C.&G.S." in azimuth 141°31'47".

BUHL WATER TANK (Mich.,Wayne Co.;F.H.B.,1942;1956)--The knob on the top of the water tank of the Buhl Hardware Co., at the foot of Adair Street, northern Detroit.

FORD LOW TANK (Ontario,Essex Co.;F.H.B.,1942;1956)--The knob on the top of the low water tank near the eastern end of the Ford Plant in Walkerville, Ontario.

WHITTIER BUILDING, flag pole (Mich.,Wayne Co.;F.H.B., 1942;1956)--The steel flagpole on the higher part of the roof of the new Whittier apartment building, in northern Detroit. It is 4.511 meters from "Whittier, C.&G.S.", in azimuth 13°01'06".

CONVENT CUPOLA, cross (Ontario,Essex Co.;F.H.B.,1942)--The cross on the cupola of the convent on the east side of Riverside Ave.,Walkerville, Ontario, a little north of Pillette Street.

C. P. NO. 3--D.H.L. (Mich.,Wayne Co.;F.H.B.,1942)--A conical shaped concrete monument of the Detroit Harbor Line on southwestern Belle Isle 39.61 meters from Ref. Mon. 11 in azimuth 253°04'16".

PEACH ISLAND, Rear Range (Mich.,Wayne Co.;F.H.B.,1942)--The rear range light for the dredged channel in southern

half of Lake St. Clair, located northeast of Peach Island in the source of the Detroit River.

STATIONS NOT RECOVERED IN 1956

DINGLE--U.S.L.S. (Ontario,Essex Co.;1925)

BELLE ISLE, EAST BASE--U.S.L.S. (Mich.,Wayne Co.;1923)

KETTLE POINT--U.S.L.S. (Ontario,Lambton Co.;1909)

BLACKWELL--U.S.L.S. (Ontario,Lambton Co.;1909)

POINT MOUILLEE--U.S.L.S. (Mich.,Monroe Co.;1864;1910)

FOX ISLAND--U.S.L.S. (Michigan, Wayne Co.;1925)

NEW CLARK--U.S.L.S. (Ontario, Essex Co.;1925)

BOUCHER--U.S.L.S. (Mich., Wayne Co.;1925)

NELLIS--U.S.L.S. (Ontario,Essex Co.;1924)

ECORSE SCHOOL--U.S.L.S. (Michigan, Wayne Co.;1924)

CANSALT--U.S.L.S. (Ontario,Essex Co.;1923)

ELESS--U.S.L.S. (Michigan, Wayne Co.;1923)

CRUISE--U.S.L.S. (Ontario, Essex Co.1923)

NEWYARD--U.S.L.S. (Michigan, Wayne Co.;1922)

MOY--U.S.L.S. (Ontario,Essex Co.;1919)

VIEW--U.S.L.S. (Ontario,Essex Co.;1919)

IIA--U.S.L.S. (Mich., Wayne Co.;1930)

BROADHEAD--U.S.L.S. (Mich., Wayne Co.;1873)

ST. CLAIR RIVER

ST. CLAIR FLATS, Light No. 4(Mich.,St. Clair Co.;F.H.B., 1942;1956)--About midway north and south, of the dike along the east side of the dredged channel across the St. Clair Flats into the mouth of the St. Clair River. It is 12 feet east of the dredged channel. The station is the center of the light which is on a steel tower. On a lower level is a pointed cap over the oil tank which is also the center of station and can be occupied for all but distant observations which can be obtained by an eccentric setup on top of tower.

ST. CLAIR FLATS, Light No. 6 (Mich.,St. Clair Co.;F.H.B., 1942;1956)--At the north end of the dike along the east side of the dredged channel across the St. Clair Flats into the mouth of the St. Clair River. It is 50 ft. to north end of dike, 15 ft. to the west channel and about 100 ft. south to Ref. Mon. 16. The station is the center of the light which is on a steel tower, and also the pointed cap on the oil tank on a lower level.

OLD (Mich.,St. Clair Co.;F.H.B.,1942;1956)--On the grounds of the Old Club on the U.S. side of the St. Clair River near the lower end of the St. Clair Flats, about 10 miles downstream from Algonac. It is 7.25 ft. northerly from a 36-inch tree at river end of concrete walk leading to summer home on the dock; 14.45 ft. southerly from a 30-inch tree near the docks; 52.25 ft. from a 24-inch tree near the east sea-wall on side of the club property; 10 ft. from the summer house; 15.33 ft. from the NE corner of the concrete walk at entrance to summerhouse; 26.56 ft. to the south corner of the concrete walk leading to the dock. Distance to trees are to the nearest part of the trees. Stump only of 24-inch tree in 1956.
Station mark: An IBC standard bronze-disk station mark set flush with surface, in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a shotgun shell set in a similar concrete cylinder 24 inches underground.

ST. CLAIR RIVER, Light No. 1 (Mich.,St. Clair Co.;F.H.B., 1942;1956)--On the eastern side of a small island in the St. Clair River delta on the U.S. side of the river, about 9 miles downstream from Algonac, Mich. It is the front range for ships entering the dredged channel across the St. Clair Flats, into the mouth of the river, and located at the Coast Guard Station. The light on the steel truss is eccentric to center of the truss, a radio tower of steel truss construction being over the center of the lower truss.

Station mark: The station is the center of the radio tower and is referenced on the ground as follows: 3.93 ft. to nearest corner of the concrete foundation for easterly (toward river) leg of the steel truss holding the light; 3.80 ft. to nearest corner of concrete foundation for southerly leg, 3.64 ft. to westerly foundation, and 3.80 ft. to northerly foundation; 26.9 feet to northeast corner of one brick house and 19.3 ft. to southeast corner of the next brick house upstream.

ST. CLAIR RIVER, Light No. 3 (Mich.,St. Clair Co.;F.H.B., 1942;1956)--On the west side of the road leading from Harsens Island to the Old Club, and north side of the Maybury Highway, about 8-1/2 miles below Algonac. It is the rear range light for the channel across the St. Clair Flats into the mouth of the river, and is a steel truss tower 100 ft. high, with the upper third covered with metal painted white on the downstream and river sides.

The center of the two lights is the station, being occupied eccentrically.

KELLY (Mich.,St. Clair Co.;Harsens Island;F.H.B.,1942; 1956)--In Al Kelly's front yard at the Maybury Cut, near Light No. 3. The station is 4.39 ft. north of the outside edge of the sea-wall; 5.48 ft. south of a 30-inch poplar tree; and 25.83 ft. east of an angle in the sea-wall. The trees are gone and a new sea-wall built. Instrument needed to recover station.

Station mark: An IBC standard bronze-disk station mark flush with the surface of the ground, set in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The sub-surface mark is the mouth of a Pepsi Cola bottle set in a 6-inch cylinder of concrete, 2 ft. underground.

BEEBE (Mich.,St. Clair Co.;Harsens Island;F.H.B.,1942; 1.1956)--In the upriver corner of the front yard of Mr. Beebe's property, lot No. 7909, just upriver from Light No. 5. The station is 8.07 ft. south of a small spruce tree; 8.20 ft. north of the outside edge of the sea-wall facing the river; and 11.78 ft. west of the outside edge of the sea-wall facing the narrow canal between Beebe's lot and the next lot upriver. Light No. 5 now No. 13.

Station mark: An IBC standard bronze-disk station mark flush with the surface of the ground, set in a cylinder of concrete 6 inches in diameter and 14 inches in depth. The subsurface mark is a 4-inch spike in a buried log.

OSO (Mich.,St.Clair Co.;F.H.B.,1942;1.1956)--On a large lawn on a dock in front of No. 7537 South Channel Drive, St. Clair Flats, on Harsens Island about 8 miles downstream from Algonac. It is inshore and slightly upstream from Light No. 7. It is 8.94 ft. from the west sea-wall; 14.30 ft. from the angle nearer shore in sea-wall nearly on line to Light No. 7; 18.35 ft. from the angle in sea-wall farther from shore. Light No. 7 now No. 17.

Station mark: An old station mark found on the site and used consisting of a 1-1/2 inch iron pipe projecting 1 inch above the center of a concrete block flush with the surface.

SPEED (Mich.,St. Clair Co.;Harsens Island;F.H.B.,1942; 1956)--Near Light 9, in lawn of Bedore's Hotel, on the river side of a clump of bushes. The station is 17.40 ft. from an angle in the piling; 33.35 ft. from the west front corner of the hotel's angle toward river; 41.88 ft. from the east front corner of the hotel; 11.25 ft. from the river; and 1.70 ft. west of the line of the west side of the hotel produced toward the river. One foot underground in small brush in 1956.

Station mark: An IBC standard bronze-disk station mark flush with the surface of the ground, set in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is the brass end of a shotgun cartridge set in a 6-inch cylinder of concrete 2 ft. underground.

GEORGE (Mich.,St. Clair Co.;Harsens Island;F.H.B.,1942; 1956)--On the St. Clair River waterfront between Lights 9 and 11; in William H. Green's front yard. The station is 12.7 ft. north of an angle in the timber sea-wall; 53.8 ft. west of the east edge of the wharf; 24.9 ft. south of an 18-inch willow; 30.4 ft. west of a 16-inch willow; and 47.4 ft. west of the center of a flag pole. Lights 9 and 11 are now Nos. 19 and 21. Yard of house No. 6872 of Mr. Bentley.

Station mark: An IBC standard bronze-disk station mark flush with the surface of the ground, set in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is the brass and of a shotgun cartridge set in a 6-inch cylinder of concrete 2 feet underground.

LIND (Mich.,St. Clair Co.;Harsens Island;F.H.B.,1942; 1956)--on the St. Clair River waterfront, between Lights 11 and 12; in William Lindeman's yard. The station is 6.87 ft. north of the outside edge of the timber of the sea-wall, 10.8 ft. south of a 20-inch willow tree, and 23.4 ft. eastsoutheast of a 16-inch willow tree.

In 1956 the house belonged to Henry G. Little and is No. 6550. Distance to outside of sea-wall was 6.4 ft. The station is enclosed in a steel box and is 6 inches below surface of yard. Lights 11 and 12 were Nos. 21 and 36 in 1956.

Station mark: An IBC standard bronze-disk station mark flush with the surface of the ground in the top of a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a flattened piece of 1/2 inch copper tubing set in a 6-inch cylinder of concrete 2 feet underground.

BASSETT (Ontario,Lambton Co.;F.H.B.,1942;1956)--About one mile SE of the Canadian Club buildings at junction of Bassett Channel and St. Clair Rivers, on a small arm of the Bassett Channel. The station is on the highest part of the roof of the pump-house, which belongs to the Canadian Club. It is on the west slope of the roof and can be relocated by using the following dimensions: 3.03 ft. to north end of the upper story on which station is located; 4.83 ft. to south end; south end of roof 4.84 feet in azimuth 10°19'.

REFERENCE MONUMENT 26 ECC. (Mich.,St. Clair Co.;F.H.B., 1942)--About 3 feet inside the sea-wall in the second lawn north of the monument and is unmarked except for a 2-inch by 2-inch hub with a nail hole in top flush with the ground.

JOYCE (Mich.,St. Clair Co.;F.H.B.,1942)--About 5 miles downstream from Algonac, Mich., on Harsens Island, on the NE corner of the property of E. B. Payette. Sixteen inches fill. Instrument needed to find in 1956.

Station mark: An IBC standard bronze-disk station mark flush with surface in the top of a concrete cylinder 6 inches in diameter and 18 inches in depth. The subsurface mark is the threaded end of a 1/4-inch brass bolt set in a similar concrete cylinder 18 inches underground.

	Directions	Distances
Harsen	0° 00'	
Nearest corner of stone capped sea wall	73 37	1.42 feet
2-inch iron pipe	222 20	53.63 feet
Nearest corner of concrete step	348 34	18.36 feet.

CANCLUB (Ontario,Lambton Co.,Squirrel Island;F.H.B.,1942) On the west shore of the island midway between Light No. 10 and Light No. 12, and opposite Ref. Mon. 26.

It is 20 feet from the water's edge at the edge of the marsh. Under water in 1956.

Station mark: An IBC standard bronze-disk station mark set 3 inches above the ground level in a cylinder of concrete 6 inches in diameter and 18 inches in depth. The subsurface mark is a 1/4-inch brass bolt set in a 6-inch cylinder of concrete 18 inches underground. Lights 10 and 12 were Nos. 30 and 36 in 1956.

HARSEN (Mich.,St. Clair Co.;F.H.B.,1942)--In the SE corner of the unoccupied building lot of H.P. Pierson on the east side of Harsens Island about 4-1/2 miles downstream from Algonac. It is 16 ft. from the stone coping on the sea-wall and 16 ft. upstream from the property line between this unbuilt-on property and the house lot south of it. Steps lead down the sea-wall at the center of this lot and of the house lot south of it. A flagpole is 10 feet from the sea-wall in this lot to south. Under 1 foot of fill and instrument needed to find in 1956.

Station mark: An IBC standard bronze-disk station mark set flush with the surface in the top of a cylinder of concrete 6 inches in diameter and 18 inches in depth. The metal subsurface mark is set in a similar concrete cylinder 18 inches underground. The references follow:

	Directions	Distances
Tashmoo	0° 00'	
Nearest corner of top of steps upstream	11 17	32.6 feet
Nearest corner of top of steps downstream	155 19	75.55 feet
Base of flagpole	157 19	46.8 feet

SQUIRREL (Ontario,Lambton Co.,Squirrel Island;F.H.B., 1942)--On the west shore of the island, 1/4 mile upriver from Light No. 12 and Reference Mon. 27. On ground about 2 ft. above the water surface of the river, the most prominent and highest point along the enclosed water along this section of the river. A gut 10 ft. wide and several feet deep starts from the river near a log pier and extends eastward to open water near the station. The station is about 50 feet downriver from the line of this gut, 15 ft. from the water's edge. Light 12 now No. 36.

Station mark: An IBC standard bronze-disk station mark set 2 inches above the ground level in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a 1/4-inch brass bolt set in a 6-inch cylinder of concrete 2 feet underground.

	Directions	Distance
Ref. Mon. 29	0°00'00"	
Sans reference mark	164 07 38	24.74 feet 7.541 meters

ROAD (Mich.,St. Clair Co.;Harsens Island;F.H.B.,1942; 1956)--Between the highway and the river, 1/2 mile upriver from Sans Souci post office, 310 ft. down river from No. 2590 Bay View Ave.; 180 ft. upriver from No. 2720, and 260 feet downriver from Light No. 19. The station is 3.62 ft. from the edge of sea-wall; 5.8 feet from edge of the graveled roadway; 10 ft. upriver from an 18-inch poplar tree; and 23.1 ft. downriver from a 28-inch poplar. Station mark 10 inches above ground in 1956 due to erosion. Light 19 now No. 37. Only a stump remains of the 18-inch poplar tree, and the 28-inch poplar is gone. It is 33.7 feet to a 30-inch elm southward across the road; and 33.2 ft. to a 12-inch elm tree somewhat downstream and across the road.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a 4-inch piece of 1/8-inch bronze rod set in a 6-inch cylinder of concrete 2 ft. underground.

BEND (Mich.,St. Clair Co.;Harsens Island;F.H.B.,1942; 1956)--Between the highway and the river, 3/4 mile upriver from Sans Souci post office, and 60 ft. downriver from the south fence line of No. 2252 Bay View Ave. The station is 20 ft. from high-water mark of the river; 6.5 feet from the edge of the graveled roadway; 19.8 ft. upriver from a twin poplar tree; and 25.9 ft. downriver from an 18-inch poplar.

The trees have been cut above ground. The station is 1.5 ft. underground; 6.7 ft. from a white road marker; 20.5 ft. from outside of the sea-wall; and 57.2 feet downstream from the outer bend in the sea-wall across road from the end of the fence.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a brass end of a shotgun shell set in a 6-inch cylinder of concrete 2 feet underground.

GRANDE (Mich.,St. Clair Co.;F.H.B.,1942;1.1956)--On a small island about 200 ft. off Grand Pointe of Harsens Island, midway between Lights 19 and 21. The island is 32 ft. wide and 85 ft. long and is enclosed with a wooden sea-wall. The station is 8.92 ft. from the inside edge

ST. CLAIR RIVER, Light No. 17A (No. 35A in 1956)(Mich., St. Clair Co.;F.H.B.,1942)--On the east shore of Harsens Island about 4-1/2 miles below Algonac. It is a steel truss with a light on top and forms the rear range of the Harsen Island Range. The center of the light is the station, being occupied eccentrically.

TASHMOO (Mich.,St. Clair Co.;F.H.B.,1942;1956)--Four miles downstream from Algonac, on eastern shore of Harsens Island, in Tashmoo Park, across Bay View Avenue from the house of Frank A. Rasch, 3462 Bay View Ave., on the corner of this street and Mackinaw Ave. Mr. Rasch owns the property on which station is located. It is 14.26 ft. to outside edge of sea-wall; 37.1 ft. to edge of the pavement on Bay View Ave.; 17.4 ft. NE to a 24-inch maple; 51.0 ft. westerly to another maple; 45.45 ft. southerly to the angle in the sea-wall. An iron pipe set in concrete base with "JBR" and "FAR" is SW of station. Station 17.4 ft. NNE of 24-inch maple and 51.0 ft. W to a maple stump. Iron pipe was about 7 ft. SW in 1956.

Station mark: An IBC standard bronze-disk station mark set flush with the surface in the top of a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a 1/8-inch bronze rod in a similar concrete cylinder, 24 inches underground.

	Directions	Distances
Harsen	0° 00'	
St. Marks R.C. Church	5 30	
Pipe in concrete	31 09	7.21 feet

SANS (Mich.,St. Clair Co.;F.H.B.,1942;1956)--On the wooden dock of the gas station beside Sans Souci post office, Tashmoo Park, Harsens Island. It can be located from the reference mark, located as follows:

25.75 ft. from river edge of dock; 10.70 ft. from land edge of dock; 31.36 ft. from SW corner of tavern; 42.44 feet from SW corner of the tavern ell along the street; 35.54 ft. from nearest corner of gas station; 9.37 ft. from base of the iron post supporting the Standard Service sign. Dock and sign gone and building between station and the SW corner of tavern. Instrument needed to find in 1956.

Station mark: No center mark was established but the reference mark is an IBC standard bronze-disk station mark set flush with ground in top of a concrete cylinder 6 inches in diameter and 18 inches in depth. The metal subsurface mark is in a similar concrete cylinder 18 inches underground.

of the sea-wall down river; 14.87 feet from the edge of the sea-wall on the side of the island towards shore; and 14.74 ft. from the sea-wall on the river side of the island. Lights Nos. 19 and 21 were Nos. 37 and 39A in 1956.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a 1/4-inch brass bolt set in a 6-inch cylinder of concrete 2 feet underground.

CABIN (Ontario,Lambton Co.;Squirrel Island;F.H.B.,1942)--Opposite Grande Pointe of Harsens Island, about 1/2 mile upriver from Light No. 14. The station is 95 feet back from the water's edge; at the edge of a growth of small poplars; about 145 feet north of a tar-paper covered cabin; and about 235 ft. downriver from a one-strand barb wire fence. Light 14 now No. 38. Station 500 feet upstream from Light No. 38A. Instrument needed to recover in 1956.

Station mark: An IBC standard bronze-disk station mark set 3 inches above the surface of the ground in a cylinder of concrete 6 inches in diameter and 24 inches in depth. The sub-surface mark is a 1/4-inch brass bolt set in a 6-inch cylinder of concrete 2 feet underground.

SMITH (Mich.,St. Clair Co.;F.H.B.,1942;1956)--On the east side of the small island close to and south of Russell Island. The station is about 90 feet north of Light No. 21, 70 feet south of a cottage, and 8 ft. from high-water mark of the river. It is 7.5 ft. down river from the property line between two lots; 35.9 ft. east of a 16-inch poplar tree which is 40 ft. back from the river; and 9.68 ft. west of the inside corner of the sea-wall.

In 1956 station was 4.1 ft. from inside of new sea-wall and opposite a triangle cut in top of sea-wall; 73.3 ft. to S corner of cottage; 35.5 ft. SSE of the 16-inch poplar; and 40.3 ft. NE from a bent nail on the sea-wall in the property line. Light 21 is now No. 39A in 1956.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 16 inches in depth. The subsurface mark is a 1/4-inch brass bolt set in a 6-inch cylinder of concrete 18 inches underground.

INDIAN WALPOLE SOUTH BASE (Ontario,Lambton Co.,Walpole Island;F.H.B.,1942;p.1.1956)--About 1 mile downriver from the Algonac-Walpole Island ferry landing and opposite Light No. 21. The station is between the river and the road, 8.6 ft. from the edge of the graveled road, 39.3 ft.

from the fence line on the other side of the road, 23.8 ft. downriver from a 6-inch locust tree, and 65 ft. back from the river's edge. Light 21 is now No. 39A.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a 1/4-inch brass bolt set in a 6-inch cylinder of concrete 2 feet underground. Subsurface mark might be found with instrument.

BASE 23 (No. 39-B in 1956)(Mich.,St. Clair Co.;F.H.B., 1942;1956)--On the concrete foundation of Light No. 23, now No. 39-B, offshore from Russell Island, across the west channel from Algonac. It is on the eastern side of the concrete pier 1.82 feet from its eastern edge, 1.78 ft. to steel frame of the light, 1.30 ft. to the steel frame downstream, and 1.38 ft. to the steel frame upstream.

Station mark: An IBC standard bronze-disk station mark set in a drill hole found on the site with a 3-inch triangle cut in the concrete around it.

BEACH--WALPOLE NORTH BASE (Ontario,Lambton Co.,Walpole Island;F.H.B.,1942;1956)--About 3/4 mile downriver from the Algonac-Walpole Island ferry landing, and about 300 ft. downriver from Walpole Island Catholic Church. The station is on the flat between the road and the river, 140 feet from the road, 40 feet from high-water mark (towards Russell Island), and 85 ft. from the upriver end of the mud flat. Under water in 1956, probably lost.

Station mark: An IBC standard bronze-disk station mark set 3 inches above the surface of the ground in a cylinder of concrete 6 inches in diameter and 24 inches in depth. The subsurface mark is a 1/4-inch brass bolt set in a 6-inch cylinder of concrete 2 feet underground.

USE--U.S. Engineers (Ontario,Lambton Co.,Walpole Island; U.S.Engrs. 1932,1942)--Opposite Algonac, just upriver from Light No. 16, now No. 40, and 1/4 mile down river from the ferry landing on Walpole Island. The station is between the road and the river, 7.1 ft. from the edge of the sea-wall, 9 ft. from the edge of the graveled road, and 11.1 ft. upstream from an 18-inch willow--the first willow downriver from the ferry on the river side of the road.

Station mark: An iron bolt set in a 6-inch concrete cylinder, marked "U.S.E.1932", whose top is flush with the surface of the ground. Buried or lost in repair of sea-wall in 1956.

NUN (Mich.,St. Clair Co.;F.H.B.,1942;1956)--In the northern part of Algonac, in the riverside lawn of Mr. Nunley, 100 ft. S of Fisher Creek. It is on the northern edge of the higher level of the lawn. It is 42.25 ft. to the flagpole near NE corner of lawn; 25 ft. (slope distance) to the east end of the top of iron rail on upstream side of lawn; 37.45 ft. to the iron post supporting a bird house north of the house; 31.18 ft. to the nearest (NE) corner of the brick house; 118.35 ft. to the nearest (NW) corner of the boathouse in SE corner of lawn. In N edge of flower bed in 1956; flush with ground.

Station mark: An IBC standard bronze-disk station mark set 2 inches underground in the top of a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a 1/4-inch copper tube brought to a point, set in a similar concrete cylinder 24 inches underground.

SQUAW (Ontario,Lambton Co.;Walpole Island;F.H.B.,1942; 1956)--About 1/2 mile upriver from the Algonac-Walpole Island ferry landing and about 1/4 mile downriver from Light No. 18, now No. 42. The station is between the road and the river, 140 ft. from the river; 73.3 ft. upriver from a small thorn-apple tree which is near the road; 39.8 ft. from the edge of the graveled roadway; and 77.3 ft. from the fence line on the opposite side of the road. In 1956 Light No. 18 was No. 42. The station is 2 ft. S of the path to a small dock. It is opposite the entrance to a small building having 4 dormer windows, across the road from the station.

Station mark: An IBC standard bronze-disk station mark set 4 inches above the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a piece of 1/2-inch copper tubing set in a 6-inch cylinder of concrete 2 feet underground.

DAN (Mich.,St.Clair Co.;F.H.B.,1942;1.1956)--One mile up river from Algonac between the main highway and the river; 300 ft. downriver from Dan's boat house, and opposite Joe Berger's house No. 9780. The station is about 20 ft. back from high water mark; 56.49 ft. from the edge of the concrete pavement of the highway; 26.18 ft. N of an iron pipe marking the property line; and 20.83 ft. from a 4-foot piece of iron rail set in concrete S of the station.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a 1/4-inch brass bolt set in a 6-inch cylinder of concrete 2 feet underground.

MISKO (Ontario,Lambton Co.,Walpole Island;F.H.B.,1942; 1956)--About 1-1/2 miles upriver from the Algonac-Walpole Island ferry landing and 55 ft. upriver from wagon road entrance to Miskokomons Grove. The station is between the river and the road, 6 ft. from the water's edge, 20.2 ft. from the edge of the graveled highway, 57.8 ft. from the fence on the opposite side of the road, 9 ft. upriver from a 10-inch maple tree and 14 ft. downriver from a 12-inch maple. It was 2 ft. from water in 1956.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a 1/4-inch brass bolt set in a 6-inch cylinder of concrete 2 ft. underground.

Reference mark No. 1: A station of the U.S. Engineers, an iron pipe set in concrete, 106.67 ft. distant in azimuth 199°37' from the station. Reference mark No. 2 is a reference of the U.S. Engrs. station, located in the fence line across the road 110.56 ft. distant in azimuth 217°12' from the station. References not recovered in 1956 and probably lost.

WILLOW (Mich.,St. Clair Co.;F.H.B.,1942; 1.1956)--At the river end of a trailer camp which fronts on Highway 29, 1-1/2 miles upriver from Algonac. It is about 85 ft. east of a small store, No. 9345. The station is 21.3 ft. south of the shore on the north edge of the point; 16.9 ft. from the end of the point; 21.5 ft. SE of an 18-inch willow tree; 27.7 ft. SE of a 30-inch willow. Willows and references OK in 1956; point is gone.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 8 inches in diameter and 22 inches in depth. The subsurface mark is a 1/4-inch brass bolt set in a 6-inch cylinder of concrete 2 ft. underground. A bronze reference bolt, 3/4 inch in diameter is set in the concrete boundary wall between "Willow Point" cottage and the trailer camp grounds. The bolt is flush with the concrete, near the river end of the wall, distant 88.90 ft. in azimuth 44°49' from the station. Store and trailer camp gone.

BABY (Ontario,Lambton Co.;F.H.B.,1942;1.1956)--One mile downriver from Port Lambton, on a fill made for a wharf. The station is 15 ft. from the end of the wharf, 24 feet from the downriver side, and 23-1/2 ft. from the upriver side. Lost by erosion.

Station mark: An IBC standard bronze-disk station mark set flush with surface in a cylinder of concrete 6 inches in diameter and 16 inches in depth. The sub surface mark is a brass bolt set in a similar concrete cylinder 18 inches underground.

ROBERTS (Mich.,St.Clair Co.;F.H.B.,1942;1956)--Between the main highway and the river, 100 ft. downriver from Roberts Landing, opposite No. 8682, a house on Route 29. On top of the upriver concrete retaining wall of an old boat basin now filled in. The station is 24.51 ft. from the river side of the sea-wall; 19.73 ft. from the sea-wall along the downriver side of this lot; and 10.48 ft. from the west end of the retaining wall in which the mark is set. In 1956 it was 5 inches underground and more fill planned.

Station mark: An IBC standard bronze-disk station mark set in a drill hole in the concrete.

PORT (Ontario,Lambton Co.;F.H.B.,1942;1956)--Near the downriver edge of Port Lambton, between the main highway and the river, at the foot of Williams Street. The station is 18.5 ft. from the edge of the concrete pavement of the main road; 25 ft. from the water's edge; 60 ft. upriver from a walk leading to a wharf; and 5.3 ft. downriver from the extension of the property line on the downriver side of Williams Street.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches long. The subsurface mark is a 1/4-inch brass bolt set in a 6-inch concrete cylinder 2 feet underground. It is now 1 inch under surface and slightly tilted toward river.

U.S.E. STATION-ARMY ENG. (Ontario,Lambton Co.;1932;1942; p.1.1956)--On the NW point of Walpole Island opposite the northern end of Algonac between the high bank of the river and the road; it is 160 ft. upstream from the entrance to Miskokomons Grove and 106.67 ft. from IBC station "MISKO". Lost or buried in 1956.

Station mark: An iron pipe set in concrete about flush with the surface.

A reference mark is flush with the ground in the fence line on opposite (eastern) side of the road, distant 33.443 feet.

SEE (Mich.,St.Clair Co.;F.H.B.,1942;1956)--About 1/2 mile upriver from Roberts Landing, in the SE corner of lot No. 8147 on Route 29. The station is 6.99 ft. N of the top, inside edge of the south concrete sea-wall; 12.81 ft. west of the east concrete sea-wall; 15.73 ft. NW of the top, inside corner of the offshore angle in the sea-wall; and 23.12 ft. NE of the corner of the inshore angle in the sea-wall.

A new steel sea-wall has been built and about 2 ft. of fill inside the sea-wall. Station was recovered 2.75 ft.

below the level of the top of the sea-wall. Station is now 8.17 ft. N of the top, outside edge of the south steel sea-wall; 14.37 ft. W of the outside edge of the east steel sea-wall; 17.75 ft. NW of the top of the outside corner of the offshore angle of the new sea-wall; and 12.88 ft. NE of the corner of the inside angle in the sea-wall.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a concrete cylinder 6 inches in diameter and 22 inches in depth. The subsurface mark is a 1/4-inch brass bolt set in a 6-inch cylinder of concrete 2 feet underground.

LAMB-PORT LAMBTON SOUTH BASE (Ontario,Lambton Co.;F.H.B., 1942;1956)--Near the upriver edge of Port Lambton, between the main highway and the river, across the road from a house with an out-door cobblestone chimney. The station is 20.56 ft. from the edge of the concrete pavement of the main highway; 18 ft. from the water's edge; and 43.3 ft. downriver from a 36-inch willow tree, which forks near the ground; 42.65 ft. to tree in 1956.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a 1/4-inch brass bolt set in a 6-inch cylinder of concrete, 2 ft. underground. Station mark 4 inches under sod in 1956.

PERGOLA (Mich.,St.Clair Co.;F.H.B.,1942;1956)--About 3 miles S of Marine City and a mile upstream from Roberts Landing. It is on a 1-ft. concrete strip at right angles to the sea-wall on the property line between houses Nos. 7827 and 7851, St. Clair River Drive, the houses belonging to C.B. Hartner. Two stone pergolas downstream are distant 73 ft. and 151 ft. It is 10.05 ft. to an iron post set at junction of concrete strip and sea-wall; 19.70 ft. to nearest corner of concrete base of chimney; 21.30 ft. to base of brick chimney; 36.53 ft. to a fence post set in concrete in fence between the houses.

Station mark: An IBC standard bronze-disk station mark set in a drill hole in the concrete strip. All references OK but station and sea-wall gone.

WASH--PORT LAMBTON NORTH BASE (Ontario,Lambton Co.;F.H.B., 1942;1956)--In the upriver part of Port Lambton, between the main highway and the river, and opposite the downriver side of the Washington Hotel. The station is 20 ft. from the edge of the water; 14.85 ft. from the edge of the concrete pavement (now a 2-strip concrete top with a third strip to be added); and 34.1 ft. downriver from a 4-inch poplar tree at the water's edge upriver from a dock.

In 1956 the station was 5 ft. downstream from the downstream side of the hotel extended; opposite a crib by the river, and 9 ft. from the water.

Station mark: A 1-inch hexagonal steel drill with a line out in the top set flush with the surface of the ground in a concrete cylinder 6 inches in diameter and 22 inches long. The subsurface mark is a brass screw set in a 6-inch cylinder of concrete 2 ft. under ground.

SIGHT (Ontario,Lambton Co.;F.H.B.,1942;1956)--1-1/2 miles upriver from Port Lambton, opposite the gate to an old farm house owned by Bert Hart and between the road and the river. The station is 10.75 ft. from the near edge of the concrete pavement of the highway and 20 ft. from the river's edge. House is large; gate gone.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a 1/4-inch brass bolt set in a 6-inch cylinder of concrete 2 ft. underground. Station 15.5 ft. upstream from downstream side of the house extended.

SALE (Mich.,St.Clair Co.;F.H.B.,1942;1956)--In the NE corner of the E. W. Diehl estate, No. 7055 Route 29 (River Road), 1-1/2 miles down river from Marine City. The station is about 22 ft. east of Salt Dock Light; 2.03 ft. from the inside edge of the sea-wall along the east side of the yard; and 3.34 ft. from the inside edge of the sea-wall along the north side of the yard.

Station mark: An IBC standard bronze-disk station mark set 1 inch below the level of the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a 1/4-inch brass bolt set in a 6-inch cylinder of concrete. Top cylinder broken. Subsurface mark probably OK.

COT (Ontario,Lambton Co.;F.H.B.,1942;1956)--1-1/2 miles downriver from Sombra, on the grounds of a tourist camp consisting of 5 cabins and an office building. The station is on a fill extending into the river from the main building of the camp; 120 ft. from the main building; 65 feet from the river end of the fill; 5 ft. from the top edge of the fill on the upriver side; and 10 ft. from the top edge downriver. There has been fill added. The surface mark has been disturbed but the subsurface mark is probably in place. Instrument may be needed to locate.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a concrete cylinder 6 inches in diameter and 22 inches in depth. The subsurface mark is a 1/4-inch copper tube set in a 6-inch cylinder of concrete 2 feet underground.

MARINE (Mich.,St.Clair Co.;F.H.B.,1942;1.1956)--In the McLouth coal yard on the south edge of Marine City, opposite the upper end of Woodtick Island. The station is about 460 ft. upriver from the old brick sugar factory and 16.7 ft. from the outside edge of the old sea-wall. Sea-wall and old fill gone; new fill.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a concrete cylinder 8 inches in diameter and 22 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete 2 ft. underground.

TICK (Ontario,Lambton Co.;F.H.B.,1942;p.1.1956)--1/2 mile downriver from Sombra, opposite the head of Woodtick Island. The station is between the road and the river; 42.81 ft. from the west edge of the concrete pavement of the highway; about 265 ft. upriver from a brick house; 47.6 ft. downriver from two willow trees at the river's edge; and 15 ft. from the edge of the marsh along the river. No double tree. Instrument might find station.

Station mark: An IBC standard bronze-disk station mark set 3 inches above the surface of the ground in a cylinder of concrete 6 inches in diameter and 24 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete 2 ft. underground.

CITY (Mich.,St.Clair Co.;F.H.B.,1942;1956)--In Marine City on the concrete walk along the river front in the city park in rear of and a little upstream from the City Waterworks Bldg. It is 2.9 ft. from the river edge of the concrete walk; 2.1 ft. from inner edge; 21.63 ft. south from SW corner of broad part of walk north of station; 5.59 feet from second iron post in narrow part of the walk; 3.54 ft. from third iron post; 48.61 ft. from NE corner of the waterworks bldg.

Station mark: An IBC standard bronze-disk station mark set flush in a drill hole in the concrete walk.

SOMBRA (Ontario,Lambton Co.;F.H.B.,1942;1.1956)--On the NW corner of the Canadian Customs pier, at Sombra. The station is 5.89 ft. from the outside edge of the sea-wall on the north side of the pier; 21.71 ft. from the outside edge of the sea-wall on the west side; and 65.58 ft. from the NW corner of the Customs building. Lost by erosion in 1956.

Station mark: An IBC standard bronze disk station mark set 2 inches above the surface of the ground in a cylinder of concrete 6 inches in diameter and 24 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete 2 feet underground.

BURNS (Mich.,St.Clair Co.;F.H.B.,1942;1.1956)--On the waterfront of Marine City, in the rear of No. 420 North Main St. On the NE corner of an old concrete foundation from which the building is gone. The station is 9.06 ft. downriver from a fence; 2.01 ft. from the upriver edge of the concrete and 2.05 ft. from the east (river) edge of the concrete.

Station mark: An IBC standard bronze-disk station mark set in a drill hole in the concrete. Ruins gone; new buildings.

GOLD (Ontario,Lambton Co.;F.H.B.,1942;1956)--One mile up river from Sombra, opposite a point 35 ft. down river from the center of the driveway to a house occupied by William Henry, and 20 ft. upriver from a row of large horse-chestnut trees on the east side of the road. The station is between the road and the river; 54.97 ft. from the edge of the concrete pavement of the highway; 10 ft. from the edge of the marsh along the river; and 69 ft. downriver from the head of a channel through the marsh.

Station mark: An IBC standard bronze-disk station mark set 2 inches above the surface of the ground in a cylinder of concrete 6 inches in diameter and 24 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete 2 feet underground. House in 1956 belonged to J. Klampstra.

DOCK (Ontario,Lambton Co.;F.H.B.,1942;1956)--1-1/4 miles upriver from Sombra. On the middle of the N end of a filled-in dock which extends 220 feet out from shore. The station is 15 ft. from the sea-wall of the north edge of the dock; 50 ft. from the west sea-wall; and 50 ft. from the east sea-wall.

Station mark: An IBC standard bronze-disk station mark set in a drill hole in a concrete beam which extends from the north to the south side of the dock. Dock badly eroded in 1956.

MAD (Mich.,St.Clair Co.;F.H.B.,1942;p.1.1956)--About one mile north of Marine City between the 6th and 7th lots from south end in a row of small cabins in a camp site known as "Marine City Camp Site". This camp site is at the north end of a half mile of shallow water along the

United States shore filled with rushes. It is 5.5 ft. from the face of the sea-wall; 105 ft. upstream from the south side of this sea-wall around the camp property. No. 5828 North Riverside Drive is in a bend in the road 200 ft. south of the driveway into the camp site, which driveway leads directly to the station. Under water in 1956.

Station mark: An IBC standard bronze-disk station mark set 1-1/2 inches below the surface of ground, in the top of a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a brass screw head in a similar concrete cylinder 24 inches underground.

WORK (Ontario,Lambton Co.;F.H.B.1942)--Two miles upriver from Sombra, on the NE corner of old wooden dock, the next one upriver from station "Dock". The station is on the ninth plank from the east edge of the dock; 7.98 ft. from the north edge of the dock; and 7.71 ft. from the east edge.

Station mark: A headless nail driven into the planking and surrounded by a triangle formed of nails driven close together.

SAND (Mich.,St.Clair Co.;F.H.B.,1942;1.1956)--About two miles N of Marine City on the riverside lawn of a house called "Away from it all" at 5281 North Riverside Drive. It is 53 ft. from the SE corner of the porch of the brown artificial log house; in line with the south side of the house extended; about 100 ft. from a willow on the property line south of station; 45 ft. S of the only poplar tree on the beach. It is in the white sand beach 25 ft. from shore. Pipe on ground in 1956.

Station mark: A 4-inch concrete cylinder projecting 8 inches above ground with a 1-inch iron pipe projecting 1/2 inch above center of top was found, and used as the station.

CLAY (Ontario,Lambton Co.;F.H.B.,1942;1.1956)--2-1/2 miles upriver from Sombra, toward the river from the southerly of a group of five summer cottages, all of similar construction. The station is at the edge of the high bank, which slopes to the marsh along the river; 44.2 feet from the SW corner of the porch of the downriver cottage; 58.9 ft. from the SW corner of the next cottage upriver; 4.0 ft. upriver from the N side extended, of the downriver cottage; 13 ft. upriver from the line of approach (extended) of a wooden dock; and 5.3 ft. from a small cedar tree. Whole bank eroded about 4 ft.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground, in a cylinder of concrete 6inches in diameter and 22 inches in depth.

The subsurface mark is a 1/4-inch copper tube brought to a point, set in similar concrete cylinder 24 inches underground.

GUY (Mich.,St.Clair Co.;F.H.B.,1942;p.1.1956)--2-1/2 miles upriver from Marine City, in the front (river) yard of No. 5085 Riverside Drive. The station is on the upriver side of a low point of land, 17 ft. from the north edge of the point at the water's edge; and 30 ft. from the east edge of the point. A one inch pipe set in concrete is 94.88 ft. distant west of the station. The point was badly eroded. A new sea-wall was put in and about 4 feet of fill put in back of sea-wall. The surface mark was eroded but the subsurface mark might be in place under the fill.

Station Mark: An IBC standard bronze-disk station mark set 2 inches above the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a small brass screw, set in a 6-inch cylinder of concrete 2 feet underground.

RECORS (Mich.,St.Clair Co.;F.H.B.,1942;1956)--About three miles N of Marine City on the rough concrete base of the Recors Point Light, about 100 ft. out from the U.S. shore. It is on the east side of the light. A 2-ft. sea-wall has been built around the light and filled in. This extends 4 ft. east of station.

Station mark: A 1/4-inch brass bolt set in the concrete platform inside a triangle, 6 inches on a side, of smooth concrete set in the rough concrete.

THORN (Ontario,LambtonCo.;F.H.B.,1942;n.r.1956)--Four miles downriver from Courtright, opposite Recors Light. The station is between the road and the river; 42 feet from the east edge of the concrete pavement of the road; 40 ft. back from the edge of the top of the high river bank; 41 ft. downriver from a thorn-apple bush 8 ft. tall: 97 ft. upriver from a smaller thorn-applebush; 72.25 ft. upriver from a survey mark of the Ontario Highway Dept., a bronze-disk in concrete, which is 21.7 ft. from the west edge of the concrete pavement. Bushes gone; survey mark not recovered in 1956.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a brass pistol shell set in a 6-inch cylinder of concrete 2 feet underground.

LACE (Mich.,St.Clair Co.;F.H.B.,1942;1956)--Three miles upriver from Marine City, in a vacant lot next upriver from lot No. 4735, which number is shown on the house. The station is 15 ft. back from the top of the high river bank; about 35 ft. back from the river; 49.9 ft. from a cedar tree on the property-line downriver; 54.9 ft. from the property line upriver; and 4.0 ft. from a 1-inch iron pipe driven into the ground south of the station. Lot number in 1956 was 4723; leaning toward river.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete 2 ft. underground.

REFERENCE MONUMENT 40, ECC. (Mich.,St.Clair Co.;F.H.B., 1942;1956)--About 3 miles N of Marine City; 3 ft. down the slope from the top of the high bank; 37 ft. from the river; 147.20 ft. upstream from Ref. Mon. 40; 59.70 feet from the NE corner of the house on lot 4603; 46.87 feet from SE corner of the next house upstream, an immitation log house; 62.55 ft. upriver to the face of the brick gate post nearer the river. Leaning toward river in 1956.

Station mark: An IBC standard bronze-disk station mark set 2 inches above the surface in the top of a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is the head of a small brass screw set in top of a similar concrete cylinder 24 inches underground.

HI (Ontario,Lambton Co.;F.H.B.,1942)--About 3-1/2 miles north of Sombra, Ontario. It is 30.04 ft. west of the east side of concrete road and will be under the shoulder of the road when completed. Marked only by a 2-inch wooden hub.

REMER (Mich.,St.Clair Co.;F.H.B.,1942;1.1956)--3-1/2 miles north of Marine City, on the high river bank at the end of Remer Road. The station is near the center line of the highway right-of-way. The station is 11 ft. back from the top edge of the river bank; 35 ft. from the water's edge; 18.93 ft. upriver from a fence; 23.6 ft. downriver from a hedge; and 6.65 ft. east of a 1/2-inch iron pipe set in concrete, which is also near the center line of the highway. Road leveled and resurfaced.

Station mark: A 1/2-inch iron bolt, head up, set in a 4-inch cylinder of concrete which projects 4 inches above the surface of the ground was found in place, and used as the station.

FLAG (Mich.,St.Clair Co.;F.H.B.,1942;1.1956)--About 3-1/2 miles north of Marine City on the small grass covered lawn of a filled dock of a club house at the water's edge, about 800 ft. north of the Remer Road. Flagpole gone.
Station mark: The ball on the top of a metal flagpole on the lawn.

BOWEN (Ontario,Lambton Co.;F.H.B.,1942;1.1956)--3 miles downriver from Courtright, on the highway right-of-way near its eastern edge. The station is about 465 feet up river from the Bowen Creek bridge; about 98 ft. downriver from a house occupied by Robert Hohn; 18.10 ft. east of the concrete pavement; and 3.92 ft. inside the right-of-way fence. Removed by road work.
Station mark: An IBC standard bronze-disk station mark set flush with the surface in a 6-inch cylinder of concrete 20 inches long. The subsurface mark is a brass pistol shell set in a 6-inch cylinder of concrete 2 ft. underground.

MAT (Mich.,St.Clair Co.;F.H.B.,1942;1.1956)--3 miles downriver from St. Clair and about 220 ft. upriver from Clark School, a schoolhouse on the main road. It is in a vacant lot, at the top of the high river bank, about 36 ft. from the river's edge and about 296 ft. downriver from the nearest fence to the north. Lost by erosion.
Station mark: An IBC standard bronze-disk station mark set 3 inches above the surface of the ground in a cylinder of concrete 6 inches in diameter and 24 inches in depth. The subsurface mark is a brass pistol shell set in a 6-inch cylinder of concrete 2 ft. underground.

VISTA (Ontario,Lambton Co.;F.H.B.,1942;1.1956)--2-1/2 miles down river from Courtright, on the highway right-of-way near its eastern edge. The station is about 210 ft. down river from a house occupied by A. F. Selby; 10.1 ft. up river from the fence line between an orchard and a pasture, and from the gate leading into the pasture; 15.14 ft. east of the edge of the concrete pavement; and 4.78 ft. inside the right-of-way fence. Surface mark bulldozed out and subsurface mark broken off and tilted.
Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches long. The sub surface mark is a brass pistol shell set in a 6-inch cylinder of concrete 2 ft. underground.

LINE (Mich.,St.Clair Co.;F.H.B.,1942;1956)--About 4 miles upriver from Marine City, on lot No. 4207 (number on house) occupied by B.C. Huse. The station is at the top of the

high river bank, 60 ft. from high-water mark; 1 ft. north of the south property line; 33.96 ft. upriver from an old ship's windlass, measured from the center of the top; 30.6 ft. east of a horse-chestnut tree; 1.15 ft. NE of a 1-inch iron pipe driven into the ground; 2.09 ft. SE of an iron pipe set in concrete; and 2 ft. W of a 5-inch iron pipe driven into the ground.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground, in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a brass end of a shotgun shell set in a 6-inch cylinder of concrete 2 feet underground.

HART (Mich.,St.Clair Co.;F.H.B.,1942;1.1956)--About 4-1/4 miles upriver from Marine City, on lot No. 4095 (number on house). The station is 89.2 ft. south of the east-and-west fence on the north side of this lot; 76.95 ft. east of the edge of the bottom step of the house; 51.0 ft. SE of a 3-ft. stump; and 60.7 ft. NE of a 3-ft. locust tree.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground, in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete 2 ft. underground.

LANDI=ST. CLAIR SOUTH BASE (Mich.,St.Clair Co.;F.H.B., 1942;1956)--2 miles downriver from St. Clair, in a field used as camp ground. The station is about 50 ft. back from the top of the high river bank; about 295 ft. N of the south fence of the field which marks the north edge of the right-of-way of Puttygut Road; and 50.56 feet SE of a 10-inch hickory tree.

Station mark: An IBC standard bronze-disk station mark set 3 inches above the surface of the ground in a cylinder of concrete 6 inches in diameter and 24 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete 2 ft. underground. Surface mark gone; subsurface mark OK.

ORCHARD (Ontario,Lambton Co.;F.H.B.,1942;1956)--2 miles down river from Courtright, in an orchard. The station is about 170 ft. downriver from a schoolhouse marked "SS No. 1 Moore"; 69.55 ft. downriver from the south right-of-way fence of an east-and-west road; and 51.02 ft. east of the east edge of the concrete pavement of the river road. Under driveway; sub mark probably OK.

Station mark: An IBC standard bronze-disk station mark set 2 inches above the surface of the ground in a cylinder of concrete 6 inches in diameter and 24 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete 2 ft. underground.

TRAIL=ST. CLAIR NORTH BASE (Mich.,St.Clair Co.;F.H.B., 1942;1956)--1-1/2 miles downriver from St. Clair, in an open field south of a trailer camp. The station is 40.35 ft. S of the trailer camp fence; and 45 ft. W of the top of the high river bank. Camp and fence gone. Instrument needed to recover.

Station mark: An IBC standard bronze-disk station mark set 3 inches above the surface of the ground in a cylinder of concrete 6 inches in diameter and 24 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete 2 ft. underground.

SHORE (Ontario,Lambton Co.;F.H.B.,1942;p.1.1956)--1-1/2 miles downriver from Courtright in a public picnic ground between the road and the river. The station is 64.2 feet downriver from the north property line fence; 10 ft. from the edge of the river; about 142 ft. from the edge of the concrete pavement of the road; 38.6 ft. S of the most northern 3-ft. willow of the row along the river; and 57.9 ft. N of the next large willow in this road. Eroded in 1956. Sub mark may be OK.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground, in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete 2 ft. underground.

BOUL (Mich.,St.Clair Co.;F.H.B.,1942;1.1956)--One mile downriver from St. Clair on land that is unused right-of-way of an east-and-west road. The station is 15.9 ft. back from the river sea-wall; 19.7 ft. east of a concrete sidewalk which parallels the river; and 126.7 ft. upriver from the north side of a house (No. 3429) on the next lot downriver. New U.S.E. mark 8 feet west.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 18 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete 20 inches underground.

MUD (Ontario,Lambton Co.;F.H.B.,1942)--In the southern edge of Courtright, Ontario. It is 32.245 ft. west of the east edge of the concrete highway being built and will probably be under the shoulder of this road when completed. Marked only by 2-inch by 2-inch hub.

COURT (Ontario,Lambton Co.;F.H.B.,1942;p.1.1956)--at the south edge of the village of Courtright, between the road and the river. The station is about 190 ft. upriver from a tall concrete factory chimney; 38 ft. downriver from the

upstream side of a cinder covered point projecting into the river; 51.7 ft. northeast of the NE corner of a concrete sewer man-hole near the river; and 42.41 ft. W of the east edge of the concrete pavement of the road. Bank badly eroded in 1956.

Station mark: An IBC standard bronze-disk station mark set 2 inches above the surface of the ground in a cylinder of concrete 6 inches in diameter and 24 inches in depth. The subsurface mark is a small brass screw set in a 6-inch concrete cylinder 2 ft. underground.

MOORE (Mich.,St.Clair Co.;F.H.B.,1942;1956)--In the city of St. Clair, in the NE corner of Mrs. Moore's yard, No. 1319 Oakland St. The station is 5.1 ft. W of the outside edge of the sea-wall; 5.4 ft. SW of an angle in the sea-wall; and 28.5 ft. SE of a 12-inch willow tree near the north fence. In 1944 the U.S. Engineers replaced the surface mark which was probably eroded by flood in 1943, by a U.S.E. marker in an 8 sided 4-inch concrete cylinder projecting 2 inches above the surface.

Station mark: An IBC standard bronze-disk station mark set just below the turf in a cylinder of concrete 6 inches in diameter and 21 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete 2 feet underground.

RIGHT (Ontario,Lambton Co.;F.H.B.,1942;p.1.1956)--In the village of Courtright, on the N side of the first dock upriver from the ferry landing. The station is about 230 ft. downriver from Ref. Mon. 44; 3.1 ft. from the sea-wall of the north side of the dock; and 31.3 ft. from the west sea-wall. Dock eroded in 1956; sub mark probably OK.

Station mark: An IBC standard bronze-disk station mark set two inches above the surface of the ground in a cylinder of concrete 6 inches in diameter and 24 inches in depth. The subsurface mark is a brass screw set in a 6-inch cylinder of concrete 2 ft. underground.

INN (Mich.,St.Clair Co.;F.H.B.,1942;n.r.1956)--In the village of St. Clair on the waterfront of the park just upriver from the St. Clair Inn. The station is 6.60 ft. from the outside edge of the sea-wall; 51.55 ft. from the outside edge of the north end of the same sea-wall; and 62.07 ft. NW of the center of a 1-inch eyebolt which anchors a 12-inch iron ring in a concrete base near a bend in the sea-wall. In 1956 instrument needed to recover.

Station mark: An IBC standard bronze-disk station mark set just below the turf in a cylinder of concrete 6 inches in diameter and 21 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete 2 feet underground.

ST. CLAIR ECCENTRIC (Mich.,St.Clair Co.;F.H.B.,1942; 1.1956)--In the city of St. Clair, on a vacant lot - the second lot upriver from No. 561 North Riverside Drive - on the west side of street and about 185 ft. back from the curb. The station is 23.9 ft. N of the property line of the next lot downriver; 47.10 ft. from the NE corner of the house on the next lot downriver; and 43.66 ft. from the NW corner of the same house. Lot under new building in 1956.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 8 inches in diameter and 24 inches in depth. The subsurface mark is the brass base of a shotgun shell set in a 6-inch cylinder of concrete 27 inches underground. St. Clair (U.S.L.S.) is 41.115 meters distant in azimuth 115°11'14".

ROSE (Ontario,Lambton Co.;F.H.B.,1942;1956)--In the north suburbs of Courtright, between the road and the river, nearly opposite the south driveway to an estate called "ROSEMORE"; and directly opposite the river end of the fence between "ROSEMORE" and the next lot south. The station is about 390 ft. downriver from the Baby Creek bridge; 15 ft. from the edge of the marsh along the river; and 9.42 ft. W of the west edge of the concrete pavement of the main road.

Station mark is 2 inches underground in 1956; in line with the south edge of the driveway of Mr. E.C. Norton's home.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6-inches in diameter and 22 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete 2 ft. underground.

MAC (Mich.,St.Clair Co.;F.H.B.,1942;1.1956)--Near the north edge of the village of St. Clair, on the dock belonging to No. 1012 North River Road. This dock is just down river from Ref. Mon. 45.

Station mark: A cross cut in the cast-iron snubbing post on the north end of the dock.

WIND (Ontario,Lambton Co.;F.H.B.,1942;p.1.1956)--In the village of Mooretown, on the west side of a dock which is at the river end of an east-and-west road. The station is 5.3 ft. from the inside edge of the west sea-wall; 45.8 ft. from the south sea-wall; and 51.5 ft. from the north sea-wall of the dock. Dock was found badly eroded in 1956, about 1-1/2 ft. below the top of sea-wall gone. The sub mark might be found with instrument.

Station mark: An IBC standard bronze-disk station mark set 3 inches above the surface in a cylinder of concrete 6 inches in diameter and 24 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete 20 inches underground.

SWIM (Mich.,St.Clair Co.;F.H.B.,1942;1.1956)--On an abandoned bathing beach just north of the St. Clair city limits. The station is about 140 ft. upriver from a small wooden shed or bathhouse, No. 2493; 20 ft. back from the top edge of the river bank; and 37.6 ft. downriver from a wire fence with wooden trim.

Station mark: An IBC standard bronze-disk station mark set 3 inches above the surface of the ground in a cylinder of concrete 6 inches in diameter and 24 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete 2 feet underground.

WAVES (Ontario,Lambton Co.;F.H.B.,1942;1.1956)--5/8 mile upriver from Mooretown, just above high-water mark. The station is 2 ft. towards the river from an old barbed wire fence and 45.62 ft. upriver from a drill hole within a triangle cut in the top surface of a red granite boulder 3 ft. by 5 ft. and 2 ft. high, at high water mark. In 1956 12 ft. of the bank was gone.

Station mark: An IBC standard bronze-disk station mark set 3 inches above the surface of the ground in a cylinder of concrete 6 inches in diameter and 24 inches in depth. The subsurface mark is a brass screw set in a 6-inch cylinder of concrete 27 inches underground.

WEED (Mich.,St.Clair Co.;F.H.B.,1942;1956)--1/2 mile north of the St. Clair City limits, on the waterfront of the next lot south of No. 2009, and about 210 ft. south of the intersection of highways U.S. 25 and Michigan 29. The station is 10 to 15 ft. south of the south property line of No. 2009, 20 ft. back from the low ground along the river; approximately 93 ft. from the SW corner of a summer cottage; and 32.93 ft. SE of the end of a low concrete retaining wall which runs NW and curves to the north. Surface mark is 48.2 ft. from the water and projects 1 ft. above ground so will be gone when another flood occurs. The lot was numbered 2015 in 1956.

Station mark: An IBC standard bronze-disk station mark set 3 inches above the surface of the ground in a cylinder of concrete 6 inches in diameter and 24 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete 2 feet underground.

LAWN (Mich.,St.Clair Co.;F.H.B.,1942;o.1.1956)--On the waterfront of No. 1833 North River Road, 2 miles upriver from St. Clair. The station is 10 ft. back from high-water mark; 11.35 ft. downriver from the north property line of this lot; 41.22 ft. from the concrete-block foundation under the NE corner of the porch of No. 1833; and 22.85 ft. upriver from a 30-ft. flagpole set in a concrete base.

Station mark: An IBC standard bronze-disk station mark set just below the level of the turf in a cylinder of concrete 6 inches in diameter and 21 inches in depth. The subsurface mark is a copper nail set in a 6-inch cylinder of concrete 2 ft. underground.

REFERENCE MONUMENT 46 ECC. (Ontario,Lambton Co.;F.H.B., 1942)--About 2 miles south of Corunna, Ontario on the sand beach about 50 ft. downstream from Ref. Mon. 46. Marked only by 2-inch by 2-inch wooden hub flush with ground.

SHIP (Mich.,St.Clair Co.;F.H.B.,1942;1.1956)--On a summer place called "Shipstead", No. 1531 North River Road, 2-1/2 miles upriver from St. Clair. The station is 27 ft. back from high-water mark; 27.32 ft. downriver from the center of the end post of the fence on the north side of this lot; 46.7 ft. upriver from the NE corner of an open-air brick fireplace; and 19.01 ft. SW of a cross cut on a 3-ft. by 4-ft. red boulder, 12 ft. from the river. Station bulldozed out.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 12 inches in depth. The subsurface mark is a copper nail set in a cylinder of concrete which rests on a large rock.

BITTER (Ontario,Lambton Co.;F.H.B.,1942;1.1956)--2-1/2 miles upriver from Courtright, opposite Stag Island Shoal Light, and 120 ft. downriver from an east-and-west road, which is now washed out near the river. The station is 135 ft. south from the north right-of-way fence of this road, 8 ft. back from the highwater mark, and 6 ft. above the water surface of the river. Site eroded and bulldozed.

Station mark: An IBC standard bronze-disk station mark set 3 inches above the ground in a cylinder of concrete 6 inches in diameter and 24 inches in depth. The subsurface mark is a brass base of a shotgun shell set in a 6-inch cylinder of concrete.

LIMIT (Mich.,St.Clair Co.;F.H.B.,1942;n.r.1956)--Between State Highway No. 29 and the river, 91.4 ft. downriver from a sign marking the southern limit of Marysville,

which is at the north edge of Davis Road extended. The station is about 70 ft. from high-water mark; 2 ft. back from the top edge of the river bank; 23.46 ft. from the edge of the concrete pavement of the highway; and 45.4 ft. downriver from an old property line fence.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a copper nail set in a 6-inch cylinder of concrete 2 ft. underground.

EDWARDS (Ontario,Lambton Co.;F.H.B.,1942;p.1.1956)--3/4 mile downriver from Corunna, on the river front of an estate, opposite the tenant house, on the estate called "Riverview". The station is at the top of the river bank ; 25 ft. from the water's edge; 45 ft. downriver from an 18-inch elm; 24.3 ft. W of an 18-inch hickory; and 54.1 feet upriver from a 30-inch maple. Trees gone, bank eroded.

Station mark: An IBC standard bronze-disk station mark set 3 inches above the surface of the ground in a cylinder of concrete 6 inches in diameter and 24 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete 2 ft. underground.

GAR (Mich.,St.Clair Co.;F.H.B.,1942;1.1956)--In Marysville, between State Highway No. 29 and the river, just upriver from the new Dow Chemical plant and 5/8 mile downriver from the Gar Wood Industries building. The station is in a maple grove marked "City Property"; about 500 ft. downriver from a large highway culvert; about 85 ft. from the edge of the concrete pavement; 13 ft. from high-water mark; 5.5 ft. downriver from a 10-inch locust tree; and 24.9 ft. SW of a 2-inch iron pipe driven 3 ft. offshore. Under a new house in 1956.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 15 inches in depth. The subsurface mark is a copper nail set in a 6-inch cylinder of concrete 1-1/2 ft. underground.

WOOD (Mich.,St.Clair Co.;F.H.B.,1942;1.1956)--In Marysville, between State Highway No. 29 and the river, and about 440 ft. upriver from the Gar Wood Industries bldg. The station is 15 ft. from the river's edge; 43.6 feet from the edge of the concrete pavement of the road; 38.7 ft. upriver from twin 30-inch willow trees at the water's edge; and 78.9 ft. downriver from the nearest one of a row of 30-inch elms along the road. Site under water in 1956.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a brass screw set in a 6-inch cylinder of concrete 2 feet underground.

CORUNNA (Ontario,Lambton Co.;F.H.B.,1942;p.1.1956)--In the Corunna park at the north edge of the village, opposite the head of Stag Island, and 230 ft. upriver from a brick house on the other side of the road. The station is about 20 ft. from the river's edge; 3 ft. back from the top of the high river bank; and 12 ft. upriver from an 18-inch galvanized-iron culvert under the park road. Bank eroded in 1956. Sub mark may be in place.

Station mark: An IBC standard bronze-disk station mark set 2 inches above the surface of the ground in a cylinder of concrete 6 inches in diameter and 24 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete 2 feet underground.

TALFORD (Ontario,Lambton Co.;F.H.B.,1942;n.r.1956)--About 1/2 mile upriver from Corunna, and opposite the Marysville, Mich. filtration plant. The station is on the highway right-of-way, between the road and the river; about 135 feet downriver from the point-of-curve of the concrete road at the end of a long tangent; about 30 ft. from the river's edge; 10 ft. back from the high river bank; and 9.53 ft. from the edge of the concrete pavement. Probably OK but covered by gravel.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete, 2 feet underground.

COZY (Mich.,St.Clair Co.;F.H.B.,1942;n.r.1956)--In Marysville between State Highway No. 29 and the river, about 115 ft. upriver from a large picnic park and playground. The station is 3 ft. downriver from the outside face of a dry masonry retaining wall at the upriver edge of the fill upon which a brick building named "Cozy Inn" stands; 45 ft. from the NW corner of the concrete foundation of an ornamental wall attached to the Cozy Inn building; and 11.10 feet from the edge of the concrete pavement of the road. Cement fill around telephone pole over the station.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a brass screw set in a 6-inch cylinder of concrete 2 feet underground.

BRICK (Ontario,Lambton Co.;F.H.B.,1942;n.r.1956)--About 3/4 mile upriver from Corunna, between the road and the river. The station is about 310 ft. downriver from an east-and-west highway; 160 ft. downriver from one brick house and 125 ft. upriver from another; about 50 ft. from the river's edge; 25 ft. from the top of the river bank; and 10.05 ft. from the edge of the concrete pavement of the road. About 6 inches of gravel over the site.

Station mark: An IBC bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 16 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete 18 inches underground.

90-I.W.C.=COTTAGE-U.S.L.S. (Mich.,St.Clair Co.;1911;1942; 1956)--In Marysville, between State Highway No. 29 and the river, about 840 ft. downriver from the Morton Salt Co. south property line fence; and about 130 ft. upriver from house No. 1116; the station is 5 ft. back from the edge of the high river bank;13.88 ft. from the edge of the concrete pavement of the road; 49.9 ft. upriver from an 18-inch oak tree; and 24.2 ft. from an 8-inch pine. In 1956 there were 4 inches of dirt over the station.

Station mark: 4 nails set in a 9-inch cylinder of concrete, flush with the surface of the ground. Three of the nails form a triangle and the fourth nail, inside the triangle, is the center mark. The concrete bears the inscription "90....1911".

HILL 1942=CORUNNA SOUTH BASE (Ontario,Lambton Co.;F.H.B., 1942;1956)--Between the road and the river 1-1/2 miles upriver from Corunna, about 900 ft. upriver from an east-and-west road. The station is about 25 ft. from the river; 7 ft. back from the top of the high river bank; 23.86 ft. from the edge of the concrete pavement of the river road; 74.7 ft. from a 42-inch elm tree which is across the road and downriver from the station; and 113.7 feet from a 34-inch elm across the road and upriver.

Station mark: A nail countersunk in the top of a 12-inch square concrete block found at site of the station. Letters U.S.E. are cut in the concrete near one edge.

MORTON (Mich.,St.Clair Co.;F.H.B.,1942)--In Marysville, on the waterfront of the Morton Salt Co. The station is about 40 ft. from the river, opposite a job in the seawall. It is about 90 ft. south of the conveyor of the second building from the south; 3 ft. north of the extension of the line of the north side of the most southern building of the plant - a onestory galvanized iron shed; 7.24 ft. east of the center of the east rail

of the east railroad siding; 36.20 ft. south of the center of a switch stand; and 46.18 ft. NE of the center of a steel snubbing post set on a concrete base west of the railroad track.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete, 2 feet underground.

ROCKS=CORUNNA NORTH BASE (Ontario,Lambton Co.;F.H.B.,1942; 1956)--Between the road and the river, 2 miles upriver from Corunna, and about 900 ft. downriver from an east-and-west road, once public but now fenced off. The station is opposite the downriver gatepost of a driveway; 20.6 ft. from the edge of the concrete pavement of the highway; 45.6 ft. downriver from the center of a red boulder, 3 ft. by 3 ft. by 2 ft.; and 28 ft. downriver from a smaller boulder, 2 ft. by 2 ft. by 1 ft. In 1956 across from Williams property and 580 ft. downriver from aerial cable.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete 2 ft. underground.

KEEL (Mich.,St.Clair Co.;F.H.B.,1942)--In Marysville, on the waterfront of the Morton Salt Co., on the extreme northeastern part of the shore that is protected by a sea-wall. The station is in the middle of a long, narrow heavy concrete foundation that parallels the sea-wall, 8 ft. from it. It is 11.7 ft. from the north sea-wall; 9.4 ft. from the east sea-wall; and 6.1 ft. from the north end of the concrete foundation.

Station mark: An IBC standard bronze-disk station mark set in a drill hole in the concrete.

PAP (Ontario,Lambton Co.;F.H.B.,1942;n.r.1956)--3 miles downriver from Sarnia, between the river road and the river. The station is about 45 ft. from the river; 7 ft. back from the top of the high river bank; 41 ft. W of the W edge of the concrete pavement of the highway; and 150.1 feet NW of an Ontario Highway Dept. monument--a bronze disk set in concrete in a fence line on the E side of the highway, 10 ft. upriver from the gate leading to a small square one-story unpainted frame house. Some erosion. Reference not recovered. .Station probably OK.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth.

The subsurface mark is a 1/4-inch brass bolt set in a 6-inch cylinder of concrete 2 ft. underground.

PARK (Mich.,St.Clair Co.;F.H.B.,1942;1956)--In Marysville, in a public park on the river front. The nearest house downriver is No. 183 on Route U.S. 25. The station is in the NE corner of the park, 36.7 ft. from the north sea-wall, and 11.4 ft. from the east sea-wall.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground, in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete 2 ft. underground.

BACKUS (Mich.,St.Clair Co.;F.H.B.,1942;1956)--In the southern part of Port Huron, on filled land on the shore behind the Backus Basket factory, approximate number 3600 Military St. (U.S. Route 25). The station is 102 ft. from the north sea-wall; 30 ft. from the east sea-wall; 30 ft. from the south sea-wall; 75 ft. from the east side of the factory; and 52.1 ft. from the SE corner of the ell of the factory. Building now owned by Port Huron Sulphite Co.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 9 inches in diameter and 14 inches in depth. When digging hole for mark, logs with wires attached were struck at depth of 14 inches. The concrete may adhere to the wires and heaving by frost may be prevented. No subsurface mark.

BUSH (Ontario,Lambton Co.;F.H.B.,1942)--About two miles downriver from Sarnia, between the old river road and the river, and about 300 ft. downriver from a schoolhouse which stands about 400 ft. back from the river. The station is about 40 ft. from the river; 13 ft. back from the top of the high river bank; about 135 ft. downriver from a sewer man-hole; and 17 ft. from the west edge of the old road along the river.

Station mark: An IBC standard bronze-disk station mark set 3 inches above the surface of the ground, in a cylinder of concrete 6 inches in diameter and 18 inches in depth. The subsurface mark is a 1/4-inch brass bolt set in a 6-inch cylinder of concrete 18 inches underground.

POLY (Ontario,Lambton Co.,F.H.B.,1942)--In the southern part of Sarnia, on the river front of the Polymer Corp., a plant under construction for the Dow Chemical Co. The station is about 70 ft. from the river; 35 ft. back from

the top of the high river bank; about 150 ft. downriver from a high wire fence; and 10 ft. east of the center of a cinder road along the river front.

Station mark: An IBC standard bronze-disk station mark set 2 inches above the surface of the ground in a cylinder of concrete 6 inches in depth. The subsurface mark is a 1/4-inch brass bolt set in a 6-inch cylinder of concrete 2 ft. underground.

IRIS (Mich.,St.Clair Co.;F.H.B.,1942;n.r.1956)--In Port Huron, on the waterfront of No. 3300 Military St. The station is 20 ft. from the upriver (north) sea-wall; 15 ft. from the east sea-wall; 15.3 ft. from the east side of the house; and 7.2 ft. downriver from a 7-inch willow tree. Probably OK under fill.

Station mark: An IBC standard bronze-disk station mark set just under the turf in a cylinder of concrete 6 inches in diameter and 18 inches in depth. The subsurface mark is a copper rivet set in a 6-inch cylinder of concrete 18 inches underground.

PILE (Mich.,St. Clair Co.;F.H.B.,1942)--In Port Huron on the northeast corner of a wooden dock, just downriver from No. 2864 Military St. The station is 4.6 ft. from the N side of the dock and 9.2 ft. from the east side.

Station mark: A triangle formed by nails driven into the plank floor, with a single nail for a center mark.

MER (Ontario,Lambton Co.;F.H.B.,1942;n.r.1956)--In the southern part of Sarnia on the riverfront of land owned by the Imperial Oil Co., about 800 ft. upriver from the upriver fence of the Polymer Corp., and about 535 ft. downriver from a gate leading into a wire-fenced road which goes upriver to the oil refinery. The station is about 30 ft. from the river; about 50 ft. upriver from a pair of 18-inch willow trees at the river's edge; 40 ft. towards the river from the edge of an earth road; and 4 ft. back from the top of the river bank.

Station mark: An IBC standard bronze-disk station mark set 3 inches above the surface of the ground, in a cylinder of concrete 6 inches in diameter and 24 inches in depth. The subsurface mark is a small brass screw set in a 6-inch cylinder of concrete, 24 inches underground.

BOAT (Mich.,St.Clair Co.;F.H.B.,1942;1.1956)--In Port Huron on the NE corner of the flat roof of a boat house behind No. 2644 Military St. Boathouse gone in 1956.

Station mark: A brass screw in the wooden edge of the roof, 0.11 ft. SW of the angle of the corner post of the handrailing.

PERE (Mich.,St.Clair Co.;F.H.B.,1942;n.r.1956)--In Port Huron on the waterfront of the St. Clair Tunnel Co. property. The station is about 80 ft. S of the Detroit Edison Co. fence; about 42 ft. E of the rear of the tunnel company building; and 15 ft. from the sea-wall. It is on the concrete foundation of a wooden snubbing post, 1.7 ft. east of the post and 1.3 ft. from the east edge of the concrete.

Station mark: An IBC standard bronze-disk station mark set in a drill hole in the concrete foundation. New foundation and post in 1956.

MUEL (Ontario,Lambton Co.;F.H.B.,1942;n.r.1956)--In the southern part of Sarnia, on the waterfront of the Mueller Co., about 65 ft. from their north fence. The station is 25 ft. upriver from the north end of an old wooden dock; 10 ft. east of the sea-wall; 10 ft. west of a barbed wire fence enclosing a coal pile; and 17 ft. upriver from a 6-inch iron pipe set in concrete. About 5 ft. of fill over station site.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a 1/4-inch brass bolt set in a 6-inch cylinder of concrete 2 ft. underground.

MARQ=PORT HURON SOUTH BASE (Mich.,St.Clair Co.;F.H.B., 1942)--In Port Huron, in the Pere Marquette R.R. yards, about 120 ft. from the river and about 200 ft. upriver from the freight shed which is where Tunnel St. would intersect the river if extended. The station is 6.5 ft. towards the river from the east rail of the fifth spur track counting from the river; 8.1 ft. downriver from a switch stand.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a copper rivet set in a 6-inch cylinder of concrete 2 ft. underground.

REX (Ontario,Lambton Co.;F.H.B.,1942;n.r.1956)--In Sarnia, on the upstream end of the dock of the Imperial Oil Co., on the river side of the wire fence and 144 ft. NW of Ref. Mon. 52. The station is about 27 ft. upriver from a large galvanized-iron storage shed; 6.7 ft. E of the outside edge of the concrete sea-wall; 7.22 ft. SE of an angle in the sea-wall;8.38 ft. SW of the S corner of the base of an iron snubbing post; and 4.76 ft. SE of a Dept. of Public Works bronze-disk set in concrete in the angle of the sea-wall. Under 2 ft. of fill with macadam top in 1956.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 8 inches in diameter and 22 inches in depth. The subsurface mark is a copper rivet set in an 8-inch cylinder of concrete 2 ft. underground.

RAIL=PORT HURON NORTH BASE (Mich.,St.Clair Co.;F.H.B., 1942)--In Port Huron, between the Pere Marquette R.R. yards and the river, about 300 ft. downriver from the foot of Court Street extended. The station is about 70 feet from the river's edge; 53.1 ft. east of the east rail of the most eastern spur track; and 139.6 ft. up river from the NW corner of a small brick (transformer) building.

Station mark: An IBC standard bronze-disk station mark 3 inches above the surface of the ground, in a cylinder of concrete 6 inches in diameter and 24 inches in depth. The subsurface mark is a copper rivet set in a 6-inch cylinder of concrete 2 feet underground.

JUNK (Ontario,Lambton Co.;F.H.B.,1942)--On the dock of the United Towing and Salvage Co., at the foot of George St., Sarnia, Ontario. It is on W side of the dock, 4 ft. from the west (or river) end of dock; 18 ft. from the south side of dock; 12 ft. from shore end of dock.

Station mark: A nail in the wooden dock, inside a triangle formed by nails, one at each apex of the triangle and one forming the center of each leg of the triangle.

HURON (Mich.,St.Clair Co.;F.H.B.,1942)--In Port Huron, about 220 ft. upriver from the Michigan Elevator Exchange Bldg., which is at the foot of Grand River Ave. The station is at the top of the river bank, 15 ft. from the water's edge and 25 ft. upriver from an old wooden dock. The lot is used for storage of broken stone, by the City of Port Huron.

Station mark: An IBC standard bronze-disk station mark set 2 inches above the surface of the ground in a cylinder of concrete 6 inches in diameter and 24 inches in depth. The subsurface mark is a copper rivet set in a 6-inch cylinder of concrete 2 ft. underground.

WARE (Ontario,Lambton Co.;F.H.B.,1942;n.r.1956)--In Sarnia on the Government dock (the next dock south of the Sarnia Elevator Co.) on the east or land end of the dock near its north edge. The station is 13.6 ft. S of the north (outside) edge of the concrete sea-wall; 14.6 ft. from the NE (outside) corner of the sea-wall; 11.2 ft. S of the base of a steel snubbing post; and 69.3 ft. west of

the nearer and larger of two hydrants. Covered with macadam.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a copper rivet set in a 6-inch cylinder of concrete 2 ft. underground.

BAY (Ontario,Lambton Co.;F.H.B.,1942)--One mile south of Port Huron-Point Edward Bluewater Bridge, about 200 ft. N of the tip of Bay Point. The station is about 130 ft. N of the Bay Point Light; about 60 ft. from the east shore of the point; and about 20 ft. N of the place where the point narrows from 200 ft. to 100 ft. in width.

Station mark: An IBC standard bronze disk station mark set 2 inches above the surface of the ground in a cylinder of concrete 6 inches in diameter and 24 inches in depth. The subsurface mark is a 1/4-inch brass bolt set in a 6-inch cylinder of concrete, 2 ft. underground.

INTAKE (Mich.,St.Clair Co.;F.H.B.,1942;n.r.1956)--In Port Huron in the public park 1 mile downriver from the Bluewater Bridge. The station is about 120 ft. downriver from the fence of the Port Huron Waterworks; 35 ft. from the river's edge; 15 ft. from the top of the river bank; and 272.65 ft. upriver from Ref.Mon. 54. Probably OK but under fill. Instrument needed to recover.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. The subsurface mark is a copper rivet set in a 6-inch cylinder of concrete 2 feet underground.

SARNIA (Ontario,Lambton Co.;F.H.B.,1942;1956)--In Point Edward, on the right-of-way of the road to the Bluewater Bridge, 0.6 mile SE of the bridge Customs Station. The triangulation station is 160 ft. W of the intersection of King's Highways No. 7 and No. 40; 10.83 feet N of the edge of the concrete pavement of the highway leading to the bridge; 41.55 ft. west of an iron post with King's Highway road signs, No. 7 and No. 40; 14.56 ft. SW of the nearest of several maple trees; and 8.17 ft. S of a bronze disk set in concrete mark of the Ontario Dept. of Highways. This mark leaning badly away from road. Other references OK. Station mark buried or gone, but sub mark undoubtedly in place.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. Subsurface mark is a copper rivet set in a 6-inch cylinder of concrete 2 ft. underground.

YARD (Mich.,St.Clair Co.;F.H.B.,1942)--In Port Huron 1/4 mile downriver from the Bluewater Bridge. The station is between the railroad and the river, about 50 ft. from the river and 35.9 ft. from the east rail of the most eastern railroad track; about 215 ft. downriver from the corner post of the wire fence of the Peerless Cement Co.; and 116.6 ft. downriver from the center of a switch stand to a dead-end spur.

Station mark: An IBC standard bronze-disk station mark set flush with the surface of the ground in a cylinder of concrete 6 inches in diameter and 22 inches in depth. Subsurface mark is a copper rivet set in a 6-inch cylinder of concrete 2 ft. underground.

REFERENCE MONUMENT 55 ECC. (Ontario,Lambton Co.;F.H.B., 1942;1950)--About 1/4 mile downstream from the Bluewater Bridge, Sarnia, Ontario, 12 ft. east of the road from the Northern Navigation Company's buildings to Bay Point Light. It is 135 ft. south of the red wooden building at south end of the Northern Navigation Co. property; 105 ft. north of the cement foundation of a large building now gone; 68 ft. E of the high bank of river; 28.96 ft. E of Ref. Mon. 55. Distance in 1950 report gives distance as 0.6 mile downstream from the Bluewater Bridge; 69.4 ft. from SW corner and 85.2 ft. from SE corner of a cement block building of the Purdy Fisheries.

Station mark: An IBC standard bronze-disk station mark set 1 inch above the surface in the top of a cylinder of concrete 9 inches in diameter and 22 inches in depth. Subsurface mark is a cartridge shell in a similar concrete cylinder 24 inches underground.

REFERENCE MONUMENT 55 ECC. 1950 (Ontario,Lambton Co.; D.F.Chisholm, 1950)--This eccentric station is 245.5 ft. from Ref.Mon. 55 ecc.; between the Bay Point Road and the river bank; 31.5 ft. from the center of the road; 20 ft. from the river bank; 35.9 ft. from the most southerly of 3 stone blocks about 2 ft. square, which lie at the edge of the river upstream from the monument; and 63.3 ft. from a large concrete block west of the old engine bed.

Station mark: An IBC standard reference mark set flush with the surface, in the top of a cylinder of concrete 8 inches in diameter and 3 ft. in depth.

BLUE (Ontario,Lambton Co.;F.H.B.,1942;1956)--On the Canadian half of the Bluewater Bridge from Sarnia to Port Huron. It is 95 ft. toward the Canadian end of the bridge from the Point Edward rear range light, on the south side of the sidewalk of the bridge. It is 1 inch (north)

toward the railing of the bridge from the junction line of the sidewalk and the curb, and opposite the ninth post in the railing west of the first lamp post (on the southern side of the bridge) east of the rear range light.
Station mark: An IBC standard bronze-disk station mark set flush with surface of the walk, in a drill hole in the concrete sidewalk.

FORT GRATIOT LIGHTHOUSE--U.S.L.S. (Mich.,St. Clair Co.; 1909;1942;1956)--In Port Huron, Mich.; About 1/2 mile N of the Blue Water Bridge, at the source of the St. Clair River. The point of the spire on top of the light is the station. The station was eccentrically occupied on the eastern side about on a level with the light.

REFERENCE MONUMENT 57 ECC. (Ontario,Lambton Co.;F.H.B., 1942;1.1956)--On the lake front in the eastern part of Point Edward, Ontario. On the side of Ref. Mon. 57 before being moved in 1942. Unmarked. Ref. Mon. 57 is 30.67 meters distant in azimuth 227°34'08".

CONGER (Mich.,St.Clair Co.;F.H.B.,1942;1.1956)--On the sand beach on the west shore of Lake Huron on the line of Edison St. extended, and opposite its junction with the south end of Conger St., Port Huron, about 1 mile N of the entrance to St. Clair River. It is about 15 ft. from the lake and 2 ft. above the level of the lake. Station could not be permanently marked, being under water in heavy storms. A 2-inch by 2-inch wooden hub in ground.

WEES (Ontario,Lambton Co.;F.H.B.,1942;1956)--On the south shore of Lake Huron 2 miles east of the St. Clair River, on Basters Beach, formerly Weese Beach. It is in the broad concrete walk along the lake side of the old dance pavilion, destroyed by fire, and about 130 feet east of the west end of this walk, and about 100 ft. toward the lake from the lake side of the concrete foundation of the pavilion; on rounding corner of cement block retaining wall of the lawn in 1956.
Station mark: An IBC standard bronze-disk station mark set in a drill hole in the concrete walk.

CANAL (Mich.,St.Clair Co.;F.H.B.,1942)--On top of a pile of sand formed by dredging the lake entrance to the canal from Lake Huron to Black River, about 2 miles north of the entrance to St. Clair River. It is about 11 feet above the lake level and unmarked as the sand is being carted away.

LINDA--U.S.L.S. (Mich.,St.Clair Co.;1909;1942)--About 1/4 mile N of the township line between Burchville and Fort Gratiot Township; about 5 miles N of the entrance to St. Clair River; 1000 ft. N of the Metcalf Road; on a sand knoll about 150 ft. from the shore of Lake Huron; 15 feet N of the northerly of 3 pine trees on the point, and about 100 ft. east of a row of tall poplar trees on a hogsback sand ridge paralleling the lake.

Station mark: A U.S. Lake Survey station mark set in a square concrete monument projecting 8 inches above the ground, and marked "Linda 1909".

The reference mark is a concrete monument 121.83 feet SW of the station and 18 ft. N of the central of the three pine trees, with a U.S.L.S. brass reference mark, marked "Linda 1935" with an arrow pointing to the station. It is on the hogsback sand ridge mentioned in description.

BLUE POINT--U.S.L.S. (Ontario,Lambton Co.;1909;1942)--On Blue, or Harris, Point, on the south shore of Lake Huron, about 17 miles by road east of the source of the St. Clair River, and north of Camlachi, Ontario. It is about 20 ft. from the 52-foot bank of the lake at about the northern edge of the curved point.

Station mark: A brass U.S.L.S. tablet marked "Blue Pt. 1909", set in a concrete block flush with the ground, replacing the old block broken off some years ago.

There are two reference marks, consisting of brass tablets with arrows pointing to the station set in concrete about flush with ground. One of these is easterly from the station and the other south nearly to a fence.

	Directions	Distances
Fort Gratiot Light	0° 00' 00"	
East Reference mark	185 17 14	62.66 feet
South Reference mark	257 29 50	148.18 feet

HILLOCK--U.S.L.S. (Mich.,St.Clair Co.;1909;1942)--On the property of T. W. Cooper, 8400 Lakeside Rd., in Burchville Township, 1/4 mile south of Hillocks Corners, east of a group of large pine trees, about 400 ft. S of a large elm tree and 400 ft. N of a small creek flowing into the lake through a cedar grove. The station is now halfway under the east wall of the garage which is attached to the north side of the house of Mr. Cooper. It is about 9 ft. S of the NE corner of the garage and midway between the two windows on the east side of the garage and about 10 ft. back from the high bank. See description of HILLOCK,1942.

Station mark: A spike surrounded by three others in top of a concrete monument, marked "U.S.L.S.1909" and slightly under the present level of the ground outside the garage.

HILLOCK 1942 (Mich.,St.Clair Co.;F.H.B.,1942)--On the property of T. W. Cooper, 8400 Lakeside Road, in Burchville Township, 1/4 mile S of Hillocks Corners, established for use in place of Hillock U.S.L.S., now under the wall of Mr. Cooper's garage. It is on the rear lawn between the house and the high bank of the river. It is 23.84 feet from NE corner of the foundation wall of the house; 12.72 ft. from the SE corner of this wall, and 0.5 foot north of this S side of the house extended; 5.9 ft. from the wall along top of bank; 7.57 ft. to center of tree north of station; about 6 ft. N of stone walk from house to the stairs down the hill.

Station mark: An IBC standard bronze-disk station mark set flush with the surface, in the top of a cylinder of concrete 7 inches in diameter and 22 inches in depth. The subsurface mark is the brass top of a 410 cartridge set in a similar concrete cylinder 24 inches underground. Hillock U.S.L.S. is 11.047 meters distant in azimuth 148°11'00".

REFERENCE MONUMENT 16-42 (Mich.,St. Clair Co.;1926;1942; 1956)--At the north end of the dike on the east side of the dredged channel through the St. Clair Flats into mouth of St. Clair River, about 100 ft. S of St. Clair Flats Light No. 6. In good shape except 15 inches out of ground and leaning about 2 inches toward east. Lost. Flat on ground at the edge of grass.

It is intervisible with BEACON, OLD, ST. CLAIR RIVER, Lights Nos. 1 and 3, and REFERENCE MONUMENT 17.

REFERENCE MONUMENT 17-42(Ontario,Lambton Co.;1911;1942; 1956)--On the first island (above the mouth) on the Canadian side of the St. Clair River and about 300 ft. upstream from the lower end of island. It is inshore from a small islet a few feet in diameter and in the rear of a double willow tree, the only tree on the southern half of this island, and about 600 ft. south of a large grove of willows crossing the island. It is about 50 ft. from the river. It is in good condition. It was 9 ft. inland from tree which is near shore in 1956.

It is intervisible with Ref. Mon. 16; and stations OLD; ST. CLAIR FLATS Light No. 6; ST. CLAIR RIVER, Light No. 1.

REFERENCE MONUMENT 18-42 (Ontario,Lambton Co.;1911;1942; 1956)--On the Canadian side of the river, about 400 feet from the bank and 300 feet south of a channel about 20 ft. wide; about 1/8 mile downstream from St. Clair River, Light No. 1, at the Coast Guard Station. It is in good

condition but in about 3 inches of water on the marsh at present stage of the river and in high marsh grass.
It is intervisible with Ref. Mon. 19; and stations OLD, ST. CLAIR RIVER, Lights Nos. 1 and 3.

REFERENCE MONUMENT 19-42 (Ontario,Lambton Co.;1911;1942; 1.1956)--On the Canadian side of the river, about 20 ft. from the shore in a small sink about 1 foot below marsh level and in 6 inches of water at present river level. Later in season water was gone with lower water in the river. It is directly across from the Maybury Highway, and about 600 feet downstream from St. Clair River Light No. 2. It is in good condition. Standing in 1956 but 10 ft. outside shore.
It is intervisible with Ref. Mons. 18, 20, 21, 22; and stations "St. Clair River Light No. 1", "KELLY", AND "BEEBE".

REFERENCE MONUMENT 20-42 (Ontario,Lambton Co.;1911;1942; 1956)--About 125 ft. inland from the Canadian shore of the St. Clair River, across the river from Light No. 5, and 1000 feet upstream from Light No. 2. It is in good condition and in a dry marsh.
It is intervisible with Ref. Mons. 19, 21, 22; and marked stations "KELLY", "BEEBE", and St. Clair River Lights Nos. 1 and 3. In water on marsh in 1956; Light No. 2 now No. 12.

REFERENCE MONUMENT 21-42 (Ontario,Lambton Co.;1911;1942; 1.1956)--In dry marsh, 30 ft. from the Canadian shore across the river from Light No. 7 and about 500 ft. downstream from this light. In good condition. Light No. 7 is now No. 17. Ref. Mon. 50 feet outside shore and leaning.
It is intervisible with Ref. Mons. 19, 20, 22, 24; and Stations "BEEBE", "OSO", "SPEED", and St. Clair River Lights Nos. 1 and 3.

REFERENCE MONUMENT 22-42 (Ontario,Lambton Co.;1911;1942; 1.1956)--In wet marsh 20 ft. inshore from the Canadian bank of the river, 400 ft. upstream from St. Clair River Light No. 4. It is in good condition. Light No. 4 is now No. 18. Ref. Mon. in water 10 ft. outside shore.
Intervisible with Ref. Mons. 19, 20, 21, 23 and 24; and stations "OSO", "SPEED", "GEORGE" And St. Clair River Lights Nos. 1 and 3.

REFERENCE MONUMENT 23-42 (Ontario,Lambton Co.;1911;1942; 1956)--In wet marsh, 55 ft. inshore from the Canadian bank of the river, about 500 feet upstream from Light No. 6.

It has heaved nearly 1 foot out of the marsh and leans 2 inches SE; being in good condition otherwise. The Ref. Mon. is about midway between Lights Nos. 22 and 24. Light No. 6 is now No. 20. It is now 35 feet from shore.

It is intervisible with Ref. Mons. 22, 24, 25; and stations "SPEED", "GEORGE", "LIND", and St. Clair River Lights Nos. 1 and 3.

REFERENCE MONUMENT 24-42 (Ontario,Lambton Co.;1911;1942; n.r.1956)--In dry marsh, 65 ft. from Canadian shore, across and 600 ft. upstream from Light No. 11. In good condition, except heaved 10 inches and leaning 4 inches away from the shore. Light No. 11 is now No. 21.

It is intervisible with Ref. Mons. 21, 22, 23, 25; and stations "SPEED", "GEORGE", "LIND", "BASSETT", and St. Clair River Lights Nos. 1 and 3.

REFERENCE MONUMENT 25-42 (Ontario,Lambton Co.;1911;1942; 1956)--In dry marsh and very high grass, 40 ft. from the Canadian shore, across from Light No. 15 (now No. 27); and about 1000 ft. downstream from Canada Club, in the bend of the river. In good condition. In edge of grass in 1956.

It is intervisible with Ref. Mons. 23, 24, 26 and 27; and stations "BASSETT", "LIND", "JOYCE", "HARSENS", "SQUIRREL", "CANCLUB", and St. Clair Light No. 1.

REFERENCE MONUMENT 26-42 (Mich.,St.Clair Co.;F.H.B.,1942; 1956)--This monument was found in the river underwater and replaced about 10 ft. from old location. It is in edge of a riverside lawn about 9 ft. from the sea-wall around the lawn of house No. 5469 on Harsens Island, about 1/4 mile upstream from the Canada Club. In good condition.

Intervisible with Ref. Mons. 25 and 27; and stations "SQUIRREL", "CANCLUB", and "BASSETT".

REFERENCE MONUMENT 27-42 (Ontario,Lambton Co.;1911;1942; 1956)--About 20 ft. from the W side of a low, marshy island on the Canadian side of the channel about 1 mile upstream from Canada Club and 4 miles below Algonac. Light No. 12 is on the west edge of this small island, about 140 ft. from the reference monument. It is in good condition, but in very wet marsh. Ref. Mon. is on downstream side of a rounding point in high marsh grass growing from water or marsh and 35 ft. from the island in 1956. Light No. 12 is now No. 36.

It is intervisible with Ref. Mons. 25, 26 and 28; and Stations "BASSETT", "CANCLUB", "SQUIRREL", "JOYCE", "HARSENS", and "TASHMOO".

REFERENCE MONUMENT 28-42 (Ontario,Lambton Co.;1911;1942; 1956)--About 65 ft. from the river on the Canadian shore of Squirrel Island opposite Tashmoo Park, and 40 feet upstream from an unoccupied frame house. In good condition although heaved about 6 inches out of ground; 6 ft. toward river from edge of old road.

It is intervisible with Ref. Mons. 27 and 29; and stations "SQUIRREL", "HARSENS", "TASHMOO", and "SANS".

REFERENCE MONUMENT 29-42 (Ontario,Lambton Co.;1911;1942; 1956)--About 100 ft. from the river, about midway along the wooded section of Squirrel Island opposite the northern edge of Tashmoo Park. It is on the river side of the old road and an Indian house is across the road from it. It is in good condition.

It is intervisible with Ref. Mons. 28 and 31; and stations "TASHMOO", "SANS", and "ROAD". It is now 35 ft. from river and 100 ft. downstream from the cabin across the road.

REFERENCE MONUMENT 30-42 (Ontario,Lambton Co.;1911;1942; 1956)--About 50 ft. from the river and 25 ft. from the dirt road, at the northern corner of the wooded section of Squirrel Island, about 2 miles below Algonac, and across from Light No. 19. It is in good condition, and in tall marsh grass 25 ft. downstream from the large, detached thicket of willows, a little off the NW corner of the woods. Light No. 19 is now No. 37.

It is intervisible with Ref. Mon. 31 and stations "SANS", "ROAD", and "BEND". About 400 ft. upstream from line of lights across river.

REFERENCE MONUMENT 31-44 (Mich.,St. Clair Co.;Harsens Island;N.W.S.1944;1956)--This monument is on Harsens Island, 3/4 mile upstream from the Sans Souci Post Office on the Island near Tashmoo Park. It is on the west side of the road known as Bay View Ave. at a point where this river road north from Tashmoo Park takes a sharp left turn away from the river. It is 7 ft. from the edge of the road on the tree line and midway between a 3-foot maple, which is the last tree on the west side of the road before the turn and a 26-inch maple NW of the station and a few feet around the bend in the road. It is 65 feet across the road to the St. Clair River bank and is 3 ft. above the present high water level. It is on the 2208 Bay View Avenue property.

REFERENCE MONUMENT 32-42 (Mich.,St.Clair Co.;1911;1942; 1956)--In an open house lot near the southern end of Russell Island 75 ft. from the river, 600 ft. below

Light No. 23, 250 ft. south of a white house, 100 ft. north of another white house, 100 ft. toward river from the junction of Russell Drive South and Druid Drive. In good condition but buried to the bottom of the number and can only be seen from toward Canadian shore. Only 6 inches above ground in 1956.

It is intervisible from stations "USE", "BEACH" and "INDIAN". Light No. 23 is now No. 39-B.

REFERENCE MONUMENT 33-42 (Mich.,St.Clair Co.;1911;1942; 1.1956)--Near the northern end of Russell Island, opposite Algonac, 100 ft. S of the most northerly house on the east side of the island and 25 ft. from the river. The river bank is reported cutting back rapidly, hence should be checked whenever possible. It is 150 ft. N of Light No. 25, now No. 41, and is in good condition.

It is intervisible with stations "NUN", "MISKO", "SQUAW", "USE", "BEACH", and "BASE 23". Ref. Mon. in water 5 feet outside shore.

REFERENCE MONUMENT 34-42 (Mich.,St.Clair Co.;1911;1942; 1956)--About on the fence line on the west side of Highway No. 29, one mile N of Algonac and opposite Chenal Ecarte. It is in front of a white house, just north of a wire line fence and in good condition. No. of house is 9648.

It is intervisible with stations "DAN" and "BABY".

REFERENCE MONUMENT 35-42 (Ontario,Lambton Co.;1911;1942; 1956)--In the northern edge of Port Lambton, Ontario, between the sidewalk and the property line, on the east side of King's Highway No. 40. It is 70 feet from the river and near the SW corner of a lot containing a brick schoolhouse marked "SOMBRA 1922 SS No. 6". A Canadian Bench Mark is in the monument. It is in good condition.

It is intervisible with stations "LAMB", "ROBERTS", "SEE", and "PERGOLA".

REFERENCE MONUMENT 36-42 (Ontario,Lambton Co.;1911;1942; 1956)--It is about 30 ft. from the river about midway along the west side of Woodtick Island, 1/2 mile below Marine City. It is in open, dry marsh and in good condition. At water's edge in 1956.

It is intervisible with stations "COT", "SIGHT", "SALT", "MARINE", "CITY" and "SOMBRA", and Ref. Mon. 37.

REFERENCE MONUMENT 37-42 (Ontario,Lambton Co.;1934;1942; 1956)--In the northern part of Sombra, Ontario, in the SW corner of the lot belonging to the Sombra Anglican Church, just off the highway right-of-way and 20 ft. from the pavement of King's Hwy. No. 40. In good condition.

It is intervisible with Ref. Mons. 36 and 38, and stations "SOMBRA", "MARINE", "CITY", "BURNS", and "GOLD".

REFERENCE MONUMENT 38-42 (Mich.,St.Clair Co.;1911;1942; 1956)--Approximately on the boundary line between Nos. 6076 and 6082 River Drive; 9 ft. west of this concrete road and about 1 mile upstream from Marine City, Mich. In good condition.

Intervisible with Ref. Mon. 37 and stations "WORK", "DOCK", and "GOLD".

REFERENCE MONUMENT 39-42 (Ontario,Lambton Co.;1911;1942; 1956)--On the Canadian side of the river, midway between the high bank and the river road, about 3-1/4 miles N of Sombra. In good condition.

It is intervisible with Ref. Mon. 40 ecc., and stations "THORN", "LACE", "RECORS", and "GUY".

REFERENCE MONUMENT 40-42 (Mich.,St.Clair Co.;1911;1942; 1956)--On the high U.S. bank of the river, in the shade of a large maple tree about 500 ft. S of the Remer Road, 3 miles N of Marine City: It is in good condition and 17 ft. from the high bank.

It cannot be seen from many parts of the river. Ref. Mon. 40 ecc. is intervisible with the reference monument and with "REMER", "BOWEN", "THORN", "LACE", and Ref. Monument 39.

REFERENCE MONUMENT 41-42 (Ontario,Lambton Co.;1934;1942; 1956)--It is on the high bank on the Canadian side of the river across and 200 ft. upstream from the Harts Landing Light, 2 miles below Courtright, Ontario. It is 25 feet from the high bank and 15 ft. from the pavement and in good condition.

It is intervisible with stations "VISTA", "MAT", "LINE", "HART", "LANDI", "TRAIL" and "ORCHARD".

REFERENCE MONUMENT 42-42 (Ontario,Lambton Co.;1911;1942; 1956)--In open meadow land about 1 mile S of Courtright, Ontario, 100 ft. from the river. It is in good condition and intervisible with Ref. Mon. 43, ecc., and stations "SHORE", "LANDI", "TRAIL", "BOUL", and "MOORE".

REFERENCE MONUMENT 43-42 (Mich.,St.Clair Co.;1911;1942; 1.1956)--On the high bank of the river, between No. 1719 Oakland St. (Route Mich. 29) and the cottage S of it in the southern edge of St. Clair, Mich., hence only can be seen from a small arc on the opposite shore. It is in good shape and was occupied eccentrically, for its

location from Reference Monument 42 and stations "COURT" and "MUD". Old cottages gone. Several new cottages built.

REFERENCE MONUMENT 44-42 (Ontario,Lambton Co.;1935;1942; 1956)--In the northern edge of Courtright, Ontario, 17 ft. west of the concrete road in the edge of the river bank. It is buried to the bottom of the numbers, which are on the land side of the monument, which is otherwise in good condition. It is intervisible with Ref. Mon. 45 and stations "RIGHT", "MOORE", "INN", AND "MAC".

REFERENCE MONUMENT 45-42 (Mich.,St.Clair Co.;1911;1942; 1956)--At the river end of the hedge on the northern boundary of Mr. F. J. McDonald's house at 1012 North Riverside Ave., St. Clair, Mich; near the N edge of the city and on the high bank of the river. It is in good condition. Between lots 1020 and 1028 in 1956.
It is intervisible with Ref. Mon. 44 and stations "RIGHT", "WIND", "WAVES.

REFERENCE MONUMENT 46-42 (Ontario,St.Clair Co.;1911;1942; 1956)--About 60 ft. from the river on the first shelf of the bank about 12 ft. above the river, at the end of an old road leading toward the river from the main highway, 1 mile N of Moore, Ontario. It is in good condition, but in thick bush and cannot be seen from many places on the river. It is intervisible, by clearing lines, with stations "WEED", "LAWN", and "SHIP".

REFERENCE MONUMENT 47-42 (Mich.,St.Clair Co.;1911;1942; 1.1956)--About 18 ft. from the river and 40 ft. toward river from the rear of the concrete block house at 2401 River Road in the southern part of Marysville, Michigan. It is across the street from the upriver edge of the grounds of the new Dow Chemical plant. It is in good condition and intervisible with Ref. Mon. 48 and stations "WOOD", "TALFORD", "CORUNNA", and "BITTER".

REFERENCE MONUMENT 48-42 (Ontario,Lambton Co.;1925;1942; 1956)--About 100 ft. E of the river road and 1-1/2 feet S of a line fence, in a meadow 1/2 mile N of Corunna, Ontario. It is in good condition and intervisible with Ref. Mon. 47 and stations "TALFORD", "GAR", "WOOD", and "COZY".

REFERENCE MONUMENT 49-42 (Mich.,St.Clair Co.;1911;1942; 1956)--Near the northern end of the Detroit Edison enclosed area in the northern part of Marysville, Mich.

About 30 ft. back from the high bank of the river near the upstream side of one of several outbuildings and near the end of the building farthest from the river. It is in good condition.

It is intervisible with station "PAP" and from the nearby eccentric with Ref. Mon. 50 and station "ROCKS".

REFERENCE MONUMENT 50-42 (Ontario,Lambton Co.;1911;1942; 1956)--About 15 ft. from the high bank of the river and 10 ft. from the river road, 2 miles south of Sarnia, nearly opposite the junction of the old road into Sarnia with the river road, and 1000 ft. north of the junction where the new concrete road curves inland from this river road. It is in good condition. In 1956 this Ref. Mon. was found encased for protection in a cement block box 6.7 ft. by 7.35 ft. by 5.8 ft. between the river and a row of 4 storage tanks.

It is intervisible with Ref. Mon. 49 ecc., "PAP", "BUSH", "PARK", "BACKUS", and "IRIS", and Ref. Mon. 51.

REFERENCE MONUMENT 51-42 (Mich.,St.Clair Co.;1925;1942; 1956)--Buried 2 inches underground, in the riverside lawn of an apartment house at 2680 Military St., Port Huron, Mich., in the southern part of the city, about 8 ft. S of the northern property line. It can be located by the following:

	Azimuths	Distances
East corner of the auto platform in rear of bldg.	130° 48'	19.7 feet
Center of the high flower urn in center of lawn	15 22	20.5 feet
River face of retaining wall	Southeast	22 feet

In apparent good shape and intervisible with stations "POLY", "MER", "MUEL", and Ref. Mon. 50.

REFERENCE MONUMENT 52-42 (Ontario,Lambton Co.;1911;1942; 1956)--About 100 ft. from the river at station "REX", 15 ft. from the high bank of the river, and 4 ft. north of the sidewalk on the north side of the road along the north side of the Imperial Oil Co. property in south central Sarnia, Ontario. It is in good condition and is intervisible with stations "REX", "RAIL", "HURON", "BAY", "JUNK", "SARNIA", "BLUE", and "WARE". Property owned by Imperial Oil Co. in 1956.

REFERENCE MONUMENT 53-42 (Ontario,Lambton Co.;1911;1942; 1.1956)--In the eastern edge of a coal pile, 35 ft. E of the railroad tracks along the river front and 6 ft. W of the road through the coal yard, about 500 ft. N of George Street, north central part of Sarnia, Ontario. About 70 ft. from the river. In good condition and intervisible

with Reference Monument 54 and stations "HURON", "INTAKE", "BAY", AND "WARE". Macadam road over site of the Ref. Mon. in 1956.

REFERENCE MONUMENT 54-42 (Mich.,St.Clair Co.;1911;1942; 1956)--About 15 ft. north of the fence on the southern property line of the park around the water intake plant of Port Huron, Michigan. It is on, and 6 ft. from, the high bank of the river and 85 ft. from the railroad tracks through the park. It is in good condition and intervisible with Ref. Mons. 53 and 55 ecc., and stations "WARE", "BAY", "INTAKE", "YARD", and "BLUE".

REFERENCE MONUMENT 55-42 (Ontario,Lambton Co.;1911;1942; 1956)--Buried within 6 inches of the top of the monument and that nearly covered by the edge of a 10-foot mound of dredged material. It is directly inshore from the southerly of two 20-inch poplar trees on the river's edge, 135 ft. south of the red wooden building at southern end of the Northern Navigation Co. property, 1/4 mile south of the Blue Water Bridge, and 11 ft. west from the center of the road leading from the bridge to Bay Point. It is hidden from the river by the sand mound except on line to Ref. Mon. 56. Apparently in good condition.

It is only intervisible with Ref. Mon. 56 when the coal piles near latter monument are small. Ref. Mon. 55 ecc. can be used in place of the monument. Two feet of the Ref. Mon. above ground in 1956.

REFERENCE MONUMENT 56-42 (Mich.,St.Clair Co.;1911;1942; 1956)--About 150 ft. from the U.S. shore of the river and 60 ft. south of the southern edge of the Blue River Bridge in Port Huron, Mich. It is 10 ft. south of the sidewalk on the south side of State Street at the point where this street turns sharply south to the office of the Peerless Cement Corp., and 6 ft. from the road at the bend. It is buried to the bottom of the number; otherwise, in apparent good condition.

In 1956 only 5 inches of the top above surface of the ground. It is now by the stop sign on a post on the west side of the entrance to the cement corporation's plant, opposite the west sidewalk of Forest Street extended.

It is intervisible with Ref. Mon. 55, Ref. Mon. 55 ecc., and stations "BLUE" and "YARD".

REFERENCE MONUMENT 57-49 (Ontario,Lambton Co.;D.F.C., 1949;1956)--Monument is in the north central part of Point Edward, Ontario. To reach the monument go north on Alfred Street, Point Edward, and after crossing the railroad track, turn right through Canatara Park until a pavilion appears on the left. The monument is about

thirty feet southwest of the west end of this building, which is a park beach shelter.
It is intervisible with stations "BLUE", "FORT GRATIOT LIGHT", and Ref. Mon. 58.

REFERENCE MONUMENT 58-42 (Mich.,St.Clair Co.;1911;1942; 1956)--In the lakeside lawn of 3231 Armour St., belonging to Dr. Zemmer, about opposite Sanborn St., Port Huron, Mich., near the northern side of the city. It is about 150 feet from the lake and 100 ft. from Dr. Zimmer's house. It is in a 2-ft. depression in the center of a group of large pine trees and buried halfway to the bottom of the number. Should the lawn be graded, the top of the monument would be about flush with the surface. It is in good condition.
It is intervisible with Ref. Mon. 57 and stations "WEES", and "BLUE".

ST. CLAIR RIVER, Light No. 2=(No. 12 in 1956)(Ontario, Lambton Co.;F.H.B.,1942;1956)--The light on top of the white concrete bldg. on a concrete base near the Canadian shore opposite the Maybury Highway, about 9 miles below Algonac.

ST. CLAIR RIVER, Light No. 4=(No. 18 in 1956)--(Ontario, Lambton Co.;F.H.B.,1942;1956)--About 8 miles below Algonac. The station is the light on top of the white concrete building on a concrete base near the Canadian shore.

ST. CLAIR RIVER, Light No. 6=(No. 20 in 1956)(Ontario, Lambton Co.;F.H.B.,1942;1956)--At the junction of the Little Bassett Channel and the St. Clair River, nearly 8 miles below Algonac. The station is the light on top of the white concrete building on a concrete pier about 100 ft. off the Canadian shore.

ST. CLAIR RIVER, Light No. 8=(No. 26 in 1956)(Ontario, Lambton Co.;F.H.B.,1942;1956)--The Light on the top of a white concrete building on a concrete pier near the Canadian shore about 7 miles below Algonac, and 1/2 mile below the Canadian Club.

ST. CLAIR RIVER, Light No. 10=(No. 30 in 1956)(Ontario, Lambton Co.;F.H.B.,1942;1956)--About 6-1/2 miles below Algonac, near the Canadian shore at the Canadian Club, at junction of Bassett Channel and St. Clair River. The station is the light on top of the white concrete bldg. on a concrete base.

ST. CLAIR RIVER, Light No. 12=(No. 36 in 1956)(Ontario, Lambton Co.;F.H.B.,1942;1956)--The light on top of the concrete building on the top of a concrete pier off the marshy island on the Canadian side of the river about 5 miles below Algonac.

ST. CLAIR RIVER, Light No. 14=(No. 38 in 1956)(Ontario, Lambton Co.;F.H.B.,1942;1956)--The light on top of the concrete building on a concrete pier off Squirrel Island about 1-1/2 miles below Algonac.

ST. CLAIR RIVER, Light No. 16=(No. 40 in 1956)(Ontario, Lambton Co.;F.H.B.,1942;1956)--The center of the light on top of the white concrete building on a concrete pier off Walpole Island opposite the southern end of Algonac.

ST. CLAIR RIVER, Light No. 18=(No. 42 in 1956)(Ontario, Lambton Co.;F.H.B.,1942;1956)--The center of the light on the top of a white concrete building on a concrete pier off Walpole Island near its upper end, opposite the northern end of Algonac.

ST. CLAIR FLATS, Light No. 2 (Mich.,St.Clair Co.;F.H.B., 1942;1956)--The center of the light on top of the metal reservoir shaped like a firecracker (and locally called the "Firecracker") at the southern end of the dike on the eastern side of the dredged channel across the St. Clair Flats into the entrance of the river.

ST. CLAIR RIVER, Light No. 5=(No. 13 in 1956)(Mich.,St. Clair Co.;F.H.B.,1942;1956)--About 9 miles below Algonac and 1/4 mile upstream from the Maybury Highway. The station is the light on top of a black steel truss on a dock on the U.S. side of river.

ST. CLAIR RIVER, Light No. 7=(No. 17 in 1956)(Mich.,St. Clair Co.;F.H.B.,1942;1956)--The light on top of the gray concrete building on a concrete base, off the U.S. shore about 8 miles below Algonac.

ST. CLAIR RIVER, Light No. 9=(No. 19 in 1956)(Mich.,St. Clair Co.;F.H.B.,1942;1956)--The light on top of the black steel truss on the dock at Bedore's Hotel on the U.S. shore about 8 miles below Algonac.

ST. CLAIR RIVER, Light No. 11=(No. 21 in 1956)(Mich., St. Clair Co.;F.H.B.,1942;1956)--The light on top of the gray concrete building on a concrete base off the U.S. shore about 7-1/2 miles below Algonac.

ST. CLAIR RIVER, Light No. 13=(No. 25 in 1956)(Mich.,St. Clair Co.;F.H.B.,1942;1956)--The light on top of the white concrete building on a concrete base off the U.S. shore, 7 miles below Algonac.

ST. CLAIR RIVER, Light No. 15=(No. 27 in 1956)(Mich.,St. Clair Co.;F.H.B.,1942;1956)--The light on top of a black steel truss on a 10-ft. square concrete pier near the U.S. shore, opposite the Old Club, about 6 miles below Algonac. There is a U.S. Lake Survey bench mark on the shore side of the pier.

ST. CLAIR RIVER, Light No. 17=(No. 35 in 1956)(Mich.,St. Clair Co.;F.H.B.,1942;1956)--The light on top of a round white concrete tower on a concrete pier off Harsens Island about 4 miles below Algonac. This is the front range of the Harsens Island Range.

ST. CLAIR RIVER, Light No. 19=(No. 37 in 1956)(Mich.,St. Clair Co.;F.H.B.,1942;1956)--The light on a metal pole on a wooden pile just off the Harsens Island shore about 3 miles below Algonac. The pole is leaning and not very permanent.

ST. CLAIR RIVER, Light No. 21=(No. 39A in 1956)(Mich., St.Clair Co.;F.H.B.,1942;1956)--The light on a white steel truss on a round concrete pier about 50 ft. off the small island downstream from Russell Island, 1/2 mile below Algonac.

ST. CLAIR RIVER, Light No. 25=(No. 41 in 1956)(Mich.,St. Clair Co.;F.H.B.,1942;1956)--The light on top of a small white building for oil and supplies, on a concrete base at upper end of Russell Island opposite Algonac.

SALT DOCK LIGHT (Mich.,St.Clair Co.;F.H.B.,1942;1956)--On the property of Mr. Diehl, next to Avalon Beach, 1-1/2 miles downstream from Marine City. It is on the riverside lawn of his residence, surrounded by a flower garden. The station is the center of the light on top of a steel truss in concrete base.

RECORS POINT LIGHT (Mich.,St.Clair Co.;F.H.B.,1942;1956) The station is the center of the light on top of a black cylindrical body on a concrete base, about 100 ft. off the U.S. shore, 3 miles north of Marine City.

STAG ISLAND SHOAL LIGHT (Ontario,Lambton Co.;F.H.B.,1942; 1956)--The station is the light in the small white light-house on concrete base on the shoal in the center of the

river below Stag Island, one mile downstream from Corunna, Ontario.

STAG ISLAND MIDDLE LIGHT (Mich.,St.Clair Co.;F.H.B., 1942;1956)--The station is the light on a steel truss on a concrete base on the shore line on the U.S. shore opposite the middle of Stag Island.

CORUNNA SOUTH LIGHT (Ontario,Lambton Co.;F.H.B.,1942; 1956)--The station is the light on a high metal pole on the Canadian shore opposite the lower end of Stag Island, 1/2 mile south of Corunna, Ontario.

ST. MARKS R.C. CHURCH, Spire (Mich.,St.Clair Co.;F.H.B., 1942;1956)--The station is the cross enclosed in a circle at the peak of the church spire, located near the river at the southern edge of Tashmoo Park, Sans Souci, Harsens Island, about 4 miles downstream from Algonac.

WALPOLE ISLAND CATHOLIC CHURCH, Cross (Ontario,Lambton Co.;F.H.B.,1942;1956)--The cross on the spire of the Catholic church in the Indian village, near north end of Walpole Island, opposite Algonac, Michigan.

WALPOLE ISLAND SCHOOL, Pole (Ontario,Lambton Co.;F.H.B., 1942;1956)--The pole on the belfry of the Indian school house near the Catholic church in the Indian village on Walpole Island.

ALGONAC TANK (Mich.,St.Clair Co.;F.H.B.,1942;1956)--The knob on the peak of the white water tank, broad and flat, belonging to the village of Algonac, Michigan.

CHRIS CRAFT TANK (Mich.,St.Clair Co.;F.H.B.,1942;1956)-- The knob on the apex of the conical top of the black water tank of the Chris Craft boat works in Algonac, Mich.

MARINE CITY TANK (Mich.,St.Clair Co.;F.H.B.,1942;1956)-- The knob on the center of the peak on the rather flat white water tank belonging to Marine City.

MARINE CITY CATHOLIC CHURCH, Cross (Mich.,St. Clair Co.; F.H.B.,1942;1956)--The dark colored cross on the top of the short spire on the Marine City Catholic church, surrounded by 4 minarets.

MARINE CITY CATHOLIC SCHOOL, Cross (Mich.,St. Clair Co.; F.H.B.,1942;1956)--The white cross on the top of the belfry of the Catholic school in Marine City, Michigan.

SOMBRA ANGLICAN CHURCH, Cross (Ontario,Lambton Co.; F.H.B.,1942;1956)--The cross on the spire of the Anglican Church in the northern part of Sombra, Ontario.

COURTRIGHT, Chimney (Ontario,Lambton Co.;F.H.B.,1942; 1956)--The tall brick chimney on the old abandoned bldg. at the southern edge of Courtright, Ontario.

COURTRIGHT HOTEL, Acorn (Ontario,Lambton Co.;F.H.B., 1942;1956)--The acorn on the top of the dome on the hotel in Courtright, Ontario.

ST. CLAIR TANK (Mich.,St.Clair Co.;F.H.B.,1942;1956)-- The knob on the high water tank near the river bank, in St. Clair, Michigan.

ST. CLAIR AERIAL (Mich.,St. Clair Co.;F.H.B.,1942;1956)-- The radio aerial in St. Clair, Michigan.

GAR WOOD TANK (Mich.,St. Clair Co.;F.H.B.,1942;1956)-- The knob on the black water tank nearest the river on the property of Gar Wood Industries, Marysville, Michigan.

CHRYSLER TANK (Mich.,St. Clair Co.;F.H.B.,1942;1956)-- The knob on the black water tank of the Chrysler Automobile Corp. in Marysville, Michigan.

SARNIA, Post Office (Ontario,Lambton Co.;F.H.B.,1942; 1956)--In Sarnia, Ontario. It is the center of the dome on the city post office.

SARNIA, City Hall (Ontario,Lambton Co.;F.H.B.,1942;1956) In Sarnia, Ontario. It is the center of the dome on the city hall.

MUELLER TANK (Ontario,Lambton Co.;F.H.B.,1942;1956)--The center of conical top of the Mueller Co. tank near the junction of their property and that of the Imperial Oil Co., in Sarnia, Ontario.

ST. ANDREWS PRESBYTERIAN CHURCH, Spire (Ontario,Lambton Co.;F.H.B.,1942;1956)--The spear-shaped finial on the top of the spire of the St. Andrews Presbyterian Church in Sarnia, Ontario. There are small minarets around the square tower at the foot of the spire.

ST. GEORGES ANGLICAN CHURCH, Spire (Ontario,Lambton Co.; F.H.B.,1942;1956)--The spire of the St. Georges Anglican Church in Sarnia, Ontario, with a chessman-shaped figure with spike at top of spire.

OUR LADY OF MERCY CHURCH, Cross (Ontario,Lambton Co.; F.H.B.,1942;1956)--The cross on top of the spire of the Our Lady of Mercy Catholic Church in Sarnia, Ontario.

AUTO-LITE TANK (Mich.,St. Clair Co.;F.H.B.,1942;1956)--The water tank of the Auto-Lite Co. in southern Port Huron, Michigan. The name is printed on the tank.

SUNOCO STEEPLE (Mich.,St. Clair Co.;F.H.B.,1942)--This is the slim pointed spire on the former Sunoco Oil station in southern Port Huron near the water front, and now used as a summer cottage.

ST. PAULS ANGLICAN CHURCH, Spire (Ontario,Lambton Co.; F.H.B.,1942;1956)--The finial of the dark green spire on top of the bell tower of the St. Pauls Anglican Church in Point Edward, Ontario.

POINT EDWARD, Front Range (Ontario,Lambton Co.;G.T.P., 1949)--The finial on the lighthouse on the shore of Lake Huron, north of the central part of Point Edward, forming the front range for the firstsailing course on Lake Huron (through a dredged channel). Not on solid foundation; hence position subject to change.

POINT EDWARD, Rear Range (Ontario,Lambton Co.;F.H.B., 1942;1956)--The light in a large yellow framework on the north side of the Blue Water Bridge in Point Edward, forming the rear range for the dredged channel at the southern end of Lake Huron.

PORT HURON, City Hall (Mich.,St. Clair Co.;F.H.B.,1942; lost, new City Hall in 1956)--In Port Huron, Michigan, on the west side of Route 29. It is the center of the clock tower on the City Hall.

PORT HURON, Post Office (Mich.,St. Clair Co.;F.H.B., 1942;1956)--In Port Huron, Michigan. It is the center of the tower on the post office, on which an aerial is located.

FIRST METHODIST CHURCH, Spire (Mich.,St. Clair Co.;F.H.B., 1942;1956)--The spire on the First Methodist Church in Port Huron, Michigan.

FIRST BAPTIST CHURCH, Spire (Mich.,St. Clair Co.;F.H.B.; 1942;1956)--The spire of the First Baptist Church of Port Huron, Mich. There is some fancy trim on the side of the spire.

AIRGRIP TANK (Mich.,St. Clair Co.;F.H.B.,1942)--The water tank of the Airgrip Chucks Company in southern part of Port Huron, Michigan. The name is painted on the tank.

BAY POINT LIGHT (Ontario,Lambton Co.;F.H.B.,1942;1956)--This is the center of the light on the top of a white square pole above a white box for oil and supplies at the end of Bay Point, between Sarnia and Point Edward, Ontario.

GEOGRAPHIC POSITIONS

On the pages immediately following are listed the triangulation stations, reference monuments, and turning points which define the boundary through the Great Lakes region between Lake Ontario and Lake Huron. For each, the latitude and longitude are given, together with distances and azimuths to neighboring triangulation stations, reference monuments, and turning points. The values in this report are given on the 1927 North American datum. The methods used in the computation on this datum are outlined briefly as follows:

(1) Primary control was obtained from lines and first-order stations of the United States Coast and Geodetic Survey, the Geodetic Survey of Canada, and the United States Lake Survey. These stations were adjusted by the respective bureaus.

(2) Second-order control was obtained from observations made by engineers of the International Boundary Commission based on the primary control stations mentioned above. These observations were adjusted by the International Boundary Commission.

(3) Third-order control was obtained from observations made by engineers of the International Boundary Commission, supplemented along the Detroit River by observations made by the United States Lake Survey. This work was adjusted by the International Boundary Commission. The stations in this third-order included a number located in the primary or second-order work and the adjustments were made in several sections between these well located stations used as tie points.

(4) Some of the reference monuments were stations in the third-order schemes and were fixed in position by the adjustment of those triangulation schemes. The others were located in the field from stations of the primary, second-order, and third-order, and their positions adjusted from the adjusted values of those stations.

(5) The positions of various intersection stations such as church steeples, lights for navigation, harbor monuments, etc., were obtained by adjusting observations taken by the International Boundary Commission, the International Waterways Commission, the United

States Lake Survey and the Detroit Harbor Engineers, from stations fixed by above adjustments. All are given on the 1927 North American datum.

(6) The boundary turning points were located and listed from these reference monuments on the North American datum by the International Waterways Commission and published in their final report in 1916. The values of the turning points on the 1927 North American datum are derived in this report from their positions in the 1916 publication on the North American datum.

The positions of all stations and reference monuments moved and relocated since 1942 are given as determined from the adjustment of observations taken since that time. The year of relocation follows the name of the station.

The positions of the stations on the Niagara River listed under the heading "I.W.C. Scheme 1909-1910" were not rigidly adjusted and have therefore been shown as lost in the listing of that scheme. The majority of these were redetermined in 1941 with extra ties to Primary Triangulation Stations and rigidly adjusted. The redetermined positions of these stations will be found in the report with the newer stations under the heading "1941 Scheme". On the Detroit and St. Clair Rivers, the old I.W.C. stations have been lost, hence the only listing is of the stations, reference monuments and boundary turning points as determined in 1941.

Latitudes and longitudes are given to three decimal places in seconds; azimuths are measured from south and given to tenths of a second; computed distances are given to tenths of a meter and measured distances to hundredths of a meter; logarithm of distances are carried to at least six places. The usual procedure of publishing only one uncertain figure is followed.

Abbreviations on the following geographic lists have the following meaning:

d.= described m.= marked n.= not r.= recovered

l.= lost p.= probably

International boundary line Niagara kiver I.W.C. Scheme 1909-1910 *State* New York *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Bench--I.W.C.	43 04 44.733	273 17 44.2	93 18 28.2	Grass--I.W.C.	1,461.1	3.164670
New York, 1941 1. n.d.	79 03 50.014	351 58 53.5	171 58 57.9	High--I.W.C.	1,056.8	3.023973
Park--I.W.C.	43 04 22.339	233 23 56.8	53 24 24.9	Bench--1.W.C.	1,159.1	3.064131
Canada, 1912; 1. 1941 d.m.	79 04 31.149	288 14 21.8	108 14 54.3	High--1.W.C.	1,135.1	3.055050
Terrapin, U.S.C.S., 1886 d.m.	43 04 48.939	4 43 45.5	184 43 43.5	Park--I.W.C.	823.7	2.915744
New York; I.W.C. r.1912;1. 1941	79 04 28.148	319 20 25.9	139 20 56.4	High--1.W.C.	1,550.4	3.190450
Lundy--I.W.C.	43 04 38.336	229 44 03.6	49 44 15.2	Terrapin--I.W.C.	506.3	2.704382
Canada, 1912; 1. 1941 d.m.	79 04 45.225	327 10 24.0	147 10 33.6	Park--1.W.C.	587.4	2.768962
Queen--I.W.C.	43 05 01.095	12 08 46.5	192 08 42.0	Lundy--1.W.C.	718.4	2.856373
Canada, 1912; 1. 1941 n.d.	79 04 38.543	327 54 59.6	147 55 06.7	Terrapin--1.W.C.	442.7	2.646143
State--I.W.C.	43 05 10.944	34 19 01.2	214 18 47.2	Terrapin--I.W.C.	822.2	2.914953
New York, 1912; 1. 1941 n.d.	79 04 07.658	66 29 28.1	246 29 07.0	Queen--1.W.C.	761.9	2.881878
Clifton--I.W.C.	43 05 20.996	30 51 14.6	210 51 03.5	Queen--I.W.C.	715.4	2.854525
Canada, 1912; 1. 1941 n.d.	79 04 22.324	313 04 36.8	133 04 46.8	State--I.W.C.	454.2	2.657213
Spir--I.W.C.	43 05 32.635	3 12 10.3	183 12 09.2	State--I.W.C.	670.4	2.826335
Canada, 1912; 1. 1941 n.d.	79 04 06.002	45 47 19.5	225 47 08.4	Clifton--I.W.C.	515.1	2.711854
Tank--I.W.C.	43 05 18.443	99 12 34.9	279 12 20.2	Clifton--1.W.C.	492.4	2.692309
New York, 1912; 1. 1941 n.d.	79 04 00.835	165 03 35.7	345 03 32.1	Spir--1.W.C.	453.3	2.656361
Roof--I.W.C.	43 05 37.110	30 05 03.3	210 04 53.3	Tank--1.W.C.	665.7	2.823281
New York, 1912; 1. 1941 n.d.	79 03 46.082	72 57 43.5	252 57 29.9	Spir--I.W.C.	471.2	2.673221
Tug--I.W.C.	43 05 39.370	280 56 26.0	100 56 36.9	Roof--I.W.C.	367.5	2.565281
Canada, 1912; 1. 1941 n.d.	79 04 02.036	357 35 26.6	177 35 27.5	Tank--1.W.C.	646.4	2.810479
Giant--I.W.C.	43 05 55.433	19 15 06.8	199 15 00.8	Roof--1.W.C.	598.9	2.777388
New York, 1912; 1. 1941 n.d.	79 03 37.350	48 24 05.9	228 23 49.0	Tug--1.W.C.	746.6	2.873088
Rope--I.W.C.	43 05 58.671	22 14 34.6	202 14 27.2	Tug--I.W.C.	643.5	2.808543
Canada, 1912; 1. 1941 n.d.	79 03 51.266	287 36 46.1	107 36 55.6	Giant--1.W.C.	330.2	2.518766
Niagara Falls south base--I.W.C.	43 05 49.311	60 31 09.8	240 30 53.4	Tug--1.W.C.	623.3	2.794696
New York, 1912; 1. 1941 n.d.	79 03 38.045	134 00 45.1	314 00 36.1	Rope--1.W.C.	415.7	2.618808
Niagara Falls north base--I.W.C.	43 06 01.732	23 41 31.7	203 41 26.6	Niagara Falls south base, I.W.C.	418.593	2.6217922
New York, 1912; 1. 1941 n.d.	79 03 30.608	78 34 12.6	258 33 58.5	Rope--1.W.C.	476.6	2.678182
Chippewa--I.W.C.	43 03 44.484	122 49 28.9	302 48 50.9	High--I.W.C.	1,499.7	3.176002
Canada, 1912; 1. 1941 d.	79 02 47.798	181 39 07.8	1 39 09.4	Grass--1.W.C.	1,775.8	3.249402
Conner--I.W.C.	43 04 33.300	60 59 21.1	240 57 59.1	Chippewa--I.W.C.	3,105.1	3.492072
New York, 1909; 1. 1941 d.	79 00 47.793	95 46 15.6	275 44 55.2	Grass--I.W.C.	2,677.1	3.427671
Foot--I.W.C.	43 03 43.787	125 52 44.7	305 51 29.7	Grass--1.W.C.	3,066.2	3.486606
Canada, 1909; 1. 1941 d.m.	79 00 55.712	186 41 13.5	6 41 18.9	Conner--I.W.C.	1,538.4	3.187067

INTERNATIONAL BOUNDARY COMMISSION—UNITED STATES, ALASKA, AND CANADA

GEOGRAPHIC POSITIONS—NORTH AMERICAN DATUM 1927

International boundary line Niagara River I.W.C. Scheme 1909-1910 *State* New York *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Lower--I.W.C.	43 03 51.984	50 47 46.1	230 47 25.9	Bailey--I.W.C.	863.2	2.936109
New York, 1909; 1. 1941 d.	78 59 56.511	79 18 45.3	259 18 04.8	Foot--I.W.C.	1,363.2	3.134575
		137 42 06.0	317 41 30.9	Conner--I.W.C.	1,723.9	3.236509
Burnt--I.W.C.	43 03 36.414	84 57 07.0	264 56 44.8	Bailey--I.W.C.	740.1	2.869299
New York, 1909; 1. 1941 d.	78 59 53.490	99 11 08.5	279 10 26.0	Foot--I.W.C.	1,426.2	3.154193
		171 54 15.4	351 54 13.4	Lower--I.W.C.	485.3	2.686025
		353 15 56.9	173 15 58.9	Boom--I.W.C.	550.1	2.740421
Cayuga--I.W.C.	43 04 20.448	64 39 06.9	244 38 11.0	Lower--I.W.C.	2,051.1	3.311997
New York, 1909 d.m.	78 58 34.589	97 30 35.3	277 29 04.3	Conner--I.W.C.	3,039.6	3.482811
Buckhorn--I.W.C.	43 03 50.038	92 18 48.3	272 18 03.3	Lower--I.W.C.	1,491.7	3.173669
New York, 1909 d.m.	78 58 50.642	201 09 24.7	21 09 35.6	Cayuga--I.W.C.	1,006.3	3.002714
Upper--I.W.C. d.m.	43 04 18.884	61 01 52.3	241 01 03.8	Buckhorn--I.W.C.	1,837.5	3.264228
New York, 1909; U.S.L.S., 1940	78 57 39.595	92 13 38.2	272 13 00.6	Cayuga--I.W.C.	1,245.1	3.095218
Sunken--I.W.C.	43 03 46.977	120 47 36.2	300 46 43.8	Cayuga--I.W.C.	2,018.0	3.304922
New York, 1909 d.m.	78 57 17.968	153 34 29.7	333 34 14.9	Upper--I.W.C.	1,099.5	3.041197
Mangs--I.W.C.	43 04 08.139	63 06 32.8	243 05 54.0	Sunken--I.W.C.	1,443.5	3.159426
New York, 1909 d.m.	78 56 21.071	100 34 46.4	280 33 52.8	Upper--I.W.C.	1,807.3	3.257027
Delivery--I.W.C. d.m.	43 03 25.135	126 07 06.9	306 05 58.3	Upper--I.W.C.	2,814.5	3.449399
New York, 1909; U.S.L.S. 1940	78 55 59.105	159 28 07.4	339 27 52.4	Mangs--I.W.C.	1,417.1	3.151397
Wheatfield--I.W.C.	43 03 36.712	75 34 25.7	255 33 43.8	Delivery--I.W.C.	1,433.4	3.156374
New York, 1909 d.m.	78 54 57.760	117 13 54.9	297 12 58.0	Mangs--I.W.C.	2,119.9	3.326320
Edgewater--I.W.C. d.m.	43 03 08.818	112 20 36.0	292 19 59.0	Delivery--I.W.C.	1,324.8	3.122153
New York, 1909; U.S.L.S. 1940	78 55 04.958	190 42 52.3	10 42 57.2	Wheatfield--I.W.C.	876.1	2.942530
Central--I.W.C.	43 03 09.638	89 14 17.0	269 13 20.2	Edgewater--I.W.C.	1,883.2	3.274901
New York, 1909 d.m.	78 53 41.753	115 54 51.6	295 53 39.7	Wheatfield--I.W.C.	1,912.2	3.281538
Gratwick--I.W.C. d.m.	43 02 27.918	118 52 45.0	298 51 36.0	Edgewater--I.W.C.	2,614.1	3.417325
New York, 1909; U.S.L.S. 1940	78 53 23.815	162 29 54.5	342 29 42.3	Central--I.W.C.	1,349.9	3.130316
Point--I.W.C.	43 02 33.573	206 18 40.3	26 18 56.9	Central--I.W.C.	1,241.6	3.093975
New York, 1909 d.m.	78 54 06.070	280 20 10.4	100 20 39.2	Gratwick--I.W.C.	972.3	2.987780
Tonawanda Island--I.W.C.	43 01 57.328	136 49 42.2	316 49 10.6	Point--I.W.C.	1,533.8	3.185758
New York, 1909 d.m.	78 53 19.710	174 22 40.3	354 22 37.5	Gratwick--I.W.C.	948.6	2.977062
Ranson--I.W.C.	43 02 15.146	240 14 02.0	60 14 22.8	Gratwick--I.W.C.	794.0	2.899802
New York, 1909 d.m.	78 53 54.263	305 06 06.3	125 06 29.9	Tonawanda Island--IWC	956.1	2.980520
Thorn--I.W.C.	43 01 37.820	165 06 44.3	345 06 35.1	Ranson--I.W.C.	1,191.8	3.076219
New York, 1909 d.m.	78 53 40.736	218 20 02.5	38 20 16.9	Tonawanda Island--IWC	767.4	2.885050
Upper Tonawanda--I.W.C. d.m.	43 01 27.726	115 30 25.8	295 30 06.1	Thorn--I.W.C.	723.4	2.859390
New York, 1909; U.S.L.S. 1940	78 53 11.898	146 45 41.9	326 45 13.0	Ranson--I.W.C.	1,749.6	3.242946

International boundary line Niagara River I.W.C. Scheme 1909-1910 *State* New York *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Niagara--I.W.C.	43 00 57.677	169 46 02.8	349 45 56.1	Thorn--I.W.C.	1,258.8	3.099955
New York, 1909 d.m.	78 53 30.859	204 50 33.9	24 50 46.9	Upper Tonawanda--IWC	1,021.9	3.009388
Ferry--I.W.C.	43 01 05.606	238 03 06.8	58 03 39.8	Upper Tonawanda--IWC	1,290.2	3.110647
New York, 1909 d.m.	78 54 00.249	290 10 58.7	110 11 18.7	Niagara-I.W.C.	709.1	2.850686
Mainland--I.W.C.	43 00 46.495	187 52 06.8	7 52 09.3	Ferry--I.W.C.	595.3	2.774762
New York, 1909 d.m.	78 54 03.848	245 12 17.9	65 12 40.4	Niagara--I.W.C.	822.9	2.915342
Camp--I.W.C.	43 03 13.348	3 04 45.0	183 04 42.9	Cobb--I.W.C.	1,309.2	3.117016
Canada, 1909; 1. 1941 d.m.	79 00 16.008	215 35 50.2	35 36 05.5	Burnt--I.W.C.	875.4	2.942202
		253 54 57.5	73 55 14.8	Boom--I.W.C.	597.5	2.776325
Navy--I.W.C.	43 02 55.203	28 30 52.9	208 30 34.2	Spruce--I.W.C.	1,299.6	3.113802
Canada, 1909; 1. 1941 d.	79 00 35.214	234 16 28.6	54 16 59.0	Boom--I.W.C.	1,242.6	3.094316
		334 00 25.4	154 00 36.4	Cobb--I.W.C.	831.5	2.919857
Beaver--I.W.C.	42 57 29.382	265 36 25.7	85 37 16.5	Island--I.W.C.	1,693.3	3.228729
New York, 1909; 1. 1941 d.m.	78 57 39.109	308 30 57.6	128 31 35.5	Pleasant--I.W.C.	1,609.9	3.206802
		354 14 56.8	174 15 00.0	Stockdale--I.W.C.	1,045.2	3.019189
Little Oak--I.W.C.	43 00 03.576	269 30 25.3	89 30 43.6	Tonawanda 1875 (USLS)	605.6	2.782171
New York, 1910 d.m.	78 53 47.685					
Shrubbery--I.W.C.	43 00 16.890	28 55 49.4	208 55 42.5	Little Oak--I.W.C.	469.4	2.671573
New York, 1910 d.m.	78 53 37.659	316 59 09.3	136 59 20.7	Tonawanda 1875 (USLS)	554.8	2.744135
Elm--I.W.C.	43 00 18.513	274 50 54.3	94 51 12.1	Shrubbery--I.W.C.	592.3	2.772531
New York, 1910 d.m.	78 54 03.716	321 46 09.9	141 46 20.8	Little Oak--I.W.C.	586.8	2.768475
Brewery--I.W.C.	43 00 43.402	323 34 06.6	143 34 24.8	Shrubbery--I.W.C.	1,016.8	3.007241
New York, 1910 d.m.	78 54 04.320	358 58 46.7	178 58 47.1	Elm--I.W.C.	768.2	2.885450
Oak Grove--I.W.C.	43 00 58.520	245 04 24.2	65 04 38.4	Ferry--I.W.C.	518.9	2.715056
New York, 1909 d.m.	78 54 21.028	313 38 33.8	133 38 45.5	Mainland--I.W.C.	537.6	2.730489
		320 57 18.3	140 57 29.7	Brewery--I.W.C.	600.6	2.778621
Canal--I.W.C.	43 00 31.856	208 28 22.6	28 28 36.1	Oak Grove--I.W.C.	936.1	2.971301
New York, 1909 d.m.	78 54 40.735	241 35 35.2	61 36 00.3	Mainland--I.W.C.	949.7	2.977586
		246 37 45.4	66 38 10.3	Brewery--I.W.C.	898.4	2.953450
		296 09 04.9	116 09 30.2	Elm--I.W.C.	934.0	2.970367
Electric--I.W.C.	43 00 45.616	245 33 20.4	65 33 46.8	Oak Grove--I.W.C.	962.4	2.983356
New York, 1909; 1. 1941 d.	78 54 59.718	314 38 36.1	134 38 49.0	Canal--I.W.C.	604.3	2.781225
Hickory--I.W.C. d.m.	43 00 15.890	203 57 14.3	23 57 26.6	Electric--I.W.C.	1,003.8	3.001647
New York, 1909; U.S.L.S. 1940	78 55 17.714	239 31 43.3	59 32 08.5	Canal--I.W.C.	971.7	2.987536
Stack--I.W.C. d.m.	43 00 23.604	237 22 56.4	57 23 28.4	Electric--I.W.C.	1,260.3	3.100482
New York, 1909; U.S.L.S. 1940	78 55 46.593	289 59 48.4	110 00 08.1	Hickory--I.W.C.	696.1	2.842647
Willow--I.W.C. d.m.	42 59 58.227	185 34 22.7	5 34 25.0	Stack--I.W.C.	786.8	2.895881
New York, 1909; U.S.L.S. 1940	78 55 49.967	233 16 14.4	53 16 36.4	Hickory--I.W.C.	911.5	2.959740

International boundary line Niagara River I.W.C. Scheme 1909-1910 *State* New York *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
	° ′ ″	° ′ ″	° ′ ″			
School--I.W.C.	42 59 59.505	227 41 34.2	47 41 58.8	Stack--I.W.C.	1,104.9	3.043327
New York, 1909 d.m.	78 56 22.672	273 02 39.6	93 03 01.9	Willow--I.W.C.	741.9	2.870318
Corn--I.W.C.	42 59 38.715	164 40 19.5	344 40 14.2	School--I.W.C.	665.2	2.822960
New York, 1909 d.m.	78 56 14.909	223 10 33.2	43 10 50.2	Willow--I.W.C.	825.7	2.916811
Schwartz--I.W.C. d.m.	42 59 24.213	210 37 02.4	30 37 21.8	School--I.W.C.	1,265.5	3.102263
New York, 1909; U.S.L.S. 1940	78 56 51.127	241 23 16.0	61 23 40.7	Corn--I.W.C.	934.6	2.970613
Wickwire--I.W.C.	42 59 06.000	124 03 24.4	304 02 59.3	Schwartz--I.W.C.	1,003.7	3.001606
New York, 1909 d.m.	78 56 14.421	179 22 21.6	359 22 21.2	Corn--I.W.C.	1,009.6	3.004148
Bedell--I.W.C.	42 58 27.544	175 21 40.8	355 21 36.5	Schwartz--I.W.C.	1,754.5	3.244147
New York, 1909 d.m.	78 56 44.864	210 09 54.3	30 10 15.1	Wickwire--I.W.C.	1,372.6	3.137544
Rattlesnake--I.W.C.	42 58 22.661	97 27 19.6	277 26 44.9	Bedell--I.W.C.	1,162.0	3.065218
New York, 1909 d.m.	78 55 54.017	160 55 53.9	340 55 40.0	Wickwire--I.W.C.	1,415.0	3.150767
Motor--I.W.C.	42 57 57.717	137 39 17.3	317 38 52.0	Bedell--I.W.C.	1,245.4	3.095310
New York, 1909 d.m.	78 56 07.844	202 08 53.6	22 09 03.0	Rattlesnake--I.W.C.	831.1	2.919637
Grand--I.W.C.	42 57 54.951	94 28 01.2	274 27 28.3	Motor--I.W.C.	1,096.8	3.040129
New York, 1909 d.m.	78 55 19.595	137 37 45.6	317 37 22.1	Rattlesnake--I.W.C.	1,157.4	3.063502
Island--I.W.C.	42 57 33.578	20 45 01.4	200 44 48.5	Pleasant--I.W.C.	1,210.7	3.083025
New York, 1909; 1.1941 d.m.	78 56 24.622	207 02 39.2	27 02 50.6	Motor--I.W.C.	836.3	2.922372
		245 53 08.1	65 53 52.4	Grand--I.W.C.	1,614.7	3.208080
Nettle--I.W.C.	42 56 47.642	105 38 01.0	285 37 30.3	Pleasant--I.W.C.	1,059.2	3.024987
Canada, 1909; r. 1941 d.m.	78 55 58.548	157 22 04.2	337 21 46.4	Island--I.W.C.	1,535.8	3.186338
		203 01 34.7	23 02 01.2	Grand--I.W.C.	2,256.9	3.353517
		313 40 15.8	133 40 55.4	Hoyt--I.W.C.	1,819.1	3.259860
Strawberry--I.W.C.	42 56 55.949	76 49 10.5	256 48 37.6	Nettle--I.W.C.	1,123.8	3.050686
New York, 1909; 1.1941 d.	78 55 10.283	173 23 16.7	353 23 10.3	Grand--I.W.C.	1,832.9	3.263141
Hoyt--I.W.C.	42 56 06.932	171 40 27.2	351 40 20.5	Strawberry--I.W.C.	1,528.7	3.184323
Canada, 1909; 1. 1941 d.m.	78 55 00.519	333 21 31.2	153 21 42.1	Pier--I.W.C.	811.0	2.909017
Hertel--I.W.C.	42 56 20.362	12 30 29.0	192 30 21.4	Pier--I.W.C.	1,167.0	3.067079
New York, 1909; 1.1941 d.	78 54 33.337	56 05 05.2	236 04 46.7	Hoyt--I.W.C.	742.7	2.870812
		142 40 07.3	322 39 42.1	Strawberry--I.W.C.	1,381.2	3.140241
		198 53 33.7	18 53 33.7	Hertel 1941	1.725	0.236832
Fill--I.W.C.	42 56 49.387	74 48 15.2	254 47 54.9	Pier--I.W.C.	699.9	2.845057
New York, 1909; 1.1941 d.	78 54 14.697	156 08 47.8	336 08 35.1	Hertel--I.W.C.	1,045.1	3.019163
Squaw--I.W.C.	42 55 24.233	132 10 46.5	312 10 26.9	Pier--I.W.C.	882.8	2.945855
New York, 1909; 1.1941 d.	78 54 15.635	181 34 12.8	1 34 13.5	Fill--I.W.C.	776.5	2.890148

International boundary line Niagara River I.W.C. Scheme 1909-1910 *State* New York *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Rail--I.W.C.	42 54 54.022	171 31 21.7	351 31 14.9	Pier--1.W.C.	1,541.8	3.188038
Canada, 1909; 1.1941 d.	78 54 34.460	204 36 17.3	24 36 30.1	Squaw--I.W.C.	1,025.4	3.010886
		332 24 04.4	152 24 25.6	Ft. Porter--I.W.C.	1,526.2	3.183615
Street--I.W.C.	42 54 54.617	88 10 52.4	268 10 35.1	Rail--I.W.C.	578.2	2.762043
New York, 1909; 1.1941 d.	78 54 08.983	170 37 35.8	350 37 31.3	Squaw--I.W.C.	926.3	2.966733
Little--I.W.C.	42 54 29.334	46 20 47.8	226 20 27.3	Poplars--1.W.C.	947.3	2.976502
Canada, 1909; 1.1941 d.	78 54 34.089	179 22 04.3	359 22 04.1	Rail--1.W.C.	761.9	2.881875
		216 07 28.9	36 07 46.0	Street--1.W.C.	965.9	2.984943
		310 12 56.8	130 13 17.8	Ft.Porter--1.W.C.	914.9	2.961385
		316 06 15.1	136 07 32.1	Buffalo 1875 City Hall, Tower	3,699.5	3.568138
		346 36 59.3	166 37 18.1	Breakwater--I.W.C.	2,698.1	3.431056
Youngstown north base--I.W.C.	43 15 29.756	196 54 49.1	16 54 49.3	Youngstown north base-1.W.C.	22.77	1.357337
New York, 1941; R.M. No. 1 d.m.	79 03 16.389					

INTERNATIONAL BOUNDARY COMMISSION—UNITED STATES, ALASKA, AND CANADA

GEOGRAPHIC POSITIONS—NORTH AMERICAN DATUM 1927

International boundary line Niagara River Third Order Scheme 1941 *State* New York *Province* Ontario

STATION		LATITUDE AND LONGITUDE			AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE (METERS)	LOGARITHM
		°	′	″	°	′	″	°	′	″			
Brock's Monument (USLS)		43	09	36.260	24	01	08.27	203	59	22.80	Drummondville (USLS)	8,573.38	3.9331522
Canada, 1875; r. 1941,1956	d.m.	79	03	11.794	59	34	50.68	239	24	23.73	Font Hill (USLS)	24,079.95	4.3816556
					94	48	16.37	274	27	08.37	Grimsby (GS of C)	41,993.17	4.6231786
					98	18	24.64	277	45	42.87	Barton (GS of C)	65,339.73	4.8151773
					118	46	11.93	298	10	11.87	Nassagaweya (GS of C)	80,665.09	4.9066856
					167	15	49.53	347	08	36.81	Scarboro (GS of C)	63,895.65	4.8054713
					265	16	09.24	85	23	28.08	Pekin (USLS)	14,539.35	4.1625449
Fort Niagara water tank,		43	15	43.215	79	17	46.85	258	56	53.62	Grimsby (GS of C)	42,050.52	4.6237714
New York, 1941; r. 1956	d.m.	79	03	35.121	357	20	07.70	177	20	23.67	Brock's Mon.1875(USLS)	11,336.41	4.0544755
Fort Niagara lighthouse		43	15	42.114	247	37	28.5	67	37	31.0	Fort Niagara water tank	89.2	1.950492
New York, 1941; r. 1956	d.m.	79	03	38.779	356	54	32.8	176	54	51.3	Brock's Mon.1875(USLS)	11,306.63	4.053333
Vincent Pier		43	15	16.993	137	30	11.1	317	29	49.5	Fort Niagara lighthouse	1,051.5	3.021796
New York, 1941; r. 1956	d.m.	79	03	07.286	142	11	42.0	322	11	22.9	Fort Niagara water tank	1,024.2	3.010383
Ref. Mon. 1-41		43	15	05.369	172	24	30.4	352	24	25.8	Fort Niagara lighthouse	1,144.0	3.058414
Canada, 1912; r. 1941,1956	d.m.	79	03	32.079	176	38	14.7	356	38	12.6	Fort Niagara water tank	1,169.9	3.068156
					237	19	17.5	57	19	34.5	Vincent Pier	664.4	2.822444
Quarters--Sub		43	15	34.372	11	01	17.8	191	01	12.5	Ref. Mon. 1-41	911.8	2.959918
New York, 1941; r. 1956	d.m.	79	03	24.351	324	19	49.0	144	20	00.7	Vincent Pier	660.1	2.819639
Youngstown north base--IWC		43	15	30.462	24	58	04.1	204	57	53.1	Ref. Mon. 1-41	854.2	2.931558
New York, 1912; r. 1941	d.m.	79	03	16.095	122	56	18.9	302	56	13.2	Quarters--Sub	221.9	2.346122
					334	26	58.7	154	27	04.7	Vincent Pier	460.7	2.663433
Youngstown south base--IWC		43	15	19.055	56	51	21.7	236	51	02.0	Ref. Mon. 1-41	772.4	2.887863
New York, 1912; r. 1941	d.m.	79	03	03.408	135	01	07.2	315	00	52.8	Quarters--Sub	668.3	2.824942
					140	53	32.4	320	53	23.7	Youngstown north base--IWC	453.666	2.656737
George--Sub		43	14	57.067	176	08	44.1	356	08	43.6	Ref. Mon. 1-41	256.8	2.409585
Canada, 1941; r. 1956	d.m.	79	03	31.314	221	23	30.1	41	23	46.6	Vincent Pier	819.7	2.913660
Oak		43	14	43.607	181	34	24.5	1	34	24.8	George--Sub	415.5	2.618615
Canada, 1941	d.m.	79	03	31.819	208	14	26.3	28	14	43.1	Vincent Pier	1,169.6	3.068020
Worth--Sub		43	14	35.980	114	17	08.7	294	16	52.9	Oak 1941	572.3	2.757651
New York, 1941; r. 1956	d.m.	79	03	08.696	141	54	06.4	321	53	50.9	George-Sub	827.0	2.917485
					181	26	20.6	1	26	21.6	Vincent Pier	1,266.1	3.102465
Steps--IWC		43	14	33.099	187	17	31.0	7	17	32.3	Oak 1941	326.9	2.514456
Canada, 1912; r. 1941,1956	d.m.	79	03	33.659	261	01	35.3	81	01	52.4	Worth--Sub	570.2	2.756013
Bow--Sub		43	14	08.246	143	54	36.4	323	54	19.4	Steps-IWC	949.1	2.977332
New York, 1941	d.	79	03	08.878	180	16	31.3	0	16	31.4	Worth--Sub	855.9	2.932421
Gully--Sub		43	14	05.195	183	32	50.2	3	32	51.8	Steps--IWC	862.8	2.935904
Canada, 1941	d.	79	03	36.025	212	58	58.7	32	59	17.4	Worth--Sub	1,132.6	3.054083
					261	15	30.5	81	15	49.1	Bow-Sub	619.7	2.792215

International boundary line Niagara River Third Order Scheme 1941 *State* New York *Province* Ontario

STATION		LATITUDE AND LONGITUDE			AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE (METERS)	LOGARITHM
		°	′	″	°	′	″	°	′	″			
Elinor--Sub		43	13	27.198	169	12	21.4	349	12	14.6	Gully--Sub	1,193.7	3.076902
Canada, 1941	d.	79	03	26.117	197	04	13.6	17	04	25.4	Bow--Sub	1,325.1	3.122264
View--Sub		43	13	38.567	58	30	22.4	238	30	05.0	Elinor--Sub	671.6	2.827108
New York, 1941	d.	79	03	00.743	135	54	29.0	315	54	04.8	Gully--Sub	1,144.2	3.058491
					168	39	59.8	348	39	54.2	Bow--Sub	934.1	2.970395
Wood--Sub		43	12	58.801	148	03	48.5	328	03	31.9	Elinor--Sub	1,032.7	3.013960
New York, 1941	d.m.	79	03	01.913	181	13	57.8	1	13	58.6	View--Sub	1,227.5	3.089017
Jack--Sub		43	13	03.688	214	31	22.7	34	31	45.2	View--Sub	1,306.5	3.116108
Canada, 1941; r. 1956	d.m.	79	03	33.553	281	55	19.1	101	55	40.8	Wood-Sub	729.9	2.863266
Rose--Sub		43	12	25.090	181	11	01.4	1	11	02.1	Jack--Sub	1,191.4	3.076054
Canada, 1941	d.m.	79	03	34.643	215	22	45.1	35	23	07.5	Wood--Sub	1,276.0	3.105844
Snow--Sub		43	12	28.964	80	53	34.1	260	53	11.5	Rose--Sub	755.0	2.877963
New York, 1941	d.	79	03	01.619	146	04	31.9	326	04	10.0	Jack--Sub	1,291.5	3.111083
Stella--I.W.C.	d.m.	43	12	00.481	124	06	58.3	304	06	24.3	Rose--Sub	1,354.2	3.131669
New York, 1912; r.1941;n.r.1956		79	02	44.981	156	51	45.6	336	51	34.2	Snow--Sub	955.9	2.980394
Ref. Mon. 5-41		43	11	59.940	143	55	04.5	323	54	47.4	Rose--Sub	960.4	2.982431
Canada, 1912; r. 1941, 1956	d.m.	79	03	09.589	191	21	28.9	11	21	34.4	Snow--Sub	913.6	2.960733
					268	16	36.4	88	16	53.3	Stella-I.W.C.	555.8	2.744941
Dagon--Sub		43	11	36.176	146	13	03.4	326	12	48.5	Ref.Mon. 5-41	882.4	2.945643
New York, 1941	d.	79	02	47.858	184	56	58.0	4	57	00.0	Stella--I.W.C.	752.9	2.876711
Gypsy ecc.		43	11	30.311	217	32	40.4	37	33	02.1	Stella--I.W.C.	1,174.3	3.069787
Canada, 1941	d.	79	03	16.677	254	27	09.1	74	27	28.8	Dagon--Sub	675.4	2.829586
Left--Sub		43	11	00.301	150	50	20.7	330	50	05.0	Gypsy ecc.	1,060.5	3.025521
New York, 1941	d.	79	02	53.792	186	54	01.1	6	54	05.1	Dagon--Sub	1,115.2	3.047344
Root--Sub		43	11	17.079	201	48	39.3	21	48	44.2	Gypsy ecc.	439.8	2.643282
Canada, 1941	d.m.	79	03	23.914	307	16	22.7	127	16	43.3	Left--Sub	854.9	2.931896
Acorn--Sub		43	10	43.970	178	15	40.1	358	15	39.2	Root--Sub	1,022.2	3.009534
Canada, 1941	d.	79	03	22.541	232	10	40.8	52	11	00.5	Left--Sub	821.9	2.914825
Medina--Sub		43	10	48.714	75	53	17.1	255	52	59.4	Acorn--Sub	600.3	2.778385
New York, 1941	d.	79	02	56.762	144	59	27.8	324	59	09.2	Root--Sub	1,068.7	3.028869
					190	37	30.3	10	37	32.3	Left--Sub	363.8	2.560885
Nell--Sub		43	10	24.670	11	45	22.1	191	45	12.7	Brock's Mon.1875(USLS)	1,525.9	3.183523
New York, 1941	d.m.	79	02	58.033	137	05	55.3	317	05	38.5	Acorn--Sub	813.1	2.910153
					182	12	50.5	2	12	51.4	Medina--Sub	742.6	2.870729
Ref. Mon. 7 ecc.--I.W.C.		43	10	12.278	183	21	33.8	3	21	35.5	Acorn--Sub	979.7	2.991088
Canada, 1912; r. 1941	d.m.	79	03	25.083	237	57	24.7	57	57	43.2	Nell--Sub	720.8	2.857812
					344	53	04.9	164	53	14.0	Brock's Mon.1875(USLS)	1,151.3	3.061196

International boundary line Niagara River Third Order Scheme 1941 *State* New York *Province* Ontario

STATION		LATITUDE AND LONGITUDE			AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE (METERS)	LOGARITHM
		°	′	″	°	′	″	°	′	″			
Heights--Sub		43	09	36.929	88	31	38.2	268	31	13.9	Brock's Mon.1875(USLS)	802.1	2.904245
New York, 1941; r. 1956	d.m.	79	02	36.301	134	42	46.5	314	42	13.1	Mon.7 ecc--I.W.C.	1,550.6	3.190495
Chance--Sub		43	09	19.706	135	43	31.4	315	43	16.3	Brock's Mon.1875(USLS)	713.5	2.853384
Canada, 1941	d.m.	79	02	49.747	209	45	00.5	29	45	09.7	Heights--Sub	612.2	2.786891
Ogden--Sub		43	09	11.057	123	32	10.9	303	31	58.7	Chance--Sub	483.1	2.684048
New York, 1941; r. 1956	d.m.	79	02	31.924	172	56	24.6	352	56	21.6	Heights--Sub	804.5	2.905522
Bolt--Sub		43	08	52.594	169	13	09.5	349	13	04.7	Chance--Sub	851.7	2.980287
Canada, 1941; p.1. 1956	d.m.	79	02	42.696	203	07	49.7	23	07	57.1	Ogden--Sub	619.6	2.792102
Kiln--Sub		43	08	54.257	81	56	27.2	261	56	16.2	Bolt--Sub	366.0	2.563535
New York, 1941; r. 1956	d.m.	79	02	26.657	167	04	18.0	347	04	14.4	Ogden--Sub	531.9	2.725857
Ref.Mon. 11 ecc.		43	08	38.689	137	42	27.0	317	42	15.2	Bolt--Sub	580.1	2.763496
New York, 1912; r. 1941	d.	79	02	25.421	176	40	25.5	356	40	24.7	Kiln--Sub	481.2	2.682354
Trans--I.W.C.	d.m.	43	08	39.065	179	58	03.1	359	58	03.1	Bolt--Sub	417.5	2.620655
Canada, 1912; r. 1941; p.1.1956		79	02	42.685	271	42	02.2	91	42	14.0	Ref.Mon.11 ecc.1941	390.3	2.591412
College--I.W.C.		43	08	16.661	153	14	23.4	333	14	12.9	Trans-I.W.C.	774.3	2.888917
New York,1912; r.1941,1956	d.m.	79	02	27.257	183	29	36.5	3	29	37.8	Ref.Mon.11 ecc.1941	681.0	2.833177
Ref.Mon. 12-41		43	08	20.640	222	29	23.5	42	29	39.0	Ref.Mon.11 ecc.1941	755.4	2.878169
Canada,1912; r.1941,1956	d.m.	79	02	48.000	284	40	30.2	104	40	44.4	College--I.W.C.	484.6	2.685373
Devil--Sub		43	08	04.379	167	49	02.9	347	48	59.6	Ref.Mon. 12-41	513.4	2.710426
New York, 1941	d.m.	79	02	43.206	223	33	36.5	43	33	47.4	College--I.W.C.	523.1	2.718547
Tie--Sub		43	08	10.640	237	46	34.5	57	46	49.3	Ref.Mon. 12-41	578.8	2.762494
Canada, 1941; r. 1956	d.m.	79	03	09.664	287	54	13.2	107	54	31.3	Devil--Sub	628.4	2.798250
Ref. Mon. 14-41		43	07	46.009	210	26	14.3	30	26	27.8	Tie--Sub	881.6	2.945279
Canada, 1912; r. 1941	d.m.	79	03	29.425	241	30	33.1	61	31	04.7	Devil--Sub	1,188.6	3.075023
Bess--I.W.C.		43	07	45.290	92	44	30.9	272	44	16.9	Ref.Mon. 14-41	463.9	2.666413
New York,1912; r. 1941,1956	d.m.	79	03	08.926	178	46	41.8	358	46	41.3	Tie--Sub	782.5	2.893459
DeVeaux--I.W.C.		43	07	23.686	200	21	57.8	20	22	05.5	Ref.Mon. 14-41	734.8	2.866175
New York,1912; r. 1941	d.m.	79	03	40.739	227	09	48.3	47	10	10.0	Bess--I.W.C.	980.6	2.991501
Moses--Sub		43	07	33.222	231	04	38.0	51	04	52.8	Ref.Mon. 14-41	628.1	2.798032
Canada,1941; r. 1956	d.m.	79	03	51.044	321	37	57.5	141	38	04.6	DeVeaux--I.W.C.	375.3	2.574396
Junior--Sub		43	07	28.720	256	26	43.3	76	27	00.7	Moses--Sub	592.9	2.772981
Canada,1941; r. 1956	d.m.	79	04	16.543	280	51	38.8	100	52	03.3	DeVeaux--I.W.C.	824.1	2.915996
David--Sub		43	07	09.469	244	54	41.4	64	55	09.8	DeVeaux--I.W.C.	1,034.8	3.014873
Canada,1941; r. 1956	d.m.	79	04	22.198	192	08	38.9	12	08	42.8	Junior--Sub	607.7	2.783660
Pool--Sub		43	07	11.628	82	56	27.3	262	56	11.0	David--Sub	541.9	2.733940
New York,1941; r. 1956	d.m.	79	03	58.408	142	08	43.9	322	08	31.5	Junior--Sub	668.0	2.824791

INTERNATIONAL BOUNDARY COMMISSION—UNITED STATES, ALASKA, AND CANADA

GEOGRAPHIC POSITIONS—NORTH AMERICAN DATUM 1927

International boundary line Niagara River Third Order Scheme 1941 *State* New York *Province* Ontario

STATION		LATITUDE AND LONGITUDE			AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE (METERS)	LOGARITHM
		°	′	″	°	′	″	°	′	″			
Whirl--Sub		43	07	04.678	164	21	20.5	344	21	14.2	Junior--Sub	770.4	2.886743
Canada, 1941	d.m.	79	04	07.352	223	18	44.6	43	18	50.7	Pool--Sub	294.7	2.469452
Burr--Sub		43	06	51.713	117	05	20.1	297	04	56.5	Whirl--Sub	878.7	2.943849
New York,1941; r.1956	d.m.	79	03	32.747	136	39	11.2	316	38	53.7	Pool--Sub	845.1	2.926922
Rapid		43	06	39.141	155	39	28.3	335	39	14.6	Pool--Sub	1,100.4	3.041541
Canada, 1941; r. 1956	d.m.	79	03	38.345	198	04	00.2	18	04	04.0	Burr--Sub	408.1	2.610764
Custom		43	06	35.068	108	03	08.0	288	02	56.4	Rapid	405.6	2.608123
New York, 1941	d.m.	79	03	21.288	143	21	35.5	323	21	10.2	Pool--Sub	1,406.1	3.148024
					153	14	07.3	333	13	59.5	Burr--Sub	575.3	2.759895
Post--Sub		43	06	27.808	196	19	33.2	16	19	36.3	Rapid	364.4	2.561615
Canada, 1941; r. 1956	d.m.	79	03	42.876	245	20	32.2	65	20	46.9	Custom	537.1	2.730039
Sox--Sub		43	06	04.736	157	53	00.8	337	52	52.1	Post--Sub	768.5	2.885660
New York, 1941; r. 1956	d.m.	79	03	30.080	191	59	20.7	11	59	26.7	Custom	956.9	2.980867
Clover--Sub		43	06	22.937	19	11	25.9	199	11	20.0	Sox--Sub	594.7	2.774307
New York, 1941; r. 1956	d.m.	79	03	21.435	107	13	37.4	287	13	22.8	Post-Sub	507.6	2.705506
					142	35	53.7	322	35	42.2	Rapid	629.5	2.798980
Red--Sub		43	06	11.257	235	57	29.0	55	57	45.1	Clover--Sub	643.9	2.808816
Canada, 1941; r. 1956	d.m.	79	03	45.031	300	45	33.8	120	45	44.0	Sox--Sub	393.5	2.594896
Giant--Sub		43	05	50.616	169	05	32.5	349	05	28.8	Red--Sub	648.7	2.812039
New York, 1941	d.m.	79	03	39.603	206	17	58.7	26	18	05.2	Sox--Sub	486.1	2.686682
Rope--Sub		43	05	58.739	248	50	10.9	68	50	25.3	Sox--Sub	512.6	2.709803
Canada, 1941; r. 1956	d.m.	79	03	51.220	313	39	21.5	133	39	29.4	Giant--Sub	363.1	2.560052
Tug--Sub		43	05	40.108	202	53	04.6	22	53	11.9	Rope--Sub	624.1	2.795231
Canada, 1941; r. 1956	d.m.	79	04	01.951	237	18	53.3	57	19	08.5	Giant--Sub	600.5	2.778513
Power		43	05	28.545	144	16	40.6	324	16	32.9	Tug--Sub	439.5	2.642994
New York, 1941	d.m.	79	03	50.604	200	03	59.7	20	04	07.2	Giant--Sub	725.1	2.860413
Arch		43	05	27.916	203	18	20.9	23	18	25.8	Tug--Sub	409.7	2.612432
Canada, 1941; r. 1956	d.m.	79	04	09.118	267	20	42.2	87	20	54.8	Power	419.2	2.622397
Rainbow		43	05	21.975	135	58	26.1	315	58	20.8	Arch	255.0	2.406502
New York, 1941; r. 1956	d.m.	79	04	01.283	229	59	19.6	49	59	26.9	Power	315.3	2.498773
State--Sub		43	05	10.937	177	15	03.8	357	15	03.1	Arch	524.5	2.719784
New York, 1941	d.m.	79	04	08.006	204	03	23.3	24	03	27.9	Rainbow	373.0	2.571721
Clifton--Sub		43	05	21.269	267	05	56.8	87	06	09.8	Rainbow	431.0	2.634457
Canada, 1941; r. 1956	d.m.	79	04	20.314	318	52	18.9	138	52	27.3	State--Sub	423.2	2.626594
Queen--Sub		43	05	00.728	213	19	52.9	33	20	05.5	Clifton--Sub	758.7	2.880060
Canada, 1941; r. 1956	d.m.	79	04	38.745	245	37	14.7	65	37	35.7	State--Sub	763.4	2.882727

International boundary line Niagara River Third Order Scheme 1941 *State* New York *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Terrapin d.m. New York, USLS 1886;r.1941,1956	43 04 48.937 79 04 28.148	146 37 23.6 213 51 49.1	326 37 16.4 33 52 02.9	Queen--Sub State--Sub	435.7 817.6	2.639205 2.912552
Lundy--Sub Canada, 1941; r.1956 d.m.	43 04 38.976 79 04 45.074	192 02 24.6 231 14 24.5	12 02 28.9 51 14 36.0	Queen--Sub Terrapin	686.4 491.0	2.836551 2.691115
Park--Sub Canada, 1941; r.1956 d.m.	43 04 21.648 79 04 29.413	146 28 23.2 170 04 20.3 181 56 50.4	326 28 12.5 350 04 13.9 1 56 51.2	Lundy--Sub Queen--Sub Terrapin	641.4 1,224.3 842.6	2.807154 3.087889 2.925623
High--I.W.C. Canada, 1912; r. 1941 d.m.	43 04 10.823 79 03 43.499	107 49 50.7 139 20 52.7	287 49 19.4 319 20 22.2	Park--Sub Terrapin	1,091.2 1,550.4	3.037900 3.190438
Bench--Sub New York, 1941 d.m.	43 04 46.301 79 03 45.465	52 34 53.9 357 40 25.6	232 34 23.9 177 40 26.9	Park--Sub High--I.W.C.	1,251.9 1,095.7	3.097578 3.039704
Grass d.m. New York, USLS 1906;I.W.C.,1912; r. 1941	43 04 42.006 79 02 45.535	53 44 03.3 95 35 24.2	233 43 23.7 275 34 43.3	High-I.W.C. Bench--Sub	1,626.5 1,362.2	3.211264 3.134236
Hog Canada, 1941; n.r. 1956 d.m.	43 03 50.132 79 02 47.933	143 06 02.7 181 56 25.5	323 05 23.4 1 56 27.1	Bench--Sub Grass--USLS	2,167.6 1,601.7	3.335988 3.204577
Conner--Sub New York, 1941 d.m.	43 04 33.165 79 00 47.810	63 58 14.0 95 51 35.1	243 56 52.0 275 50 14.7	Hog Grass--USLS	3,024.9 2,677.2	3.480709 3.427679
Foot--Sub Canada, 1941; r. 1956 d.m.	43 03 43.851 79 00 55.143	94 21 12.9 125 42 29.3 186 13 16.6	274 19 55.9 305 41 13.9 6 13 21.6	Hog Grass--USLS Conner--Sub	2,559.5 3,075.5 1,530.8	3.408161 3.487917 3.184918
Lower--Sub New York, 1941; r. 1956 d.m.	43 03 52.356 78 59 59.217	78 17 20.0 138 52 59.7	258 16 41.8 318 52 26.5	Foot--Sub Conner--Sub	1,292.4 1,671.7	3.111395 3.223164
Burnt--Sub New York, 1941 d.	43 03 36.781 78 59 52.096	98 42 03.0 161 27 53.7	278 41 19.9 341 27 48.8	Foot--Sub Lower--Sub	1,443.2 506.9	3.159341 2.704938
Bailey--I.W.C. Canada, 1909; r. 1941, 1956 d.m.	43 03 34.302 79 00 26.070	227 28 44.6 264 18 46.4	47 29 02.9 84 19 09.6	Lower--Sub Burnt--Sub	824.4 772.6	2.916128 2.887951
Boom--I.W.C. New York, 1909; r. 1941,1956 d.m.	43 03 18.711 78 59 50.640	120 58 11.7 176 37 08.4	300 57 47.5 356 37 07.4	Bailey--I.W.C. Burnt--Sub	935.0 558.6	2.970833 2.747106
Camp--I.W.C. Canada, 1909; r. 1941,1956 d.m.	43 03 13.347 79 00 16.005	216 48 01.4 253 54 39.8	36 48 17.7 73 54 57.1	Burnt--Sub Boom--I.W.C.	903.2 597.4	2.955769 2.776276
Cobb--I.W.C. d.m. New York, 1909; r. 1941;p.1.1956	43 02 30.983 79 00 19.115	183 04 55.6 203 37 48.4	3 04 57.7 23 38 07.8	Camp--I.W.C. Boom--I.W.C.	1,309.2 1,607.7	3.117007 3.206199
Navy--Sub Canada, 1941 d.	43 02 55.174 79 00 34.806	233 59 27.7 334 33 18.7	53 59 57.8 154 33 29.4	Boom--I.W.C. Cobb--I.W.C.	1,235.6 826.7	3.091876 2.917336
Spruce--I.W.C. Canada, 1909; r. 1941,1956 d.m.	43 02 18.197 79 01 02.621	208 53 05.7 248 09 43.0	28 53 24.7 68 10 12.7	Navy--Sub Cobb--I.W.C.	1,303.2 1,060.9	3.115021 3.025676

International boundary line Niagara River Third Order Scheme 1941 *State* New York *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Woodpile--1.W.C. d.m.	43 01 58.956	128 55 18.2	308 54 56.0	Spruce--1.W.C.	945.1	2.975494
New York, 1909; r. 1941;p.1.1956	79 00 30.138	176 30 51.7	356 30 48.5	Navy--Sub	1,738.0	3.240058
Windsor--I.W.C.	43 01 16.340	179 48 23.6	359 48 23.4	Spruce--I.W.C.	1,908.8	3.280771
New York, 1909;r.1941,1956 d.m.	79 01 02.336	208 59 54.1	29 00 16.1	Woodpile--I.W.C.	1,503.6	3.177142
Lutz--Sub	43 01 41.285	246 13 18.7	66 13 56.0	Woodpile--I.W.C.	1,352.8	3.131231
Canada, 1941; r.1956 d.m.	79 01 24.821	326 31 08.0	146 31 23.3	Windsor--I.W.C.	922.9	2.965144
Meyers--Sub	43 01 06.108	209 59 40.4	29 59 59.3	Lutz--Sub	1,253.4	3.098095
Canada, 1941; r. 1956 d.m.	79 01 52.497	254 27 33.4	74 28 07.6	Windsor--I.W.C.	1,178.9	3.071474
Eagle--Sub	43 00 49.384	123 37 59.1	303 37 35.7	Meyers--Sub	931.8	2.969335
New York, 1941;r. 1956 d.m.	79 01 18.235	174 40 51.4	354 40 46.9	Lutz--Sub	1,608.5	3.206425
Lee--Sub	43 00 31.499	174 38 50.4	354 38 47.4	Meyers--Sub	1,072.7	3.030466
Canada, 1941; r. 1956 d.m.	79 01 48.078	230 45 39.6	50 46 00.0	Eagle--Sub	872.6	2.940805
Road--I.W.C. d.m.	43 00 21.599	111 46 24.9	291 46 01.8	Lee--Sub	823.7	2.915787
New York, 1909; r.1941;n.r.1956	79 01 14.301	147 48 07.0	327 47 40.9	Meyers--Sub	1,623.2	3.210369
Mennonite--Sub	42 59 49.630	171 59 39.9	351 59 34.4	Lee--Sub	1,304.7	3.115527
Canada, 1941 d.	79 01 40.054	210 35 35.1	30 35 52.7	Road--I.W.C.	1,146.1	3.059213
Ref.Mon. 27 ecc.	42 59 42.815	104 27 45.5	284 27 21.0	Mennonite--Sub	842.3	2.925458
New York, 1941;p.1.1956 d.m.	79 01 04.049	146 25 40.2	326 25 10.2	Lee--Sub	1,803.2	3.256046
Black (Black Creek)--I.W.C.	42 58 53.093	170 05 13.3	350 05 04.1	Mennonite--Sub	1,771.1	3.248243
Canada, 1909;r.1941, 1956 d.m.	79 01 26.594	198 24 35.9	18 24 51.2	Ref.Mon. 27 ecc.	1,617.1	3.208742
Staley--I.W.C. d.m.	42 59 20.805	45 18 36.3	225 18 10.3	Black--I.W.C.	1,215.9	3.084901
New York, 1909; r.1941;p.1.1956	79 00 48.443	127 16 04.9	307 15 29.7	Mennonite--Sub	1,469.1	3.167040
Bluff--Sub	42 58 17.914	120 02 09.5	300 01 13.0	Black--I.W.C.	2,169.3	3.336312
Canada, 1941; r. 1956 d.m.	79 00 03.710	152 25 41.3	332 25 10.8	Staley--I.W.C.	2,189.4	3.340335
Club--I.W.C. d.m.	42 58 56.409	86 39 30.6	266 38 38.0	Black--I.W.C.	1,752.1	3.243549
New York, 1909;r.1941;n.r.1956	79 00 09.398	353 48 26.3	173 48 30.2	Bluff--Sub	1,194.9	3.077320
Persons--1.W.C.	42 58 36.535	56 50 33.6	236 50 07.1	Bluff--Sub	1,050.5	3.021386
New York, 1909; r.1941,1956 d.m.	78 59 24.903	121 19 00.7	301 18 30.3	Club--I.W.C.	1,180.1	3.071910
Oakfield--I.W.C.	42 58 15.118	92 24 47.6	272 23 45.8	Bluff--Sub	2,056.7	3.313170
New York, 1909; r.1941,1956 d.m.	78 58 33.033	119 21 10.0	299 20 34.6	Persons--I.W.C.	1,348.5	3.129839
Palmer--I.W.C.	42 57 51.508	145 44 17.6	325 43 49.1	Persons--I.W.C.	1,681.3	3.225638
Canada, 1909; r. 1941 d.m.	78 58 43.132	197 26 17.1	17 26 24.0	Oakfield--1.W.C.	763.7	2.882904
Sidway--Sub d.m.	42 57 58.228	72 33 41.6	252 33 21.7	Palmer--I.W.C.	691.8	2.840009
New York, 1941; n.r. 1956	78 58 14.009	140 24 14.6	320 24 01.6	Oakfield--I.W.C.	676.4	2.830212
Shipyard--I.W.C.	42 57 16.134	162 58 13.5	342 58 03.4	Palmer--I.W.C.	1,141.6	3.057532
Canada, 1909; r. 1941,1956 d.m.	78 58 28.380	194 04 32.4	14 04 42.2	Sidway--Sub	1,339.2	3.126833

International boundary line Niagara River Third Order Scheme 1941 *State* New York *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Stockdale--I.W.C.	42 56 55.683	117 19 33.8	297 18 57.1	Shipyard--I.W.C.	1,375.0	3.138308
Canada, 1909; r. 1941,1956 d.m.	78 57 34.489	155 06 23.4	335 05 56.5	Sidway--Sub	2,127.8	3.327929
Beaver--Sub	42 57 30.835	9 39 37.9	189 39 32.4	Stockdale--I.W.C.	1,100.3	3.041530
New York, 1941;p.1.1956 d.m.	78 57 26.344	72 07 31.4	252 06 49.1	Shipyard--I.W.C.	1,477.5	3.169536
Pleasant--I.W.C.	42 56 56.890	88 09 25.9	268 08 51.2	Stockdale--I.W.C.	1,155.5	3.062778
Canada, 1909;r. 1941,1956 d.m.	78 56 43.543	137 11 52.4	317 11 23.2	Beaver--Sub	1,427.8	3.154657
Island--I.W.C.	42 57 33.578	20 45 06.0	200 44 53.1	Pleasant--I.W.C.	1,210.6	3.083018
New York, 1909; r.1941,1956 d.m.	78 56 24.621	86 32 38.7	266 31 56.6	Beaver--Sub	1,401.6	3.146612
Strawberry--Sub	42 57 11.987	73 51 36.1	253 50 47.7	Pleasant--I.W.C.	1,675.2	3.224067
New York, 1941;p.1. 1956 d.m.	78 55 32.559	119 27 11.4	299 26 35.9	Island--I.W.C.	1,355.2	3.131993
Nettle--Sub	42 56 43.547	153 27 59.7	333 27 36.5	Island--I.W.C.	1,725.7	3.236953
Canada, 1941;n.r. 1956 d.m.	78 55 50.610	204 59 49.0	25 00 01.3	Strawberry--Sub	968.3	2.986017
Hertel	42 56 20.415	112 10 09.4	292 09 56.7	Nettle--Sub	1,892.3	3.276990
New York, 1941 d.m.	78 54 33.313	139 50 28.8	319 49 48.4	Strawberry--Sub	2,082.5	3.318580
Hoyt--I.W.C. d.m.	42 56 06.933	160 06 41.9	340 06 20.0	Strawberry--Sub	2,134.8	3.329362
Canada, 1909;r.1941, 1956	78 55 00.520	236 00 10.5	56 00 29.0	Hertel 1941	744.1	2.871628
Fill--Sub	42 55 48.068	122 13 57.7	302 13 30.0	Hoyt--I.W.C.	1,091.6	3.038055
New York, 1941 d.m.	78 54 19.799	162 56 09.1	342 55 59.9	Hertel 1941	1,044.1	3.018762
Pier--I.W.C.	42 55 43.441	192 30 55.3	12 31 02.9	Hertel 1941	1,168.7	3.067718
Canada, 1909;r.1941, 1956 d.m.	78 54 44.483	255 41 12.7	75 41 29.5	Fill--Sub	577.7	2.761685
Plant	42 55 13.961	145 47 38.2	325 47 19.6	Pier--I.W.C.	1,100.0	3.041397
New York, 1941 d.m.	78 54 17.213	176 48 40.7	356 48 38.9	Fill--Sub	1,054.1	3.022893
U.S.E., No. 43	42 55 01.187	171 34 47.7	351 34 41.9	Pier--I.W.C.	1,318.1	3.119952
Canada, 1941 d.m.	78 54 35.971	227 10 55.7	47 11 08.5	Plant	580.0	2.763428
Mole	42 54 37.262	141 59 00.5	321 58 43.2	U.S.E., No. 43	937.1	2.971807
New York, 1941;r. 1956 d.m.	78 54 10.524	172 22 12.9	352 22 08.4	Plant	1,142.6	3.057895
Erie	42 54 42.412	199 21 06.5	19 21 16.8	Plant	1,031.9	3.013626
Canada, 1941 d.m.	78 54 32.289	287 50 26.8	107 50 41.6	Mole	518.7	2.714879
Little--Sub	42 54 28.878	187 32 15.7	7 32 17.4	Erie	421.3	2.624573
Canada, 1941;r. 1956 d.m.	78 54 34.726	244 45 52.7	64 46 09.2	Mole	606.9	2.783116
Fort Porter--I.W.C.	42 54 10.189	128 58 03.2	308 57 41.8	Little--Sub	917.1	2.962411
New York, 1909;r. 1941 d.m.	78 54 03.293	168 53 29.3	348 53 24.4	Mole	851.4	2.930122
Buffalo 1875 City Hall, tower	42 53 02.928	179 35 15.14	359 35 13.42	Buffalo,west base (U.S.L.S.)	7,947.39	3.9002247
New York d.m.	78 52 41.060	216 16 27.52	34 18 56.12	Buffalo Plains(USLS)	8,784.61	3.9437225

International boundary line Niagara River Third Order Scheme 1941 *State* New York *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
	° ′ ″	° ′ ″	° ′ ″			
Poplars--I.W.C. d.m.	42 54 08.141	226 21 14.1	46 21 34.2	Little--Sub	927.2	2.967158
Canada, 1909;r. 1941;p.1.1956	78 55 04.301	267 22 47.6	87 23 29.1	Fort Porter--I.W.C.	1,385.5	3.141612
		301 45 01.0	121 46 38.5	Buffalo 1875 City Hall, tower	3,822.7	3.582371
Buffalo north base--I.W.C.	42 53 45.279	113 18 57.1	293 18 08.0	Poplars--I.W.C.	1,782.9	3.251129
New York, 1909;1. 1941 d.	78 53 52.131	161 45 59.5	341 45 51.9	Fort Porter--I.W.C.	809.3	2.908120
Breakwater--I.W.C.	42 53 04.272	146 23 42.9	326 23 03.6	Poplars--I.W.C.	2,366.5	3.374106
New York, 1909;r. 1941 d.m.	78 54 06.569	194 30 49.9	14 30 59.7	Buffalo north base--I.W.C.	1,307.1	3.116314
		271 12 58.5	91 13 56.7	Buffalo 1875 City Hall, tower	1,940.9	3.288009
Buffalo south base--I.W.C.	42 53 14.025	74 32 04.2	254 31 31.6	Breakwater--I.W.C.	1,128.3	3.052406
New York, 1909; 1. 1941 d.	78 53 18.652	141 46 35.8	321 46 13.0	Buffalo north base--I.W.C.	1,227.706	3.0890945

INTERNATIONAL BOUNDARY COMMISSION—UNITED STATES, ALASKA, AND CANADA

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International boundary line Niagara River Subsidiary Stations 1941 *State* New York *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Worth	43 14 36.245	32 59 17.6	212 59 17.4	Worth--Sub	9.76	0.989437
New York, 1941;r. 1956 d.m.	79 03 08.460	32 59 17.6	212 58 58.7	Gully--Sub	1,142.4	3.057809
		181 12 23.4	1 12 24.2	Vincent Pier	1,257.8	3.099606
Oak--Sub	43 14 36.952	182 21 09.5	2 21 10.3	George--Sub	621.3	2.793300
Canada, 1941 d.	79 03 32.445	273 12 04.2	93 12 20.5	Worth--Sub	536.6	2.729681
Steps--Sub	43 14 27.331	1 08 24.9	181 08 24.5	Gully--Sub	683.3	2.834592
Canada, 1941 d.	79 03 35.423	192 45 04.9	12 45 06.9	Oak--Sub	304.4	2.483457
		246 07 16.8	66 07 35.1	Worth--Sub	659.4	2.819171
Reference Monument 6, ecc.	43 10 59.883	54 07 54.4	234 07 33.8	Acorn--Sub	838.0	2.923259
New York, 1941;r. 1956 d.m.	79 02 52.472	126 46 34.4	306 46 12.9	Root--Sub	886.4	2.947653
		149 47 53.8	329 47 37.2	Gypsy, ecc.	1,086.5	3.036036
Chance	43 09 19.676	135 57 09.4	315 56 54.4	Brock's Mon.1875(USLS)	712.0	2.852486
Canada, 1941; r.1956 d.m.	79 02 49.882	209 57 18.7	29 57 28.0	Heights--Sub	614.5	2.788527
		253 22 30.4	73 22 30.5	Chance--Sub	3.19	0.503548
		303 14 37.8	123 14 50.1	Ogden--Sub	485.2	2.685886
DeVeaux--I.W.C.	43 07 22.916	196 55 56.9	16 55 57.1	DeVeaux--I.W.C.	24.86	1.395414
New York, 1941; R.M.No. 1 d.m.	79 03 41.059					
Sox--I.W.C.	43 06 04.420	203 47 08.7	23 47 08.8	Sox--Sub	10.65	1.027339
New York, 1912;r.1941,1956 d.m.	79 03 30.270					
Lundy--I.W.C.	43 04 38.335	189 38 15.1	9 38 15.2	Lundy--Sub	20.05	1.302176
Canada, 1912; r.1941 d.m.	79 04 45.222					
Canal--U.S.L.S.	43 04 38.922	254 29 55.4	74 29 55.6	Lundy--Sub	6.24	0.795346
Canada, 1906;r. 1941 d.m.	79 04 45.340					
Park--I.W.C.	43 04 22.339	298 31 12.8	118 31 14.0	Park--Sub	44.68	1.650091
Canada, 1912;r.1941,1956 d.m.	79 04 31.148					
Bank--U.S.L.S.	43 04 10.667	106 51 17.1	286 51 16.6	High--I.W.C.	16.65	1.221368
Canada, 1906; r.1941 d.m.	79 03 42.795					
Goat--U.S.L.S. d.m.	43 04 46.528	291 33 49.6	111 33 50.1	Bench--Sub	19.05	1.279896
New York, 1906;I.W.C.1912;r.1941	79 03 46.248					
Conner	43 04 34.052	2 50 43.7	182 50 43.7	Conner--Sub	27.42	1.438065
New York, 1941 d.m.	79 00 47.750					
Foot--Sub	43 03 43.606	209 45 40.1	29 45 40.2	Foot--Sub	8.72	0.940382
Canada, 1941, R.M. No. 1 d.m.	79 00 55.334					
Tripple--U.S.E.	43 03 51.996	102 33 28.9	282 33 27.4	Lower--Sub	51.05	1.708031
New York, 1941;p.1.1956 d.m.	78 59 57.015					
Camp d.m.	43 03 13.273	256 36 38	76 36 38	Camp--I.W.C.	9.81	0.991872
Canada, 1941 I.B.C. disk reference	79 00 16.427					

International boundary line Niagara River Subsidiary Stations 1941 *State* New York *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Lutz--I.W.C.	43 01 39.663	227 03 00	47 03 02	Lutz--Sub	73.46	1.866033
Canada, 1909; r.1941 d.m.	79 01 27.196					
Windsor--I.W.C.	43 01 16.192	122 30 35	302 30 35	Windsor--I.W.C.	8.51	0.929931
New York, 1941;R.M. No. 3 d.m.	79 01 02.019					
Mennonite	42 59 50.115	328 24 23	148 24 23	Mennonite--Sub	17.58	1.245116
Canada, 1941 d.m.	79 01 40.461					
Club--I.W.C. d.m.	42 58 56.470	75 21 59	255 21 59	Club--I.W.C.	7.41	0.869980
New York, 1940;r.1941;R.M.No. 1	79 00 09.081					
Sidway	42 57 57.731	117 56 33	297 56 32	Sidway--Sub	32.72	1.514818
New York, 1941 d.m.	78 58 12.734					
Reference Monument 33, ecc.	42 55 23.520	217 40 35.7	37 40 53.3	Fill-Sub	957.1	2.980965
Ft. Erie, Canada, 1941 d.	78 54 45.596	294 37 02.2	114 37 21.6	Plant	708.1	2.850085
		330 52 02.2	150 52 26.1	Mole	1,634.2	3.213293
U.S.E. No. 45	42 55 51.552	43 16 17.2	223 15 52.7	Ref.Mon.33,ecc.-41	1,187.9	3.074795
New York, 1941 d.m.	78 54 09.692	64 52 24.2	244 52 17.3	Fill--Sub	253.2	2.403382
Reference Monument 35, ecc.	42 54 06.651	151 15 02.0	331 15 01.3	Poplars--I.W.C.	52.4	1.719548
Canada, 1941 n.d.	78 55 03.190	265 24 05.2	85 24 46.0	Fort Porter--I.W.C.	1,363.2	3.134573
		326 16 27.9	146 17 06.5	Breakwater--I.W.C.	2,314.3	3.364412
Poplars	42 54 08.134	268 26 27.4	88 26 27.6	Poplars--I.W.C.	7.955	0.900656
Canada, 1941 d.m.	78 55 04.652					
Foot--I.W.C.	43 03 43.786	261 07 52.5	81 07 52.9	Foot--Sub	13.02	1.114546
Canada, 1909;r.1941,1956 d.m.	79 00 55.711					

INTERNATIONAL BOUNDARY COMMISSION—UNITED STATES, ALASKA, AND CANADA

GEOGRAPHIC POSITIONS—NORTH AMERICAN DATUM 1927

International boundary line Niagara River — Reference Monuments — *State* New York — *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Fort Niagara, lighthouse	43 15 42.114	247 37 28.5	67 37 31.0	Fort Niagara watertank	89.2	1.950492
New York 1941;r.1945,1956 d.	79 03 38.779	317 29 49.5	137 30 11.1	Vincent Pier	1051.5	3.021796
		356 54 32.8	176 54 51.3	Brock's Mon.1875(USLS)	1306.63	4.053333
Ref. Mon. 1-41	43 15 05.369	172 24 30.4	352 24 25.8	Ft.Niagara,lighthouse	1144.0	3.058414
Ontario 1912; r.1941,1956 d.m.	79 03 32.079	176 38 14.7	356 38 12.6	Ft.Niagara,water tank	1169.9	3.068156
		191 01 12.5	11 01 17.8	Quarters-Sub	911.8	2.959918
		204 57 53.1	24 58 04.1	Youngstown north base I.W.C.	854.2	2.931558
		236 51 02.0	56 51 21.7	Youngstown south base I.W.C.	772.4	2.887863
		237 19 17.5	57 19 34.5	Vincent Pier	664.4	2.822444
		276 19 35	96 19 59	Youngstown water tank	791.5	2.898456
		356 08 43.6	176 08 44.1	George-Sub	256.8	2.409585
Ref. Mon. 2-41	43 14 18.636	57 29 04.7	237 28 45.0	Gully-Sub	771.6	2.887404
New York 1912; r.1941,1956 d.m.	79 03 07.189	112 50 43.4	292 50 24.1	Steps-Sub	691.2	2.839622
		126 46 31.2	306 46 13.1	Steps-I.W.C.	745.6	2.872495
Ref. Mon. 3-41	43 13 26.124	197 59 50.3	18 00 03.1	Bow-Sub	1366.8	3.135699
Ontario 1912; r. 1941,1956 d.m.	79 03 27.594	237 38 04.3	57 38 22.7	View-Sub	717.4	2.855758
		325 29 35.3	145 29 52.9	Wood-Sub	1023.2	3.009958
Ref. Mon. 4-41	43 12 37.679	57 15 26.3	237 15 08.0	Rose-Sub	718.2	2.856255
New York 1912;r. 1941,1956 d.m.	79 03 07.883	144 10 40.3	324 10 22.7	Jack-Sub	989.9	2.995606
Ref. Mon. 5-41	43 11 59.940	143 55 04.5	323 54 47.4	Rose-Sub	960.4	2.982431
Ontario 1912; r.1941,1956 d.m.	79 03 09.589	191 21 28.9	11 21 34.4	Snow-Sub	913.6	2.960733
		267 10 39	87 11 08	Cross on Stella Niagara	932.6	2.969682
		268 16 36.4	88 16 53.3	Stella-I.W.C.	555.8	2.744941
		326 12 48.5	146 13 03.4	Dagon-Sub	882.4	2.945643
Ref. Mon. 6, ecc.	43 10 59.883	54 07 54.4	234 07 33.8	Acorn-Sub	838.0	2.923259
New York 1941; r. 1956 d.m.	79 02 52.472	126 46 34.4	306 46 12.9	Root-Sub	886.4	2.947653
		149 47 53.8	329 47 37.2	Gypsy, ecc.	1086.5	3.036036
Ref. Mon. 6-41	43 10 59.489	147 33 59.5	327 33 59.3	Ref.Mon. 6,ecc.	14.40	1.158372
New York 1912; r. 1941,1956 d.m.	79 02 52.130					
Ref. Mon. 7, ecc.-I.W.C.	43 10 12.278	183 21 33.8	3 21 35.5	Acorn-Sub	979.7	2.991088
Ontario 1912; r. 1941 d.m.	79 03 25.083	237 57 24.7	57 57 43.2	Nell-Sub	720.8	2.857812
		314 42 13.1	134 42 46.5	Heights-Sub	1550.6	3.190495
		344 53 04.9	164 53 14.0	Brock's Mon.1875(USLS)	1151.3	3.061196
Ref. Mon. 7-41	43 10 12.333	72 04 24.5	252 04 24.3	Ref.Mon.7,ecc.-I.W.C.	5.514	0.741455
Ontario 1912; r. 1941,1956 d.m.	79 03 24.851	237 50 57.2	57 51 15.5	Nell-Sub	715.4	2.854579
		314 53 05.7	134 53 38.9	Heights-Sub	1548.1	3.189786
		345 09 31.5	165 09 40.4	Brock's Mon.1875(USLS)	1151.6	3.061303

International boundary line Niagara River Reference Monuments *State* New York *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Ref. Mon. 8-41	43 09 44.521	12 51 44.9	192 51 39.6	Chance-Sub	785.5	2.895125
New York 1912; r.1941,1956 d.m.	79 02 42.008	13 03 52.2	193 03 46.8	Chance, 1941	787.0	2.895994
		69 15 16.8	249 14 56.4	Brock's Mon.1875(USLS)	719.6	2.857076
		131 21 42.3	311 21 12.8	Ref.Mon.7,ecc.-I.W.C.	1296.4	3.112724
		131 34 18.1	311 33 48.8	Ref.Mon.7	1293.5	3.111782
Ref. Mon. 9-41	43 09 13.686	17 39 25.5	197 39 19.2	Bolt-Sub	683.1	2.834457
New York 1912; r.1941,1956 d.m.	79 02 33.527	116 34 48.4	296 34 37.2	Chance, 1941	413.2	2.616155
		116 53 04.1	296 52 53.0	Chance-Sub	410.9	2.613712
		128 51 49.3	308 51 23.1	Brock's Mon.1875(USLS)	1110.3	3.045440
		260 12 22	80 12 34	Gorge View Park,water tank	417.7	2.620819
		335 56 01.2	155 56 02.3	Ogden-Sub	88.8	1.948542
Ref. Mon. 10-41	43 08 59.463	10 10 26.8	190 10 26.0	Kiln-Sub	163.2	2.212786
New York 1918; r.1941,1956 d.m.	79 02 25.381	61 33 09.0	241 32 57.2	Bolt-Sub	445.0	2.648354
		137 16 54.9	317 16 23.2	Brock's Mon.1875(USLS)	1545.7	3.189115
Ref. Mon. 11,ecc.-I.W.C.	43 08 38.689	3 29 37.8	183 29 36.5	College-I.W.C.	681.0	2.833177
New York 1912; r. 1941 d.	79 02 25.421	91 42 14.0	271 42 02.2	Trans-I.W.C.	390.3	2.591412
		137 42 27.0	317 42 15.2	Bolt-Sub	580.1	2.763496
		176 40 25.5	356 40 24.7	Kiln-Sub	481.2	2.682354
		180 04 52.9	0 04 52.9	Ref.Mon.10-41	641.1	2.806912
Ref. Mon. 11-41	43 08 39.499	20 45 38.1	200 45 37.8	Ref.Mon.11,ecc.	26.7	1.426761
New York 1912; r.1941,1956 d.m.	79 02 25.002	88 04 58.5	268 04 46.4	Trans-I.W.C.	399.8	2.601880
		135 18 23.6	315 18 11.5	Bolt-Sub	568.5	2.754717
		148 53 22.8	328 52 50.8	Brock's Mon.1875(USLS)	2046.0	3.310897
		179 12 14.8	359 12 14.5	Ref.Mon.10-41	616.2	2.789691
Ref. Mon. 12-41	43 08 20.640	57 46 49.3	237 46 34.5	Tie-Sub	578.8	2.762494
Ontario 1912; r.1941,1956 d.m.	79 02 48.000	222 29 23.5	42 29 39.0	Ref.Mon.11,ecc.	755.4	2.878169
		284 40 30.2	104 40 44.4	College-I.W.C.	484.6	2.685373
		347 48 59.6	167 49 02.9	Devil-Sub	513.4	2.710426
Ref. Mon. 13-41	43 07 57.291	144 52 13.5	324 52 04.7	Tie-Sub	503.7	2.702182
New York 1912; r. 1941,1956 d.m.	79 02 56.839	195 29 46.0	15 29 52.0	Ref.Mon. 12-41	747.7	2.873745
Ref. Mon. 14-41	43 07 46.009	20 22 05.5	200 21 57.8	DeVeaux-I.W.C.	734.8	2.866175
Ontario 1912; r. 1941 d.m.	79 03 29.425	51 04 52.8	231 04 38.0	Moses-Sub	628.1	2.798032
		210 26 14.3	30 26 27.8	Tie-Sub	881.6	2.945279
		236 15 54	56 16 39	Niagara University,cross	1806.5	3.256836
		241 30 33.1	61 31 04.7	Devil-Sub	1188.6	3.075023
		244 41 52.3	64 42 14.6	Ref.Mon.13-41	814.7	2.910982
		272 44 16.9	92 44 30.9	Bess-I.W.C.	463.9	2.666413
Ref. Mon. 15-41	43 07 13.334	77 18 38.4	257 18 22.4	David-Sub	542.9	2.734735
New York 1912; r.1941,1956 d.m.	79 03 58.769	139 45 40.8	319 45 28.7	Junior-Sub	622.0	2.793772
		351 11 32.5	171 11 32.8	Pool-Sub	53.3	1.726637
Ref. Mon. 16-41	43 06 50.813	156 07 19.2	336 07 10.6	Pool-Sub	702.5	2.846633
Ontario 1912; r.1941,1956 d.m.	79 03 45.829	264 37 55.7	84 38 04.6	Burr-Sub	297.1	2.472873
		311 12 17.2	131 12 33.9	Custom	737.5	2.867782

International boundary line Niagara River Reference Monuments *State* New York *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Ref. Mon. 17-41	43 06 37.105	51 14 58.4	231 14 47.6	Post-Sub	458.3	2.661181
New York 1912; r.1941,1956 d.m.	79 03 27.068	103 50 45.2	283 50 37.5	Rapid	262.6	2.419320
		295 40 59.4	115 41 03.3	Custom	145.0	2.161366
Ref. Mon. 18-41	43 05 31.190	23 47 13.5	203 47 12.2	Arch	110.4	2.043023
Ontario 1912; r.1941,1956 d.m.	79 04 07.149	226 05 57.1	46 06 15.9	Giant-Sub	864.6	2.936798
		282 18 17.4	102 18 28.7	Power	383.0	2.583189
Ref. Mon. 19-41	43 05 08.745	40 58 16	220 57 42	Mt. Carmel College, cross	1738.2	3.240107
New York 1912; r.1941;1.1956 d.m.	79 04 08.652	70 01 44.9	250 01 24.3	Queen-Sub	724.3	2.859900
		145 41 10.0	325 41 02.0	Clifton-Sub	467.9	2.670160
		192 10 51.7	12 10 52.1	State-Sub	69.2	1.840195
Ref. Mon. 20-41	43 04 44.226	16 50 27.5	196 50 26.0	Lundy-Sub	169.3	2.228583
Ontario 1912; r.1941,1956 d.m.	79 04 42.906	42 28 26	222 28 17	Convent, cross	474.3	2.676090
		190 28 23.5	10 28 26.3	Queen-Sub	517.9	2.714225
		246 27 56.7	66 28 06.7	Terrapin-I.W.C.	364.2	2.561281
Ref. Mon. 21-41	43 04 45.438	15 22 46.5	195 22 40.4	Park-Sub	761.4	2.881603
New York 1912; r.1941,1956 d.m.	79 04 20.488	64 55 20	244 54 55	Convent, cross	913.6	2.960750
		70 16 40.7	250 16 23.9	Lundy-Sub	590.9	2.771481
		85 47 04.2	265 46 48.9	Ref.Mon. 20-41	508.5	2.706307
Ref. Mon. 22-41	43 03 34.368	79 30 54.1	259 30 53.8	Bailey-I.W.C.	11.17	1.047916
Ontario 1912; r.1941,1956 d.m.	79 00 25.585	264 22 59.7	84 23 22.6	Burnt-Sub	761.5	2.881651
Ref. Mon. 23-41	43 03 19.660	53 59 59.0	233 59 57.8	Boom-I.W.C.	49.8	1.697171
New York 1912; r.1941;1.1956 d.m.	78 59 48.860	53 59 59.0	233 59 27.7	Navy-Sub	1285.4	3.109034
		118 13 18.1	298 12 52.7	Bailey-I.W.C.	955.6	2.980287
		118 38 38.9	298 38 13.8	Ref.Mon. 22-41	946.9	2.976320
		172 06 35.5	352 06 33.3	Burnt-Sub	533.4	2.727066
Ref. Mon. 24-41	43 02 55.597	27 24 57.5	207 24 39.4	Spruce-I.W.C.	1300.1	3.113980
Ontario 1912; r.1941 d.m.	79 00 36.176	292 49 52.1	112 49 53.0	Navy-Sub	33.63	1.526735
		298 19 44	118 20 06	Grand Island Barn, west cupola	841.4	2.924981
		333 02 58.9	153 03 10.5	Cobb-I.W.C.	852.1	2.930477
Ref. Mon. 25-41	43 01 40.962	57 27 58.9	237 27 08.1	Meyers-Sub	1999.5	3.300932
New York 1941; 1. 1956 d.m.	79 00 38.051	90 32 37.0	270 32 05.1	Lutz-Sub	1059.0	3.024876
		131 46 08	311 45 45	School House, cupola	986.5	2.994110
		154 10 15.9	334 09 59.1	Spruce-I.W.C.	1276.6	3.106055
		197 52 47.1	17 52 52.5	Woodpile-I.W.C.	583.5	2.766024
Ref. Mon. 26-41	43 00 56.748	187 57 10.8	7 57 12.0	Meyers-Sub	291.6	2.464835
Ontario 1912; r.1941,1956 d.m.	79 01 54.279	242 47 27.8	62 48 03.2	Windsor-I.W.C.	1322.5	3.121389
		285 33 13.9	105 33 38.5	Eagle-Sub	847.3	2.928027
Ref. Mon. 27, ecc.	42 59 42.815	18 24 51.2	198 24 35.9	Black(Black Creek)-IWC	1617.1	3.208742
New York 1941 d.m.	79 01 04.049	104 27 45.5	284 27 21.0	Mennonite-Sub	842.3	2.925458
		146 25 40.2	326 25 10.2	Lee-Sub	1803.2	3.256046
Ref. Mon. 27-41	42 59 43.556	17 50 50.2	197 50 35.2	Black-I.W.C.	1635.9	3.213758
New York 1912;r.1941;1.1956 d.m.	79 01 04.466	337 32 46.7	157 32 47.0	Ref.Mon.27,ecc.	24.74	1.393317

INTERNATIONAL BOUNDARY COMMISSION—UNITED STATES, ALASKA, AND CANADA
GEOGRAPHIC POSITIONS—NORTH AMERICAN DATUM 1927

International boundary line Niagara River Reference Monuments *State* New York *Province* Ontario

STATION		LATITUDE AND LONGITUDE			AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE (METERS)	LOGARITHM
		°	′	″	°	′	″	°	′	″			
Ref. Mon. 28-41		42	58	41.852	164	58	20.9	344	58	04.0	Mennonite-Sub	2165.6	3.335579
Ontario 1912; r.1941,1956	d.m.	79	01	15.266	206	49	03.3	26	49	21.6	Staley-I.W.C.	1346.9	3.129346
					253	14	31.8	73	15	16.7	Club-I.W.C.	1558.6	3.192728
Ref. Mon. 29, ecc.		42	58	09.596	3	38	03.0	183	37	59.9	Shipyard-I.W.C.	1653.1	3.218289
New York 1941	d.	78	58	23.757	38	11	36.6	218	11	23.4	Palmer-I.W.C.	710.2	2.851363
					129	01	49.0	309	01	42.7	Oakfield-I.W.C.	270.6	2.432346
Ref. Mon. 29-41		42	58	09.483	192	14	04	12	14	04	Ref.Mon.29,ecc.	3.58	0.553684
New York 1912; r.1941,1956	d.m.	78	58	23.791									
Ref. Mon. 30-41		42	56	59.288	123	54	55.9	303	54	32.7	Shipyard-I.W.C.	931.8	2.969302
Ontario 1912; r.1941,1956	d.m.	78	57	54.268	166	10	50.4	346	10	37.0	Sidway-Sub	1873.0	3.272544
					213	01	47.9	33	02	07.0	Beaver-Sub	1161.2	3.064904
					223	50	52	43	51	26	Beaver Island Park Bldg., cupola	1639.0	3.214574
Ref. Mon. 31-41		42	56	52.431	160	11	56.0	340	11	42.2	Island-I.W.C.	1349.5	3.130180
Ontario 1912; r.1941,1956	d.m.	78	56	04.451	209	29	28	29	30	11	Dunlop,south water tank	2959.0	3.471145
					230	08	41.9	50	09	03.6	Strawberry-Sub	941.7	2.973926
					247	15	00	67	16	18	All Saints Church,spire	2805.3	3.447981
					270	05	02	90	06	19	Hungarian Church,spire	2545.7	3.405802
					270	31	14	90	32	41	American Radiator, water tank	2892.7	3.461303
					311	08	25.0	131	08	34.4	Nettle-Sub	416.7	2.619791
Ref. Mon. 32-41		42	56	32.075	136	08	08.3	316	07	58.1	Nettle-Sub	491.0	2.691115
Ontario 1912; r.1941,1956	d.m.	78	55	35.601	183	12	16.6	3	12	18.7	Strawberry-Sub	1233.6	3.091157
					198	02	35	18	03	00	Dupont,water tank	2704.5	3.432092
					228	27	30	48	28	28	All Saints Ch.,spire	2582.8	3.412084
					251	44	15	71	45	12	Hungarian Ch.,spire	1992.0	3.299281
					254	57	24	74	58	32	American Radiator, water tank	2318.0	3.365108
					277	12	13	97	13	47	Church of the Assumption,east spire	3161.0	3.499827
					277	23	27	97	25	01	Church of the Assumption,west spire	3145.3	3.497666
					284	17	14.8	104	17	57.3	Hertel-1941	1457.4	3.163568
Ref. Mon. 33, ecc.		42	55	23.520	217	40	35.7	37	40	53.3	Fill-Sub	957.1	2.980965
Ontario 1941	d.	78	54	45.596	218	09	44	38	10	15	St.John Evangelical Church, spire	1663.9	3.221136
					223	15	52.7	43	16	17.2	U.S.E. No. 45	1187.9	3.074795
					294	37	02.2	114	37	21.6	Plant	708.1	2.850085
					307	09	10	127	09	56	Church of the Nativity, spire	1912.9	3.281700
					330	52	02.2	150	52	26.1	Mole	1634.2	3.213293
Ref. Mon. 33-41		42	55	23.404	176	58	27.3	356	58	27.3	Ref.Mon.33,ecc.	3.58	0.554054
Ontario 1941; r. 1956	d.m.	78	54	45.588									

INTERNATIONAL BOUNDARY COMMISSION—UNITED STATES, ALASKA, AND CANADA

GEOGRAPHIC POSITIONS—NORTH AMERICAN DATUM 1927

International boundary line Niagara River Reference Monuments *State* New York *Province* Ontario

STATION		LATITUDE AND LONGITUDE			AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE (METERS)	LOGARITHM
		°	′	″	°	′	″	°	′	″			
Ref. Mon. 34-41		42	54	09.359	88	27	25.6	268	26	43.9	Poplars-I.W.C.	1390.1	3.143061
New York 1912; r.1941	d.m.	78	54	03.048	129	58	17.3	309	57	55.7	Little-Sub	937.7	2.972051
					167	45	22.6	347	45	22.4	Fort Porter-I.W.C.	26.22	1.418694
					341	47	08	161	47	35	Buffalo Lighthouse	2903.5	3.462929
Ref. Mon. 35,ecc.		42	54	06.651	151	15	02.0	331	15	01.3	Poplars-I.W.C.	52.4	1.719548
Ontario 1941	d.	78	55	03.190	265	24	05.2	85	24	46.0	Fort Porter-I.W.C.	1363.2	3.134573
					266	29	27.1	86	30	08.1	Ref.Mon. 34	1367.0	3.135763
					291	48	12	111	50	03	Ford Hotel, cupola	3978.0	3.599669
					298	39	37	118	41	10	Buffalo City Hall(new) tower	3539.8	3.548982
					319	38	32	139	39	40	Buffalo Lighthouse	3509.4	3.545233
					326	16	27.9	146	17	06.5	Breakwater-I.W.C.	2314.3	3.364412
					350	22	05	170	22	18	Buffalo Intake light, (new)	2513.8	3.400339
Ref. Mon. 35-41		42	54	06.714	20	19	08.2	200	19	08.2	Ref.Mon.35,ecc.	2.07	0.315760
Ontario 1941; r.1956	d.m.	78	55	03.158									
Horseshoe Reef light-41		42	52	52.413	175	30	23	355	30	18	Ref.Mon.35,ecc.	2297.9	3.361335
New York 1941; r.1945	n.d.	78	54	55.254	206	09	29	26	10	05	Fort Porter-I.W.C.	2674.0	3.427158
					251	40	09	71	40	42	Breakwater-I.W.C.	1163.9	3.065912

International boundary line Niagara River — Auxiliary Stations — *State* New York — *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Front Range Light, Niagara-on-Lake, Ontario 1941 n.d.	43 15 19.433 79 03 43.143	240 50 29	60 50 48	Youngstown north base-I.W.C.	698.6	2.844236
		275 18 57	95 19 22	Vincent Pier	812.3	2.909727
Back Range Light, Niagara-on-Lake, Ontario 1941 n.d.	43 15 13.583 79 03 38.361	223 57 18	43 57 33	Youngstown north base-I.W.C.	723.6	2.859489
		257 54 31	77 54 55	Youngstown south base-I.W.C.	806.3	2.906512
		261 27 39	81 28 00	Vincent Pier	708.8	2.850543
Catholic Church, cross, Niagara-on-Lake, Ontario 1941 n.d.	43 15 13.570 79 04 04.587	234 43 28	54 43 56	Quarters-Sub	1111.7	3.045974
		244 30 50	64 31 24	Youngstown north base-I.W.C.	1211.7	3.083392
		265 19 22	85 20 01	Vincent Pier	1296.9	3.112898
Youngstown, water tank New York, 1941 n.d.	43 15 02.541 79 02 57.206	77 37 09	257 36 45	George-Sub	787.8	2.896398
		96 19 59	276 19 35	Reference Mon.1-41	791.5	2.898456
		148 03 53	328 03 35	Quarters-Sub	1157.5	3.063523
Cross on Stella, Niagara New York 1941; r.1956 n.d.	43 12 01.426 79 02 28.333	85 33 53	265 33 41	Stella-I.W.C.	377.0	2.576337
		87 11 08	267 10 39	Ref.Mon. 5-41	932.6	2.969682
		116 00 35	295 59 49	Rose-Sub	1665.6	3.221578
Canadian water tank(near Acorn) Ontario 1941 n.d.	43 10 42.726 79 03 25.168	232 34 02	52 34 23	Left-Sub	892.4	2.950536
		253 55 47	73 56 06	Medina-Sub	667.6	2.824533
		312 16 25	132 16 43	Nell-Sub	828.3	2.918203
Gorge View Park, water tank New York 1941 n.d.	43 09 15.987 79 02 15.311	67 56 16	247 56 05	Ogden-Sub	405.0	2.607468
		80 12 34	260 12 22	Ref. Mon. 9-41	417.7	2.620819
		98 23 36	278 23 13	Chance-Sub	786.5	2.895674
Niagara University, cross New York 1941; r. 1956 n.d.	43 08 18.514 79 02 22.951	46 06 28	226 05 35	DeVeaux-I.W.C.	2440.1	3.387404
		51 41 08	231 39 46	David-Sub	3435.8	3.536031
		56 16 39	236 15 54	Ref. Mon. 14-41	1806.5	3.256836
St. Patrick's Church, spire,N.F. Ontario 1941 n.d.	43 06 23.799 79 04 25.634	256 33 04	76 33 48	Custom	1495.9	3.174905
		262 42 16	82 42 45	Post-Sub	974.7	2.988872
		271 02 37	91 03 21	Clover-Sub	1451.9	3.161936
St. Andrew's Church, spire, N.F. Ontario 1941 n.d.	43 06 21.921 79 04 02.639	246 32 19	66 32 47	Custom	1019.2	3.008267
		247 52 29	67 52 42	Post-Sub	482.4	2.683393
		268 04 06	88 04 34	Clover-Sub	932.2	2.969521
Whirlpool Autocar, north end of cable, Ontario 1941;r.1956 n.d.	43 07 22.012 79 04 07.176	00 25 30	180 25 30	Whirl-Sub	534.9	2.728291
		41 15 47	221 15 37	David-Sub	514.9	2.711734
Whirlpool Autocar, south end of cable, Ontario 1941;r.1956 n.d.	43 07 04.683 79 04 08.428	166 06 38	346 06 32	Junior-Sub	764.1	2.883161
		226 35 02	46 35 09	Pool-Sub	311.9	2.493958
First Congregational Church,spire, N.F.,New York, 1941 n.d.	43 06 24.688 79 03 16.270	65 10 12	245 10 09	Clover-Sub	128.7	2.109542
		131 47 02	311 46 47	Rapid	669.4	2.825670
		146 40 15	326 39 46	Pool-Sub	1733.8	3.238990

International boundary line Niagara River — Auxiliary Stations — *State* New York — *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Lutheran Church, spire, N.F.	43 06 24.687	26 53 33	206 53 24	Sox-Sub	690.3	2.839040
New York, 1941 n.d.	79 03 16.272	99 05 57	279 05 39	Post-Sub	609.2	2.784771
		160 30 14	340 30 11	Custom	339.9	2.531292
Sacred Heart Church, spire, N.F.	43 06 20.497	101 54 40	281 54 08	Post-Sub	1093.6	3.038847
New York, 1941 n.d.	79 02 55.553	127 41 53	307 41 35	Custom	735.4	2.866525
		137 59 55	317 59 12	Pool-Sub	2123.5	3.327055
General Brock Hotel, flagpole, N.F.	43 05 30.621	9 52 16	189 52 09	Terrapin-I.W.C.(1941)	1305.7	3.115835
Ontario, 1941 n.d.	79 04 18.253	26 40 43	206 40 29	Queen-Sub	1032.4	3.013845
		339 06 52	159 06 59	State-Sub	650.2	2.813018
Niagara Wires, water tank, N.F.	43 05 08.084	247 09 56	67 10 41	Power	1627.4	3.211495
Ontario, 1941 n.d.	79 04 56.918	265 26 45	85 27 19	State-Sub	1109.9	3.045278
		316 45 57	136 46 47	High-I.W.C.	2425.1	3.384731
Shredded Wheat Building, flagpole,	43 04 57.970	54 12 10	234 11 55	Bench-Sub	615.6	2.789299
N.F., New York, 1941 n.d.	79 03 23.393	299 54 25	119 54 51	Grass-I.W.C.	988.0	2.994747
		339 01 43	159 02 07	Hog	2241.9	3.350611
United Building, flagpole, N.F.	43 05 07.180	36 25 22	216 24 51	Park-Sub	1746.1	3.242064
New York, 1941 n.d.	79 03 43.590	57 58 05	237 57 23	Lundy-Sub	1640.7	3.215033
		359 55 56	179 55 56	High-I.W.C.	1739.1	3.240331
Holy Trinity Church, cross, N.F.	43 05 11.980	5 07 58	185 07 51	Hog	2535.9	3.404132
New York, 1941 n.d.	79 02 37.906	10 34 08	190 34 03	Grass-I.W.C.	940.9	2.973557
		319 27 50	139 29 00	Foot-Sub	3577.9	3.553623
Niagara Hotel, flagpole, N.F.	43 05 05.365	1 31 26	181 31 25	High-I.W.C.	1683.7	3.226266
New York, 1941 n.d.	79 03 41.520	38 46 22	218 45 49	Park-Sub	1730.3	3.238113
		83 41 50	263 41 11	Queen-Sub	1302.3	3.114714
Kimberly-Clark, water tank, N.F.	43 05 24.137	2 51 04	182 50 59	Foot-Sub	3098.6	3.491160
New York, 1941 n.d.	79 00 48.332	338 34 32	158 35 05	Lower-Sub	3042.4	3.483220
		338 59 12	158 59 50	Burnt-Sub	3548.8	3.550081
Convent, cross, N.F.	43 04 32.888	205 45 00	25 45 13	Queen-Sub	953.9	2.979482
Ontario, 1941 n.d.	79 04 57.064	222 28 17	42 28 26	Ref. Mon. 20-41	474.3	2.676090
		244 54 55	64 55 20	Ref. Mon. 21-41	913.6	2.960750
Mt. Carmel College, cross, N.F.	43 04 26.212	220 57 42	40 58 16	Ref. Mon. 19-41	1738.2	3.240107
Ontario, 1941 n.d.	79 04 59.029	260 49 12	80 50 43	Grass-I.W.C.	3059.1	3.485594
		285 31 26	105 32 18	High-I.W.C.	1773.6	3.248856
English Church, spire, Chippewa,	43 03 44.731	167 47 03	347 46 51	Bench-Sub	1944.0	3.288699
Ontario, 1941 n.d.	79 03 27.281	208 06 57	28 07 26	Grass-I.W.C.	2004.0	3.301892
		247 29 01	67 30 50	Conner-Sub	3905.4	3.591670
Chippewa, water tank	43 03 30.792	192 13 17	12 13 31	Grass-I.W.C.	2248.6	3.351904
Ontario, 1941 n.d.	79 03 06.576	238 28 38	58 30 12	Conner-Sub	3682.8	3.566176
		261 03 43	81 05 51	Lower-Sub	4291.5	3.632612

International boundary line Niagara River Auxiliary Stations *State* New York *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Grand Island Barn, west cupola	43 02 42.658	60 35 56	240 35 16	Spruce-I.W.C.	1537.3	3.186761
New York, 1941 n.d.	79 00 03.456	118 20 06	298 19 44	Ref. Mon. 24-41	841.4	2.924981
School House, cupola	43 02 02.256	276 20 46	96 21 14	Woodpile-I.W.C.	920.6	2.964063
Ontario, 1941 n.d.	79 01 10.553	311 45 45	131 46 08	Ref. Mon. 25-41	986.5	2.994110
Foxhead Farms, water tank	43 01 11.864	234 14 47	54 15 48	Woodpile-I.W.C.	2487.6	3.395786
Ontario, 1941 n.d.	79 01 59.312	263 52 59	83 53 38	Windsor-I.W.C.	1297.5	3.113108
		326 41 04	146 41 35	Road-I.W.C.	1856.1	3.268597
Beaver Island Park Building,cupola	42 57 37.589	43 51 26	223 50 52	Ref. Mon. 30-41	1639.0	3.214574
New York, 1941 n.d.	78 57 04.174	290 49 13	110 50 16	Strawberry-Sub	2221.8	3.346709
		339 34 28	159 34 42	Pleasant-I.W.C.	1340.2	3.127154
Tonawanda Iron & Steel Co.,stack	43 02 12.318	124 38 06	304 36 50	Edgewater-I.W.C.	3068.6	3.486934
New York, 1909 n.d.	78 53 13.398	160 03 36	340 03 17	Central-I.W.C.	1881.7	3.274546
Tonawanda Upper Waterworks,stack	43 01 14.298	77 29 43	257 29 07	Ferry-I.W.C.	1238.3	3.092816
New York, 1909 n.d.	78 53 06.862	164 36 51	344 36 48	Upper Tonawanda-I.W.C.	429.8	2.633262
Brewery at Tonawanda, stack	43 00 47.039	164 09 12	344 09 07	Ferry-I.W.C.	595.6	2.774946
New York, 1909 n.d.	78 53 53.066	216 35 20	36 35 48	Upper Tonawanda-I.W.C.	1563-8	3.194179
Niagara River Rear Range Light	42 54 33.546	80 13 25	260 13 02	Little-I.W.C.	765.2	2.883783
Buffalo, New York, 1909 n.d.	78 54 00.847	129 39 04	309 38 41	Rail-I.W.C.	990.2	2.995737
Methodist Church, spire n.d.	43 05 12.917	105 56 54	285 56 28	Clifton-I.W.C.	907.6	2.957883
Niagara Falls, New York, 1909	79 03 43.743	140 23 51	320 23 36	Spir-I.W.C.	789.8	2.897495
Wickwire Steel Plant, stack	42 58 59.116	25 54 55	205 54 41	Bedell-I.W.C.	1083.2	3.034700
Tonawanda, New York,1909 n.d.	78 56 23.980	141 32 25	321 32 06	Swartz-I.W.C.	989.1	2.995224
Dunlop, south water tank	42 58 15.892	21 51 55	201 51 21	Nettle-Sub	3070.4	3.487192
Buffalo, New York, 1941 n.d.	78 55 00.172	29 30 11	209 29 28	Ref. Mon. 31-41	2959.0	3.471145
		55 42 18	235 41 20	Island-I.W.C.	2316.9	3.364910
Strawberry Is. Upper Cut, rear	42 57 19.889	12 39 13	192 38 58	Hoyt-I.W.C.	2307.3	3.363107
range light, Buffalo, New York,	78 54 38.230	75 59 03	255 57 38	Pleasant-I.W.C.	2928.0	3.466565
1941 n.d.		78 48 20	258 47 43	Strawberry-Sub	1255.4	3.098787
Strawberry Is. Upper Cut, front	42 57 12.106	13 56 39	193 56 24	Hoyt-I.W.C.	2072.2	3.316425
range light, Buffalo, New York,	78 54 38.498	80 36 24	260 34 58	Pleasant-I.W.C.	2873.2	3.458369
1941 n.d.		89 50 02	269 49 25	Strawberry-Sub	1225.4	3.088293
Dupont, water tank	42 57 55.406	18 03 00	198 02 35	Ref. Mon. 32-41	2704.5	3.432092
Buffalo, New York, 1941 n.d.	78 54 58.639	27 59 04	207 58 29	Nettle-Sub	2511.0	3.399839
		70 56 23	250 55 24	Island-I.W.C.	2061.9	3.314264
American Radiator, water tank	42 56 51.559	74 58 32	254 57 24	Ref. Mon. 32-41	2318.0	3.365108
Buffalo, New York, 1941 n.d.	78 53 56.857	84 32 04	264 30 46	Nettle-Sub	2590.7	3.413411
		90 32 41	270 31 14	Ref. Mon. 31-41	2892.7	3.461303

International boundary line Niagara River — Auxiliary Stations — *State* New York — *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
All Saints Church, spire	42 57 27.571	48 28 28	228 27 30	Ref. Mon. 32-41	2582.8	3.412084
Buffalo, New York, 1941 n.d.	78 54 10.315	59 09 01	239 07 53	Nettle-Sub	2648.5	3.423000
		67 16 18	247 15 00	Ref. Mon. 31-41	2805.3	3.447981
Hungarian Church, spire	42 56 52.295	71 45 12	251 44 15	Ref. Mon. 32-41	1992.0	3.299281
Buffalo, New York, 1941 n.d.	78 54 12.159	83 06 48	263 05 41	Nettle-Sub	2248.2	3.351833
		90 06 19	270 05 02	Ref. Mon. 31-41	2545.7	3.405802
Bridgeport, water tank	42 55 36.254	154 49 51	334 49 00	Island-I.W.C.	4000.4	3.602108
Fort Erie, Ontario, 1941 n.d.	78 55 09.558	169 59 27	349 59 11	Strawberry-Sub	2999.8	3.477099
		211 05 28	31 05 53	Hertel	1591.4	3.201780
St. Francis Xavier Church, cross	42 56 09.197	30 06 31	210 06 19	Fill-Sub	753.7	2.877189
Buffalo, New York, 1941 n.d.	78 54 03.126	49 43 19	229 42 51	Pier-I.W.C.	1229.3	3.089653
		86 55 52	266 55 13	Hoyt-I.W.C.	1303.2	3.115019
St. Johns Evangelical Church,spire	42 56 05.915	22 04 39	202 04 15	U.S.E. No. 43	2155.4	3.333526
Buffalo, New York, 1941 n.d.	78 54 00.253	38 10 15	218 09 44	Ref. Mon. 33, ecc.	1663.9	3.221136
		91 19 24	271 18 43	Hoyt-I.W.C.	1366.9	3.135737
Church of the Nativity, spire	42 54 46.076	109 38 59	289 38 20	U.S.E. No. 43	1387.0	3.142086
Buffalo, New York, 1941 n.d.	78 53 38.379	127 09 56	307 09 10	Ref. Mon. 33, ecc.	1912.9	3.281700
		67 27 20	247 26 42	Little-Sub	1383.9	3.141119
Church of the Assumption, east	42 56 19.207	80 49 07	260 47 57	Hoyt-I.W.C.	2371.2	3.374965
spire, Buffalo, New York,1941 n.d.	78 53 17.286	97 13 47	277 12 13	Ref. Mon. 32-41	3161.0	3.499827
		117 59 07	297 57 35	Strawberry-Sub	3472.4	3.540629
Church of the Assumption, west	42 56 18.940	80 57 03	260 55 53	Hoyt-I.W.C.	2353.2	3.371663
Spire, Buffalo, New York,1941 n.d.	78 53 18.030	97 25 01	277 23 27	Ref. Mon. 32-41	3145.3	3.497666
		118 14 11	298 12 39	Strawberry-Sub	3461.4	3.539251
Fort Erie, water tank	42 54 40.080	228 59 50	49 00 26	Plant	1593.7	3.202404
Fort Erie, Ontario, 1941 n.d.	78 55 10.243	273 40 05	93 40 46	Mole	1357.4	3.132718
		301 15 56	121 16 41	Fort Porter-I.W.C.	1776.9	3.249670
St. Pauls Anglican Church,spire	42 55 10.489	205 43 48	25 44 05	Fill-Sub	1287.3	3.109684
Fort Erie, Ontario, 1941 n.d.	78 54 44.444	260 09 15	80 09 33	Plant	626.8	2.797145
		323 06 49	143 07 12	Mole	1281.9	3.107848
Electric Light, tower	42 53 09.901	85 41 08	265 39 59	Breakwater-I.W.C.	2303.7	3.362424
Buffalo, New York, 1941 n.d.	78 52 25.342	116 30 05	296 28 17	Poplars-I.W.C.	4029.7	3.605272
		129 42 42	309 41 14	Little-Sub	3815.3	3.581531
Buffalo City Hall (new),tower	42 53 11.610	82 55 12	262 54 18	Breakwater-I.W.C.	1835.3	3.263708
New York, 1941; r. 1956 n.d.	78 52 46.311	118 41 10	298 39 37	Ref. Mon. 35, ecc.	3539.8	3.548982
		119 08 15	299 06 42	Poplars-I.W.C.	3584.1	3.554382
Ford Hotel, cupola	42 53 18.738	79 30 40	259 29 28	Breakwater-I.W.C.	2449.7	3.389118
Buffalo, New York, 1941 n.d.	78 52 20.423	111 50 03	291 48 12	Ref. Mon. 35, ecc.	3978.0	3.599669
		112 18 33	292 16 41	Poplars-I.W.C.	4018.7	3.604082

INTERNATIONAL BOUNDARY COMMISSION—UNITED STATES, ALASKA, AND CANADA
GEOGRAPHIC POSITIONS—NORTH AMERICAN DATUM 1927

International boundary line Niagara River Auxiliary Stations *State* New York *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
	° ′ ″	° ′ ″	° ′ ″			
Buffalo Lighthouse	42 52 39.977	127 12 38	307 12 09	Breakwater-I.W.C.	1239.8	3.093346
New York, 1941 n.d.	78 53 23.059	139 39 40	319 38 32	Ref. Mon. 35, ecc.	3509.4	3.545233
		161 47 35	341 47 08	Ref. Mon. 34-41	2903.5	3.462929
Buffalo Breakwater, north end	42 52 39.267	150 38 59	330 38 13	Poplars-I.W.C.	3146.5	3.497834
light, New York, 1941 n.d.	78 53 56.320	165 33 23	345 32 56	Little-Sub	3492.8	3.543178
		163 13 34	343 13 27	Breakwater-I.W.C.	805.9	2.906281
Buffalo Intake light (new)	42 52 46.334	170 22 18	350 22 05	Ref. Mon. 35, ecc.	2513.8	3.400339
New York, 1941 n.d.	78 54 44.657	199 55 59	19 56 27	Fort Porter-I.W.C.	2752.5	3.439735
		237 21 43	57 22 09	Breakwater-I.W.C.	1026.4	3.011321
Horseshoe Reef light	42 52 52.413	175 30 23	355 30 18	Ref. Mon. 35, ecc.	2297.9	3.361335
New York, 1941; r. 1945 n.d.	78 54 55.254	206 09 29	26 10 05	Fort Porter-I.W.C.	2674.0	3.427158
		251 40 09	71 40 42	Breakwater-I.W.C.	1163.9	3.065912
Buffalo North Breakwater, south	42 52 49.47	133 47 14	313 47 00	Breakwater-I.W.C.	659.9	2.819484
end light, New York, 1909;r.1941	78 53 45.58	143 39 32	323 38 39	Poplars-I.W.C.	3013.9	3.479134
n.d.		218 53 05	38 53 24	Buffalo south base-IWC	973.3	2.988232

International boundary line Niagara River Boundary Turning Points *State* New York *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
	° ′ ″	° ′ ″	° ′ ″			
Turning Point No. 109	43 15 44.436	153 13 56.3	333 08 34.3	Turning Point No. 108	23412.6	4.3694490
	79 04 14.210	275 07 14.2	95 07 38.5	Fort Niagara,lighthouse	802.3	2.904354
Turning Point No. 110	43 15 16.609	32 42 53.0	212 42 46.2	Ref. Mon. 1-41	412.3	2.615171
	79 03 22.202	126 12 05.5	306 12 01.9	Turning Point No. 109	1453.8	3.162511
Turning Point No. 111	43 14 55.316	133 42 26.4	313 42 16.5	Ref. Mon. 1-41	449.0	2.652242
	79 03 17.691	171 11 49.6	351 11 46.5	Turning Point No. 110	665.0	2.822793
Turning Point No. 112	43 14 20.523	184 48 25.1	4 48 27.8	Turning Point No. 111	1077.5	3.032419
	79 03 21.694	280 05 16.0	100 05 25.9	Ref. Mon. 2-41	332.4	2.521683
Turning Point No. 113	43 13 24.243	99 15 44.8	279 15 34.0	Ref. Mon. 3-41	360.7	2.557144
	79 03 11.820	172 41 25.5	352 41 18.7	Turning Point No. 112	1751.0	3.243296
Turning Point No. 114	43 12 36.932	191 03 29.1	11 03 37.8	Turning Point No. 113	1487.7	3.172504
	79 03 24.463	266 28 25.9	86 28 37.3	Ref. Mon. 4-41	375.0	2.574005
Turning Point No. 115	43 12 00.362	87 32 33.7	267 32 24.5	Ref. Mon. 5-41	303.6	2.482277
	79 02 56.155	150 28 51.2	330 28 31.8	Turning Point No. 114	1297.0	3.112924
Turning Point No. 116	43 11 02.411	190 21 12.1	10 21 22.0	Turning Point No. 115	1818.0	3.259583
	79 03 10.626	282 10 48.5	102 11 01.2	Ref. Mon. 6-41	427.3	2.630757
Turning Point No. 117	43 10 25.857	33 12 13.1	213 12 04.8	Ref. Mon. 7-41	498.8	2.697906
	79 03 12.759	182 26 42.2	2 26 43.7	Turning Point No. 116	1129.0	3.052710
Turning Point No. 118	43 10 03.220	121 43 23.8	301 43 10.0	Ref. Mon. 7-41	534.9	2.728241
	79 03 04.710	165 24 45.1	345 24 39.6	Turning Point No. 117	721.8	2.858437
North Tablet,Lewiston-Queenston	43 09 44.573	136 33 02.4	316 32 37.8	Ref. Mon. 7-41	1180.1	3.071916
Bridge 1927; r. 1941 d.m.	79 02 48.922	148 12 38.7	328 12 27.9	Turning Point No. 118	678.0	2.831248
		270 35 03.7	90 35 08.4	Ref. Mon. 8-41	156.2	2.193678
Turning Point No. 119	43 09 44.350	148 12 38.8	328 12 38.7	North Tablet,Lewiston-Queenston Bridge	8.10	0.908485
	79 02 48.733					
		148 12 38.8	328 12 27.9	Turning Point No. 118	685.1	2.835772
		268 00 18.3	88 00 22.9	Ref. Mon. 8-41	152.0	2.181889
South Tablet,Lewiston-Queenston	43 09 44.342	136 38 08.2	316 37 43.5	Ref. Mon. 7-41	1188.2	3.074897
Bridge 1927; r. 1941 d.m.	79 02 48.731	169 11 40.5	349 11 40.5	Turning Point No. 119	0.23	9.361728
		267 55 09.8	87 55 14.4	Ref. Mon. 8-41	152.0	2.181789
Turning Point No. 120	43 09 21.128	169 11 44.6	349 11 40.5	South Tablet,Lewiston-Queenston Bridge	729.3	2.862922
	79 02 42.679					
		169 11 44.6	349 11 40.5	Turning Point No. 119	729.6	2.863059
		317 59 59.0	138 00 05.3	Ref. Mon. 9-41	309.0	2.490002
Turning Point No. 121	43 09 06.564	172 28 08.4	352 28 06.6	Turning Point No. 120	453.3	2.656422
	79 02 40.049	303 28 13.3	123 28 23.3	Ref. Mon. 10-41	397.3	2.599143
Turning Point No. 122	43 08 57.194	158 36 26.9	338 36 23.5	Turning Point No. 121	310.6	2.492155
	79 02 35.036	252 12 17.6	72 12 24.2	Ref. Mon. 10-41	229.1	2.360072

International boundary line Niagara River Boundary Turning Points *State* New York *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Turning Point No. 123	43 08 36.989 79 02 33.146	176 04 56.5 247 10 26.7	356 04 55.2 67 10 32.3	Turning Point No. 122 Ref. Mon. 11-41	625.0 199.7	2.795862 2.300321
Turning Point No. 124	43 08 18.061 79 02 38.094	109 34 15.8 190 50 14.3	289 34 09.0 10 50 17.7	Ref. Mon. 12-41 Turning Point No. 123	237.6 594.7	2.375847 2.774317
Turning Point No. 125	43 08 06.333 79 02 59.037	232 35 43.5 349 54 16.8	52 35 57.8 169 54 18.3	Turning Point No. 124 Ref. Mon. 13-41	595.8 283.4	2.775126 2.452429
Turning Point No. 126	43 07 53.697 79 03 10.048	212 32 51.5 249 37 09.8	32 32 59.0 69 37 18.8	Turning Point No. 125 Ref. Mon. 13-41	462.6 318.5	2.665187 2.503095
Turning Point No. 127	43 07 45.524 79 03 15.717	92 46 00.4 206 55 50.4	272 45 51.0 26 55 54.3	Ref. Mon. 14-41 Turning Point No. 126	310.2 282.9	2.491653 2.451649
Turning Point No. 128	43 07 37.128 79 03 26.393	165 57 37.1 222 57 46.3	345 57 35.0 42 57 53.6	Ref. Mon. 14-41 Turning Point No. 127	282.5 354.1	2.451021 2.549078
Turning Point No. 129	43 07 35.109 79 03 34.752	199 41 43.9 251 44 55.7	19 41 47.5 71 45 01.4	Ref. Mon. 14-41 Turning Point No. 128	357.3 198.9	2.552997 2.298732
Turning Point No. 130	43 07 12.955 79 04 11.616	230 37 52.7 267 41 33.7	50 38 17.9 87 41 42.5	Turning Point No. 129 Ref. Mon. 15-41	1077.9 290.7	3.032574 2.463390
Turning Point No. 131	43 06 57.726 79 03 46.111	129 11 01.1 358 17 17.3	309 10 43.7 178 17 17.5	Turning Point No. 130 Ref. Mon. 16-41	743.9 213.4	2.871490 2.329247
Turning Point No. 132	43 06 49.715 79 03 37.262	99 55 24.6 141 01 04.1	279 55 18.7 321 00 58.1	Ref. Mon. 16-41 Turning Point No. 131	196.6 318.0	2.293656 2.502474
Turning Point No. 133	43 06 39.111 79 03 32.016	139 08 45.0 160 04 35.4 298 57 23.4	319 08 35.6 340 04 31.8 118 57 26.8	Ref. Mon. 16-41 Turning Point No. 132 Ref. Mon. 17-41	477.5 348.1 127.9	2.678932 2.541677 2.106723
C.N.Rwy. Bridge, North Tablet 1929; r. 1941 d.m.	43 06 33.340 79 03 30.847	147 51 44.4 171 33 29.3 216 19 48.9	327 51 34.2 351 33 28.5 36 19 51.5	Ref. Mon. 16-41 Turning Point No. 133 Ref. Mon. 17-41	636.8 180.0 144.2	2.804003 2.255366 2.159028
C.N.Rwy. Bridge, South Tablet 1929; r. 1941 d.m.	43 06 32.866 79 03 30.751	148 23 08.1 171 33 29.4 212 28 53.5	328 22 57.8 351 33 29.3 32 28 56.0	Ref. Mon. 16-41 C.N.Rwy.,North Tablet Ref. Mon. 17-41	650.4 14.78 155.1	2.813154 1.169624 2.190505
Michigan Central RR. Bridge, North Tablet 1929;r.1941 d.m.	43 06 30.854 79 03 30.343	150 23 02.3 171 33 29.6 201 00 04.3	330 22 51.8 351 33 29.4 21 00 06.6	Ref. Mon. 16-41 C.N.Rwy.,South Tablet Ref. Mon. 17-41	708.5 62.8 206.6	2.850346 1.797855 2.315205
Michigan Central RR. Bridge, South Tablet 1929;r.1941 d.m.	43 06 30.544 79 03 30.281	150 39 46.2 171 33 29.7 199 44 07.3	330 39 35.6 351 33 29.6 19 44 09.5	Ref. Mon. 16-41 Mich.Central RR.Bridge, North Tablet Ref. Mon. 17-41	717.5 9.67 215.1	2.855842 0.985314 2.332654
Turning Point No. 134	43 06 25.347 79 03 29.228	171 33 30.4 171 33 30.4 187 39 57.2	351 33 29.7 351 33 28.5 7 39 58.7	Mich.Central RR.Bridge, South Tablet Turning Point No. 133 Ref.Mon. 17-41	162.1 429.4 366.1	2.209841 2.632853 2.563610

INTERNATIONAL BOUNDARY COMMISSION—UNITED STATES, ALASKA, AND CANADA

GEOGRAPHIC POSITIONS—NORTH AMERICAN DATUM 1927

International boundary line Niagara River — Boundary Turning Points — *State* New York — *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
	° ′ ″	° ′ ″	° ′ ″			
Turning Point No. 135	43 05 28.630	113 41 05.9	293 41 00.5	Ref. Mon. 18-41	196.7	2.293728
	79 03 59.186	201 09 26.6	21 09 47.1	Turning Point No. 134	1876.8	3.273418
North Tablet, kainbow Bridge 1941 d.m.	43 05 24.608	11 19 49.0	191 19 46.1	Ref. Mon. 19-41	499.2	2.698301
	79 04 04.315	162 29 19.4	342 29 17.5	Ref. Mon. 18-41	213.0	2.328385
		223 03 45.7	43 03 49.2	Turning Point No. 135	169.9	2.230203
South Tablet, Rainbow Bridge 1941 d.m.	43 05 24.172	10 10 58.7	190 10 56.1	Ref. Mon. 19-41	483.7	2.684547
	79 04 04.872	166 37 09.4	346 37 07.8	Ref. Mon. 18-41	222.6	2.347577
		223 03 45.4	43 03 45.7	North Tablet, Rainbow Bridge	18.41	1.265089
Turning Point No. 136	43 05 18.544	223 03 40.5	43 03 45.4	South Tablet, Rainbow Bridge	237.7	2.376012
	79 04 12.047					
		223 03 40.5	43 03 49.2	Turning Point No. 135	426.0	2.629415
		345 45 02.7	165 45 05.0	Ref. Mon. 19-41	312.0	2.494137
Turning Point No. 137	43 04 53.628	39 58 17.2	219 58 09.8	Ref. Mon. 20-41	378.6	2.578130
	79 04 32.156	210 36 18.0	30 36 31.7	Turning Point No. 136	893.4	2.951028
		313 45 12.0	133 45 19.9	Ref. Mon. 21-41	365.4	2.562799
Turning Point No. 138	43 04 40.060	110 18 38.9	290 18 28.4	Ref. Mon. 20-41	370.4	2.568680
	79 04 27.550	166 01 33.9	346 01 30.8	Turning Point No. 137	431.4	2.634930
		223 54 34.4	43 54 39.2	Ref. Mon. 21-41	230.4	2.362422
Turning Point No. 139	43 03 57.103	103 44 23.0	283 41 39.1	Turning Point No. 138	5590.3	3.747437
	79 00 27.506	356 27 16.0	176 27 17.3	Ref. Mon. 22-41	702.9	2.846910
Turning Point No. 140	43 03 21.365	150 11 31.3	330 11 12.2	Turning Point No. 139	1271.0	3.104156
	78 59 59.582	282 14 00.8	102 14 08.1	Ref. Mon. 23-41	248.3	2.394946
Turning Point No. 141	43 02 49.876	115 40 34.2	295 40 23.1	Ref. Mon. 24-41	407.5	2.610105
	79 00 19.950	205 22 37.3	25 22 51.2	Turning Point No. 140	1075.5	3.031614
Turning Point No. 142	43 01 44.773	194 49 21.4	14 49 37.4	Turning Point No. 141	2078.2	3.317683
	79 00 43.440	313 56 45.9	133 56 49.6	Ref. Mon. 25-41	169.5	2.229068
Turning Point No. 143	43 00 58.433	85 29 19.0	265 28 59.2	Ref. Mon. 26-41	660.7	2.819976
	79 01 25.195	213 28 02.3	33 28 30.8	Turning Point No. 142	1714.2	3.234071
Turning Point No. 144	42 59 41.157	173 40 23.2	353 40 15.2	Turning Point No. 143	2399.3	3.380079
	79 01 13.519	250 09 00.2	70 09 06.4	Ref. Mon. 27-41	218.0	2.338512
Turning Point No. 145	42 59 06.836	43 36 38.0	223 36 15.9	Ref. Mon. 28-41	1064.8	3.027251
	79 00 42.854	146 44 26.2	326 44 05.3	Turning Point No. 144	1266.6	3.102644
Turning Point No. 146	42 58 07.407	121 32 21.5	301 30 51.6	Turning Point No. 145	3507.2	3.544956
	78 58 30.922	248 22 31.0	68 22 35.9	Ref. Mon. 29-41	173.8	2.240148
Turning Point No. 147	42 57 28.058	15 48 34.4	195 48 26.8	Ref. Mon. 30-41	922.7	2.965059
	78 57 43.179	138 17 58.6	318 17 26.1	Turning Point No. 146	1626.4	3.211234

International boundary line Niagara River Boundary Turning Points *State* New York *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
	′ ° ′ ″	° ′ ″	° ′ ″			
Turning Point No. 148	42 57 21.455	8 14 02.1	188 13 58.2	Ref. Mon. 31-41	905.0	2.956631
	78 55 58.734	94 55 45.8	274 54 34.6	Turning Point No. 147	2376.2	3.375880
Turning Point No. 149	42 56 49.278	47 28 26.1	227 28 08.7	Ref. Mon. 32-41	785.3	2.895059
	78 55 10.073	131 59 50.4	311 59 17.2	Turning Point No. 148	1484.2	3.171480
Turning Point No. 150	42 56 01.124	11 38 52.7	191 38 45.5	Ref. Mon. 33-41	1188.4	3.074980
	78 54 35.008	124 48 44.5	304 48 03.2	Ref. Mon. 32-41	1673.2	3.223557
		151 51 20.2	331 50 56.3	Turning Point No. 149	1685.3	3.226673
International Rwy.Bridge, center of swing span 1927 d.n.m.	42 55 45.981	165 47 56.1	345 47 52.5	Turning Point No. 150	482.0	2.683081
	78 54 29.793					
Turning Point No. 151	42 55 25.323	83 29 58.4	263 29 42.8	Ref. Mon. 33-41	522.9	2.718414
	78 54 22.680	165 48 00.9	345 47 52.5	Turning Point No. 150	1139.6	3.056748
		165 48 00.9	345 47 56.1	International Rwy. Bridge, center of swing span	657.6	2.817930
North Tablet, Peace Bridge 1927; r. 1941 d.m.	42 54 25.128	58 28 34.3	238 28 06.5	Ref. Mon. 35-41	1086.6	3.036089
	78 54 22.329	179 45 13.6	359 45 13.4	Turning Point No. 151	1857.6	3.268944
		318 02 48.1	138 03 01.3	Ref. Mon. 34-41	654.3	2.815791
South Tablet, Peace Bridge 1927; r. 1941 d.m.	42 54 24.639	59 09 38.7	239 09 10.9	Ref. Mon. 35-41	1078.9	3.032979
	78 54 22.326	179 45 13.6	359 45 13.6	North Tablet, Peace Bridge	15.08	1.178433
		317 09 09.9	137 09 23.1	Ref. Mon. 34-41	643.1	2.808305
Turning Point No. 152	42 54 00.828	101 03 34.8	281 03 06.9	Ref. Mon. 35-41	947.1	2.976394
	78 54 22.186	179 45 13.7	359 45 13.4	Turning Point No. 151	2607.4	3.416210
		179 45 13.7	359 45 13.6	South Tablet, Peace Bridge	734.8	2.866148
		238 46 29.1	58 46 42.2	Ref. Mon. 34-41	507.8	2.705662
Turning Point No. 153	42 52 52.413	176 17 09.0	356 17 04.5	Ref. Mon. 35-41	2297.6	3.361279
	78 54 56.597	200 17 36.3	20 17 59.7	Turning Point No. 152	2250.9	3.352364
		207 05 44.4	27 06 20.9	Ref. Mon. 34-41	2667.2	3.426061
		269 59 59.1	90 00 00.0	Horseshoe Reef light-41	30.5	1.484016

INTERNATIONAL BOUNDARY COMMISSION—UNITED STATES, ALASKA, AND CANADA
GEOGRAPHIC POSITIONS—NORTH AMERICAN DATUM 1927

International boundary line LAKE ERIE Traverse Stations *State* Pennsylvania *Province*

STATION		LATITUDE AND LONGITUDE			AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE (METERS)	LOGARITHM
		°	′	″	°	′	″	°	′	″			
Erie Standpipe-U.S.L.S. Penna. 1876; r. 1912	n.d.	42 80	07 05	53.233 50.049	43 247	31 47	10.0 41.2	223 68	27 06	34.9 43.3	Erie-U.S.L.S. Westfield	10712.9 42081.4	4.0299066 4.6240907
Soldier Penna. 1912	n.d.	42 80	08 04	42.193 34.734	48	52	24.4	228	51	33.9	Erie Standpipe-USLS	2296.4	3.361045
Island Penna. 1912	n.d.	42 80	09 05	13.755 35.045	7 305	53 06	48.7 38.1	187 125	53 07	38.6 18.5	Erie Standpipe-USLS Soldier	2508.2 1692.9	3.399362 3.228634
West Base Penna. 1912	n.d.	42 80	09 04	06.348 52.835	103 330	16 51	25.4 04.9	283 150	15 51	57.1 17.0	Island Soldier	995.7 853.3	2.998131 2.931115
East Base Penna. 1912	n.d.	42 80	09 04	18.020 23.363	13 61	17 58	24.4 44.0	193 241	17 58	16.8 24.3	Soldier West Base	1135.8 766.5	3.055314 2.884528
Perry Penna. 1912	n.d.	42 80	08 03	34.810 57.998	105 156	06 24	49.5 15.6	285 336	06 23	24.9 58.6	Soldier East Base	873.8 1454.8	2.941397 3.162818
Camp Penna. 1912	n.d.	42 80	09 02	10.086 38.378	59 95	14 48	24.9 31.3	239 275	13 47	31.4 20.8	Perry East Base	2127.6 2422.8	3.327900 3.384313
Fog Penna. 1912	n.d.	42 80	10 05	20.283 08.132	302 333	11 40	53.2 07.5	122 153	13 40	33.8 54.6	Camp Perry	4063.2 3630.8	3.608863 3.560004
Surf Penna. 1912	n.d.	42 80	10 05	18.372 51.180	266	34	50.4	86	35	19.2	Fog	989.8	2.995558
Wave Penna. 1912	n.d.	42 80	10 06	11.003 28.655	255	11	24.1	75	11	49.2	Surf	889.7	2.949252
Wind Penna. 1912	n.d.	42 80	10 06	04.478 43.500	239	25	19.1	59	25	29.1	Wave	395.8	2.597444
Pier Penna. 1912	n.d.	42 80	10 06	00.783 55.441	247	25	01.1	67	25	09.1	Wind	296.9	2.472563
Presque Isle light, 1873 Penna. 1912; r. 1945	d.	42 80	09 06	56.376 55.707	182	34	23.9	2	34	24.1	Pier	136.1	2.133864

INTERNATIONAL BOUNDARY COMMISSION—UNITED STATES, ALASKA, AND CANADA
GEOGRAPHIC POSITIONS—NORTH AMERICAN DATUM 1927

International boundary line LAKE ERIE Reference Lights *State* Penn., Ohio *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
	° ′ ″	° ′ ″	° ′ ″			
Presque Isle light, 1873 d. Penn. 1912; r. 1945	42 09 56.376 80 06 55.707	182 34 23.9	2 34 24.1	Pier	136.1	2.133864
Long Point light(old)-USLS 1. Ontario	42 33 00.292 80 03 20.560	103 31 38.6 310 44 45.4	283 28 50.6 131 02 11.2	Long Point-USLS Westfield-USLS	5828.0 46904.0	3.7655174 4.6712096
Long Point light(new)-1916 d. Ontario 1921; r. 1945 G.S.C.	42 32 55.018 80 02 58.875	313 58 03.4 334 59 42.6	133 48 13.0 154 53 39.1	Fisher's Glen Port Dover	27555.6 28845.6	4.4402106 4.4600799
Fairport light(old,on bank) d. (U.S.L.S.) Ohio 1910; r.1945	41 45 24.683 81 16 39.016	291 34 06.9 358 51 31.5	111 43 27.4 178 51 38.9	Thompson-USLS Little Mountain-USLS	20945.3 12911.9	4.3210871 4.1109900
Fairport light(new,on pier) d. (U.S.L.S.) Ohio 1910; r. 1945	41 45 41.477 81 16 48.087	292 39 14.9 358 00 27.5	112 48 41.4 178 00 40.9	Thompson-USLS Little Mountain-USLS	21334.5 13435.6	4.3290826 4.1282560
Pelee Passage Lighthouse d. U.S.L.S. Ontario 1910; r.1945	41 51 08.226 82 34 59.355	63 08 07.1 120 58 04.5 146 22 16.5	243 04 05.3 300 43 55.5 326 16 01.9	Point Pelee-USLS Colchester-USLS Mettawas-USLS	9379.7 34095.8 23283.6	3.972188 4.532701 4.367050
Perry's Monument, light d. U.S.C.&G.S. Ohio 1928; r.1946	41 39 14.630 82 48 41.039	202 03 45.5 299 28 46.9 79 36 16.1	22 04 40.3 119 33 23.6 259 24 33.1	Middle Bass 2-USC&GS Kelly's Island-USC&GS Sand-U.S.C.&G.S.	5073.6 11077.1 24908.4	3.705315 4.044427 4.396345
Middle Island light-USLS d. Ontario 1910; r. 1945	41 41 00.168 82 40 47.331	8 39 20 99 21 48	188 38 42 279 17 30	Kelly's Island-USLS Middle Bass Island-USLS	8814.0 9072.5	3.945172 3.957727
Colchester Reef Light-USLS d. Ontario 1910; r. 1945	41 55 56.403 82 53 31.458	44 17 47.3 230 24 19.7 307 09 34.4	224 13 23.0 50 30 28.6 127 17 54.7	Middle Sister-USLS Mettawas-U.S.L.S. Point Pelee-USLS	13070.4 16467.4 21709.8	4.116289 4.216626 4.336655
Toledo Harbor, light-USC&GS d. 1904 = Maumee Bay, Harbor Lighthouse, light Ohio 1943; r. 1945	41 45 42.683 83 19 44.475	54 31 05.3 70 43 02.0 105 04 43.6	234 22 50.9 250 32 43.8 284 53 09.8	Bank(City of Toledo) U.S.C.&G.S. Mountain-USC&GS Bedford 2-USC&GS	21115.5 22752.3 24882.2	4.324602 4.357025 4.395889

International boundary line LAKE ERIE Boundary Turning Points *State* N.Y., Penna., Ohio *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
	° ′ ″	° ′ ″	° ′ ″			
Turning Point No. 154	42 52 42.905	190 04 12.6	10 04 14.2	Turning Point No. 153	298.0	2.4742019
	78 54 58.893	195 43 14.2	15 43 16.7	Horseshoe Reef light-41	304.8	2.4840165
Turning Point No. 155	42 49 41.637	195 42 27.1	15 43 14.2	Turning Point No. 154	5810.7	3.7642305
	78 56 08.207	195 42 27.1	15 43 16.7	Horseshoe Reef light-41	6115.5	3.7864340
Turning Point No. 156	42 23 36.592	6 35 03.3	186 33 37.7	Presque Isle light	25475.0	4.4061141
	80 04 48.455	186 34 36.3	6 35 35.6	Long Point light (old)	17508.9	4.2432599
		188 15 20.9	8 16 34.9	Long Point light (new)	17411.6	4.2408383
		242 24 01.8	63 10 31.4	Turning Point No.155	105601.6	5.0236703
Turning Point No. 157	42 12 27.080	3 00 38.2	182 59 22.0	Fairport light (old on bank)	50124.8	4.7000524
	81 14 45.062	3 17 00.5	183 15 38.2	Fairport light (new on pier)	49618.8	4.6956466
		257 28 47.4	78 15 51.9	Turning Point No. 156	98321.8	4.9926497
Turning Point No. 158	41 40 35.469	85 59 55.4	265 43 25.0	Perry's Mon. light	34555.3	4.5385153
	82 23 51.290	141 44 11.8	321 36 46.8	Pelee Passage light	24885.2	4.3959415
		237 55 13.3	58 41 24.6	Turning Point No. 157	112252.0	5.0501934
Turning Point No. 159	41 40 35.469	77 13 23.7	257 08 08.8	Perry's Mon. light	11239.4	4.0507433
	82 40 47.331	180 00 00.0	0 00 00.0	Middle Island light	762.0	2.8819558
		269 54 22.2	90 05 37.8	Turning Point No. 158	23502.0	4.3711039
Turning Point No. 160	41 51 48.734	62 28 23.3	242 17 59.7	Toledo Harbor light	24365.4	4.3867741
	83 04 09.114	242 28 23.3	62 35 29.1	Colchester Reef light	16566.4	4.2192291
		302 33 07.5	122 48 41.3	Turning Point No. 159	38467.6	4.5850956
		317 15 09.7	137 25 27.8	Perry's Mon. light	31637.8	4.5002067

International boundary line Detroit River Triangulation *State* Michigan *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Detroit River Lighthouse(U.S.L.S.)	42 00 02.940	52 59 42.5	232 54 46.9	Stony Point (U.S.L.S.)	12757.6	4.105768
Michigan, 1925, r. 1942;1956 d.	83 08 28.479	113 20 33.5	293 18 56.0	Pte. Mouillee(USLS)1910	3651.3	3.562452
		198 56 03.4	18 57 03.5	Bar Point (USLS) 1910	6358.9	3.803384
		325 42 17.3	145 47 52.4	Middle Sister (USLS)	20526.4	4.312313
Quick (U.S.L.S.) 1925	42 03 07.440	266 46 19.9	86 49 07.5	Bar Point (USLS) 1910	5762.2	3.760588
Michigan, r. 1942 1.1956 d.m.	83 11 08.935	327 01 23.4	147 03 10.9	Detroit River Lighthouse	6784.5	3.831520
Celeron (U.S.L.S.) 1925	42 04 21.677	31 41 16.5	211 40 35.3	Quick (USLS)	2691.6	3.430009
Michigan d.m.	83 10 07.452	294 23 07.5	114 25 13.9	Bar Point (USLS) 1910	4764.3	3.677997
		344 04 26.2	164 05 32.5	Detroit River Lighthouse	8301.2	3.919140
Sugar Island (U.S.L.S.) 1873	42 05 25.359	47 20 00.6	227 18 58.5	Celeron (USLS)	2898.7	3.462198
Michigan, r. 1942;1956 d.m.	83 08 34.735	330 41 51.3	150 42 55.6	Bar Point (USLS) 1910	4509.9	3.654168
Dancehall (U.S.L.S.) 1925	42 05 44.309	57 32 19.0	237 30 22.3	Celeron (USLS)	4748.0	3.676508
Canada, r. 1942;1956 d.m.	83 07 13.186	72 40 50.7	252 39 56.1	Sugar Island (USLS)	1963.2	3.292962
		355 47 48.8	175 47 58.5	Bar Point (USLS) 1910	4530.1	3.656104
Fox Island (U.S.L.S.) 1925	42 06 22.385	4 42 31.9	184 42 27.7	Sugar Island (USLS)	1765.4	3.246850
Michigan, 1. 1942	83 08 28.429	304 11 17.6	124 12 08.0	Dancehall (USLS)	2090.3	3.320214
Dingle (U.S.L.S.) 1925	42 07 00.340	27 36 32.1	207 35 47.5	Sugar Island (USLS)	3306.9	3.519422
Canada, 1. 1942	83 07 28.051	49 50 02.9	229 49 22.4	Fox Island (USLS)	1815.4	3.258963
		351 42 52.0	171 43 02.0	Dancehall (USLS)	2370.6	3.374854
Stony (U.S.L.S.) 1925	42 07 33.676	8 05 59.6	188 05 50.5	Fox Island (USLS)	2221.7	3.346693
Michigan, r. 1942;1956 d.m.	83 08 14.804	313 45 27.9	133 45 59.3	Dingle (USLS)	1487.0	3.172322
		337 14 03.7	157 14 45.1	Dancehall	3659.3	3.563399
New Clark (U.S.L.S.) 1925	42 08 19.368	4 32 10.1	184 31 59.1	Dancehall (USLS)	4799.2	3.681167
Canada, 1. 1942	83 06 56.668	16 28 17.7	196 27 56.7	Dingle (USLS)	2542.6	3.405283
		30 17 32.7	210 16 31.2	Fox Island (USLS)	4179.7	3.621149
		51 51 15.3	231 50 22.9	Stony (USLS)	2282.1	3.358329
Boucher (U.S.L.S.) 1925	42 08 29.947	0 20 13.3	180 20 13.0	Stony (USLS)	1736.2	3.239606
Michigan, 1. 1942	83 08 14.359	280 21 38.8	100 22 30.9	New Clark (USLS)	1813.7	3.258570
		338 57 12.6	158 57 43.7	Dingle (USLS)	2962.3	3.471624
Canard (U.S.L.S.) 1925	42 09 04.294	8 00 08.2	188 00 02.5	New Clark (USLS)	1399.8	3.146062
Canada, r. 1942 1.1956 d.m.	83 06 48.182	35 26 19.7	215 25 21.6	Stony (USLS)	3431.4	3.535468
		61 50 11.3	241 49 13.5	Boucher (USLS)	2244.7	3.351155
Stoneheap (U.S.L.S.) 1925	42 09 19.180	1 44 32.4	181 44 29.5	Stony (USLS)	3256.7	3.512784
Michigan d.m.	83 08 10.493	3 20 41.6	183 20 39.0	Boucher (USLS)	1521.6	3.182311
		283 39 10.2	103 40 05.4	Canard (USLS)	1944.8	3.288877
Turkey Island (U.S.L.S.) 1873	42 11 09.312	28 31 09.4	208 30 15.3	Stoneheap (USLS)	3867.0	3.587379
Canada, r. 1942 d.m.	83 06 50.073	359 21 19.4	179 21 20.5	Canard (USLS)	3857.6	3.586316
North Grosse (U.S.L.S.) 1925	42 11 07.813	268 51 18.0	88 52 26.3	Turkey Island (USLS)	2333.6	3.368027
Michigan, r. 1942;1956 d.m.	83 08 31.745	328 02 11.4	148 03 20.8	Canard (USLS)	4491.7	3.652411
		351 43 03.0	171 43 17.2	Stoneheap (USLS)	3387.1	3.529829

International boundary line Detroit River Triangulation *State* Michigan *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Hennepin (U.S.L.S.) 1924	42 12 00.211	2 25 08.9	182 25 06.9	North Grosse (USLS)	1618.1	3.209015
Michigan, r. 1942;1956 d.m.	83 08 28.769	304 43 53.0	124 44 59.3	Turkey Island (USLS)	2755.8	3.440254
Nellis (U.S.L.S.) 1924	42 12 27.796	35 50 03.5	215 49 11.3	North Grosse (USLS)	3043.7	3.483405
Canada, 1. 1942	83 07 14.094	63 35 16.2	243 34 26.0	Hennepin (USLS)	1912.9	3.281694
		347 10 34.1	167 10 50.2	Turkey Island (USLS)	2483.5	3.395063
Grassy (U.S.L.S.) 1924	42 13 29.099	3 11 19.8	183 11 15.3	Hennepin (USLS)	2746.8	3.438833
Michigan, r. 1942 d.m.	83 08 22.109	320 28 43.2	140 29 28.9	Nellis (USLS)	2451.8	3.389487
Ref. Mon. 5-42	42 14 12.529	17 42 22.8	197 41 44.6	Hennepin (USLS)	4285.5	3.631999
Canada, 1925; r. 1942 d.m.	83 07 31.958	40 38 30.6	220 37 56.9	Grassy (USLS)	1765.8	3.246949
		352 46 21.0	172 46 33.0	Nellis (USLS)	3257.3	3.512863
Ecorse School (U.S.L.S.) 1924	42 15 04.337	317 37 13.3	137 37 56.0	Ref. Mon. 5-42	2163.8	3.335217
Michigan, 1. 1942	83 08 35.566	354 00 15.5	174 00 24.5	Grassy (USLS)	2954.7	3.470512
Whampas (U.S.L.S.) 1923	42 15 23.674	35 39 09.7	215 38 23.5	Ref. Mon. 5-42	2701.3	3.431577
Canada, 1. 1942 d.m.	83 06 23.289	78 52 49.9	258 51 21.0	Ecorse School (USLS)	3090.3	3.490006
Rouge School (U.S.L.S.) 1923	42 16 23.110	13 54 19.1	193 54 01.5	Ecorse School (USLS)	2503.9	3.398612
Michigan, r. 1942;1956 d.m.	83 08 09.317	307 01 49.7	127 03 01.0	Whampas (USLS)	3044.4	3.483502
		347 59 48.4	168 00 13.5	Ref. Mon. 5-42	4119.1	3.614798
Ojibway (U.S.L.S.) 1923	42 16 16.562	14 32 52.7	194 32 40.3	Whampas (USLS)	1685.9	3.226828
Canada, r. 1942;1956 d.m.	83 06 04.814	94 03 43.2	274 02 19.5	Rouge School (USLS)	2860.3	3.456414
Sulphite (U.S.L.S.) 1923	42 16 58.667	49 02 31.2	229 01 54.1	Rouge School (USLS)	1673.5	3.223632
Michigan d.m.	83 07 14.167	309 15 32.7	129 16 19.3	Ojibway (USLS)	2052.6	3.312314
		338 18 06.6	158 18 40.8	Whampas (USLS)	3154.4	3.498918
Cansalt (U.S.L.S.) 1923	42 17 18.605	21 56 46.3	201 56 23.7	Ojibway (USLS)	2063.9	3.314680
Canada, 1. 1942	83 05 31.156	75 24 00.3	255 22 51.1	Sulphite (USLS)	2439.0	3.387213
Process (U.S.L.S.) 1923	42 17 21.681	276 30 30.5	96 30 54.9	Cansalt (USLS)	836.8	2.922646
Michigan, r. 1942;1956 d.m.	83 06 07.447	358 16 47.3	178 16 49.1	Ojibway (USLS)	2010.2	3.303230
Eless (U.S.L.S.) 1923	42 17 54.335	36 35 15.2	216 34 53.2	Process (USLS)	1254.7	3.098555
Michigan, 1. 1942	83 05 34.803	355 39 57.3	175 39 59.7	Cansalt (USLS)	1105.6	3.043598
Brock (U.S.L.S.) 1923	42 17 58.267	43 51 47.6	223 51 13.0	Cansalt (USLS)	1697.2	3.229726
Canada, r. 1942;1956 d.m.	83 04 39.824	60 39 21.9	240 38 22.9	Process (USLS)	2302.9	3.362284
		84 30 10.2	264 29 33.2	Eless (USLS)	1265.2	3.102163
Newvard (U.S.L.S.) 1922	42 18 39.064	36 05 43.1	216 05 13.5	Eless (USLS)	1707.9	3.232461
Michigan, 1.1942	83 04 50.879	348 37 34.6	168 37 42.0	Brock (USLS)	1284.0	3.108568
Cruise (U.S.L.S.) 1923	42 18 48.930	40 20 36.4	220 19 57.4	Brock (USLS)	2050.8	3.311928
Canada, 1. 1942	83 03 41.866	79 06 16.4	259 05 30.0	Newvard (USLS)	1609.6	3.206713
Wall, (U.S.L.S.) 1919	42 19 22.324	17 01 09.5	197 01 00.2	Cruise (USLS)	1077.6	3.032443
Michigan, r. 1942 d.	83 03 28.095	54 51 32.6	234 50 36.9	Newvard (USLS)	2318.6	3.365218
Princed (U.S.L.S.) 1923	42 19 00.620	79 30 54.0	259 29 56.8	Cruise (USLS)	1980.6	3.296792
Canada, r. 1942;1956 d.m.	83 02 16.828	112 19 04.7	292 18 16.7	Wall (USLS)	1764.0	3.246502
		151 52 12.5	331 51 49.2	Penobscot (C&GS)	1685.1	3.226629

International boundary line Detroit River Triangulation *State* Michigan *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Siegel (U.S.L.S.) 1923	42 19 39.156	42 35 54.9	222 35 13.0	Cruise (USLS)	2105.1	3.323268
Michigan, r. 1942 d.m.	83 02 39.651	64 54 56.3	244 54 23.7	Wall (USLS)	1224.8	3.088064
		336 16 17.6	156 16 33.0	Princed (USLS)	1298.8	3.113545
Ref. Mon. 9-42	42 18 52.466	194 13 03.4	14 13 10.3	Wall (USLS)	950.4	2.977899
Canada; 1911; r. 1942;1956 d.m.	83 03 38.289	222 58 50.0	42 59 29.5	Siegel (USLS)	1969.3	3.294321
Union (U.S.L.S.) 1919	42 19 00.492	238 46 27.5	58 47 00.2	Wall (USLS)	1299.6	3.113802
Michigan d.m.	83 04 16.628	285 44 52.1	105 45 17.9	Ref. Mon. 9-42	912.2	2.960113
Sandwich east base (U.S.L.S.)	42 18 46.036	126 30 28.8	306 30 11.1	Union (USLS)	749.8	2.874928
Canada, 1922; r. 1942;1956 d.m.	83 03 50.312	204 26 03.4	24 26 18.4	Wall (USLS)	1229.8	3.089844
		234 13 28.7	54 13 36.8	Ref. Mon. 9-42	339.4	2.530671
Sandwich west base (U.S.L.S.)	42 18 32.514	183 02 56.7	3 02 58.1	Union (USLS)	864.5	2.936761
Canada, 1922 d.m.	83 04 18.636	237 14 55.4	57 15 14.5	Sandwich east base (USLS)	771.3	2.887214
Sandwich middle base (U.S.L.S.)	42 18 38.662	55 11 44.5	235 11 36.5	Sandwich west base (USLS)	332.3	2.521571
Canada, 1922; r. 1942;1956 d.m.	83 04 06.722					
		161 23 11.2	341 23 04.6	Union (USLS)	710.8	2.851721
		238 48 19.8	58 48 30.9	Sandwich east base (USLS)	439.3	2.642789
Glengwo (U.S.L.S.) 1923	42 19 49.902	20 39 30.1	200 39 13.2	Princed (USLS)	1625.1	3.210869
Michigan, r. 1942 d.m.	83 01 51.793	73 10 08.8	253 09 36.5	Siegel (USLS)	1144.8	3.058733
		88 33 27.6	268 32 47.4	Penobscot (C&GS)	1368.1	3.136120
Peabody (U.S.L.S.) 1923	42 19 30.850	64 06 25.2	244 05 28.7	Princed (USLS)	2135.3	3.329458
Canada, r. 1942;1956 d.m.	83 00 52.945	101 31 45.3	281 30 25.5	Penobscot (C&GS)	2770.9	3.442624
		113 34 37.3	293 33 57.7	Glengwo (USLS)	1470.0	3.167331
		215 02 13.6	35 03 16.8	Whittier (C&GS)	3736.6	3.572480
Buhl (U.S.L.S.) 1923	42 20 15.270	9 24 31.7	189 24 25.0	Peabody (USLS)	1389.3	3.142788
Michigan, r. 1942;1956 d.m.	83 00 43.026	63 34 15.5	243 33 29.2	Glengwo (USLS)	1758.2	3.245064
		74 29 10.7	254 27 44.2	Penobscot (C&GS)	3053.4	3.484777
Ford Tank, 1942	42 19 36.134	79 35 17.7	259 34 51.6	Peabody (USLS)	901.8	2.955130
Canada r. 1956 d.	83 00 14.207	96 11 53.6	276 10 07.7	Penobscot (C&GS)	3623.1	3.559082
		151 21 02.0	331 20 42.6	Buhl (USLS)	1376.1	3.138635
		203 29 18.3	23 29 55.4	Whittier (C&GS)	3157.9	3.499397
Pillette, 1942	42 19 43.604	83 12 12.2	263 11 15.4	Ford Tank	1945.2	3.288971
Canada d.m.	82 58 49.847	91 40 35.7	271 37 53.0	Penobscot (C&GS)	5535.7	3.743176
		110 40 15.9	290 38 59.7	Buhl (USLS)	2769.2	3.442362
		165 50 53.0	345 50 33.3	Whittier (C&GS)	2749.1	3.439192
Windmill Point Lighthouse 1942	42 21 27.226	52 30 40.4	232 28 37.8	Pillette	5251.3	3.720270
Michigan r.1956 d.	82 55 47.859	72 38 55.8	252 34 10.5	Penobscot (C&GS)	10162.5	4.007002
		295 42 53.7	115 49 02.0	Puce	13912.8	4.143413
		325 07 50.8	145 09 36.1	Tecumseh,Cath.Ch.cross	6263.3	3.796806
		83 44 53.8	263 42 31.5	Whittier (comp.)	4866.3	3.687198

International boundary line Detroit River Triangulation *State* Michigan *Province* Ontario

STATION		LATITUDE AND LONGITUDE			AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE (METERS)	LOGARITHM
		°	′	″	°	′	″	°	′	″			
Ref. Mon. 13-42, 1911		42	20	47.970	60	00	45.6	239	59	04.4	Pillette	3971.9	3.598994
Canada, r. 1942	d.m.	82	56	19.594	99	24	12.7	279	22	11.8	Whittier (C&GS)	4167.0	3.619824
					210	56	51.0	30	57	12.4	Windmill Pt.,lighthouse	1412.3	3.149932
Campbell (U.S.L.S.), 1923		42	20	48.458	89	05	21.9	269	04	54.1	Ref. Mon. 13-42	943.7	2.974855
Canada	d.m.	82	55	38.369	109	46	04.4	289	44	52.3	Edison (USLS)	2601.3	3.415193
IT A (U.S.L.S.), 1923		42	21	25.060	19	17	37.1	199	17	25.3	Ref. Mon. 13-42	1212.5	3.083679
Michigan	p.l.	82	56	02.092	82	31	55.5	262	30	59.4	Edison (USLS)	1921.4	3.283613
					334	19	14.4	154	19	30.4	Campbell (USLS)	1253.1	3.097982
Quick, 1942		42	03	04.090	215	57	58.9	35	58	01.0	Quick (USLS)	127.70	2.106200
Michigan	d.m.	83	11	12.197	326	00	33.8	146	02	23.4	Detroit River lighthouse (USLS)	6739.7	3.828641
Knud, 1942		42	07	13.348	211	28	38.7	31	28	49.8	Stony (USLS)	735.4	2.866546
Michigan r. 1956	d.m.	83	08	31.523	326	45	39.8	146	46	32.3	Dancehall (USLS)	3284.3	3.516439
Sugardike, 1942		42	05	24.674	91	33	06.6	271	32	43.8	Sugar Island (USLS)	782.8	2.893637
Michigan 1. 1956	d.m.	83	08	00.688	168	04	17.5	348	03	56.8	Knud	3427.0	3.534919
					175	20	33.3	355	20	23.7	Stony (USLS)	3993.4	3.601343
					240	57	59.3	60	58	31.1	Dancehall (USLS)	1248.5	3.096386
Dingle, 1942		42	07	03.390	13	11	52.8	193	11	32.0	Sugardike	3128.4	3.495316
Michigan	d.m.	83	07	29.609	102	11	44.2	282	11	02.7	Knud	1455.1	3.162891
					131	59	38.8	311	59	08.4	Stony (USLS)	1396.8	3.145130
Dump, 1942		42	07	08.344	24	13	45.4	204	13	43.4	Dingle	167.6	2.224307
Michigan	d.m.	83	07	26.614	26	13	51.9	206	13	06.3	Sugar Island (USLS)	3542.0	3.549253
					95	55	04.4	275	54	20.9	Knud	1499.0	3.175810
					125	13	47.5	305	13	15.1	Stony (USLS)	1355.1	3.131965
Deduce, 1942		42	06	11.324	14	09	55.8	194	09	45.2	Sugardike	1484.5	3.171570
Canada r. 1956	d.m.	83	07	44.880	38	56	13.5	218	55	40.1	Sugar Island (USLS)	1823.1	3.260816
					150	45	24.7	330	44	53.4	Knud	2193.3	3.341092
Delay, 1942		42	06	55.969	14	14	05.5	194	13	55.3	Deduce	1421.1	3.152622
Canada r. 1956	d.m.	83	07	29.672	110	40	52.3	290	40	10.8	Knud	1518.7	3.181460
					180	21	53.2	0	21	53.2	Dingle 1942	229.0	2.359756
Turkey, 1942		42	11	04.630	92	22	41.9	272	21	32.4	North Grosse (USLS)	2376.1	3.375859
Canada	d.m.	83	06	48.292	126	39	09.3	306	38	01.8	Hennepin (USLS)	2873.3	3.458387
					164	12	04.0	344	12	02.8	Turkey Island (USLS)	150.12	2.176449
Nellis, 1942		42	12	27.985	37	34	21.7	217	33	26.0	North Grosse (USLS)	3120.6	3.494245
Canada	d.	83	07	08.823	64	57	49.5	244	56	55.8	Hennepin (USLS)	2024.4	3.306288
					349	37	06.6	169	37	20.4	Turkey, 1942	2614.6	3.417407
Euclid, 1942		42	16	58.372	22	41	13.8	202	40	58.0	Ojibway (USLS)	1398.2	3.145564
Canada	d.m.	83	05	41.282	140	11	28.6	320	11	11.0	Process (USLS)	936.3	2.971418
Whampas, 1923		42	15	23.672	127	02	59.9	307	01	48.6	Rouge School (USLS)	3044.5	3.483521
Canada r. 1942 1. 1956	d.m.	83	06	23.284	194	32	25.8	14	32	38.2	Ojibway (USLS)	1685.9	3.226838

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STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Oakwood (U.S.L.S.) 1923	42 17 24.313	288 08 45.7	108 09 56.6	Sulphite (USLS)	2539.4	3.404739
Michigan r. 1942;1956 d.m.	83 08 59.487	328 39 54.3	148 40 28.1	Rouge School (USLS)	2210.8	3.344546
Trinitatis (U.S.L.S.) 1923	42 17 44.580	10 43 01.6	190 42 47.6	Rouge School (USLS)	2558.3	3.407959
Michigan r. 1942;1956 d.m.	83 07 48.556	68 57 30.9	248 56 43.1	Oakwood (USLS)	1741.1	3.240824
		330 54 55.5	150 55 18.6	Sulphite (USLS)	1621.0	3.209776
Ref.Mon. 48,Detroit Harbor Line	42 18 39.062	36 05 59.4	216 05 29.8	Eless (USLS)	1707.9	3.232458
Michigan 1930;r. 1942 d.m.	83 04 50.874	348 37 48.2	168 37 55.6	Brock (USLS)	1283.9	3.108533
Scotten 1942	42 18 27.614	220 36 35.6	40 36 44.5	Ref.Mon.48 (D.H.L.)	465.3	2.667728
Michigan d.m.	83 05 04.098	328 26 47.9	148 27 04.2	Brock (USLS)	1062.6	3.026353
Gas 1942	42 18 50.822	4 54 08.2	184 54 04.1	Brock (USLS)	1627.5	3.211526
Michigan d.m.	83 04 33.752	44 08 46.5	224 08 26.1	Scotten	997.9	2.999082
		47 13 14.8	227 13 03.3	Ref.Mon.48 (D.H.L.)	534.2	2.727743
Walkerin (U.S.L.S.) 1923	42 19 26.230	51 59 10.0	231 58 40.3	Princed (USLS)	1283.0	3.108223
Canada r. 1942 d.m.	83 01 32.688	104 35 12.6	284 34 27.5	Siegel (USLS)	1584.3	3.199828
		149 05 03.0	329 04 50.2	Glengwo (USLS)	851.4	2.930113
		216 55 04.9	36 55 38.4	Buhl (USLS)	1892.7	3.277082
Scott 1942	42 20 05.556	21 31 22.7	201 31 12.2	Ford Tank	975.8	2.989382
Michigan r. 1956 d.	82 59 58.571	49 18 13.6	229 17 37.0	Peabody (USLS)	1642.1	3.215403
		106 24 53.8	286 24 23.9	Buhl (USLS)	1060.9	3.025692
		293 17 05.2	113 17 51.5	Pillette	1713.0	3.233762
Jimscott (U.S.L.S.) 1923	42 20 05.628	277 49 23.2	97 49 23.7	Scott	16.286	1.211801
Michigan r. 1942;1956 d.	82 59 59.276					
Monia (U.S.L.S.) 1923	42 20 28.712	23 10 07.2	203 09 44.7	Peabody (USLS)	1941.9	3.288229
Michigan r. 1942; 1956 d.m.	83 00 19.577	52 18 38.3	232 18 22.5	Buhl (USLS)	678.4	2.831454
		355 39 55.6	175 39 59.2	Ford Tank	1627.0	3.211375
Latimer (U.S.L.S.) 1919	42 19 38.486	160 58 35	340 58 28	Ref.Mon. 11-42	722.4	2.858764
Canada r. 1942;1956 d.m.	82 59 10.666	236 44 28	56 45 31	Ref.Mon. 12-42	2565.9	3.409239
View (U.S.L.S.) 1919	42 20 28.671	231 35 45.9	51 36 08.0	Ref.Mon. 13-42	958.6	2.981654
Canada p.l.	82 56 52.414					
Edison (U.S.L.S.) 1923	42 21 16.958	300 43 24.6	120 44 08.9	Ref.Mon. 13-42	1750.4	3.243134
Michigan d.m.	82 57 25.332	333 10 14.6	153 10 36.8	View	1669.6	3.222605
North Belle (U.S.L.S.) 1919	42 21 05.847	94 40 14.0	274 39 27.9	Whittier (C&GS)	1574.6	3.197164
Michigan r. 1942 d.m.	82 58 10.646	251 42 12.0	71 42 42.5	Edison (USLS)	1092.3	3.038338
		282 14 00.2	102 15 15.0	Ref.Mon. 13-42	2601.0	3.415135
		302 38 06.7	122 38 59.4	View (USLS)	2126.6	3.327678
Detroit Water Works, tower 1942	42 21 34.434	40 36 03.0	220 35 44.0	Whittier (C&GS)	993.1	2.996986
Michigan 1. 1956 d.	82 58 50.977	97 36 17.1	277 32 27.9	General (C&GS)	7854.6	3.895126
		285 22 28.5	105 23 26.1	Edison (USLS)	2032.9	3.308106
		292 27 54.8	112 29 36.7	Ref.Mon. 13-42	3749.6	3.573986
		313 41 48.3	133 42 15.4	North Belle (USLS)	1276.7	3.106097

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STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Memorial (U.S.L.S.) 1923	42 21 07.089	205 50 01.5	25 50 13.6	Detroit Water Works, tower	937.4	2.971940
Michigan d.m.	82 59 08.827	271 38 37.4	91 39 16.6	North Belle (USLS)	1332.2	3.124562
Bathhouse (U.S.L.S.) 1923	42 20 26.816	191 50 23.2	11 50 30.8	Memorial (USLS)	1269.6	3.103678
Michigan r. 1942 d.m.	82 59 20.209	197 46 39.2	17 46 58.9	Detroit Water Works, tower	2191.0	3.340643
		232 53 31.9	52 54 18.7	North Belle (USLS)	1996.4	3.300246
Belle Isle, west base (U.S.L.S.)	42 20 25.183	194 10 55.4	14 11 05.0	Memorial (USLS)	1333.7	3.125052
Michigan 1923; r. 1942 d.m.	82 59 23.105	232 44 52.8	52 44 54.7	Bathhouse (USLS)	83.3	1.920404
Ref. Mon. 8-42 1911	42 18 23.452	99 38 15.2	279 37 53.0	Scotten	767.3	2.884958
Canada r. 1942; l. 1945 d.m.	83 04 31.070	136 43 15.1	316 43 01.8	Ref.Mon.48 (D.H.L.)	661.6	2.820592
		175 50 22.4	355 50 20.6	Gas 1942	846.7	2.927745

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STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Ref. Mon. 1-42	42 01 36.607	176 17 38.5	356 17 33.2	Quick-USLS	2808.4	3.448460
Michigan 1942 d.m.	83 11 01.041	218 26 14.9	38 28 49.3	Bois Blanc lighthouse	8523.0	3.930595
		240 41 53.4	60 44 35.7	Bar Point-USLS	6389.0	3.805432
		309 26 53.6	129 28 35.8	Detroit River lighthouse USLS	4546.9	3.657720
Ref. Mon. 2-42	42 03 17.665	19 08 37.5	199 07 36.8	Detroit River lighthouse USLS	6359.3	3.803408
Ontario 1911; r. 1942;1956 d.m.	83 06 57.863					
		60 53 02.8	240 50 19.9	Ref.Mon. 1-42	6403.5	3.806417
		86 53 44.7	266 50 56.5	Quick-USLS	5782.1	3.762088
		108 04 59.9	288 04 59.3	Bar Point-USLS	21.382	1.330044
Ref. Mon. 3-42	42 07 36.718	8 05 17.9	188 05 03.5	Dancehall-USLS	3503.0	3.544446
Ontario 1911; r. 1942;1956 d.m.	83 06 51.738	21 15 16.2	201 14 30.0	Sugardike	4371.2	3.640602
		24 51 59.8	204 51 24.2	Deduce	2903.8	3.462971
		30 17 22.2	210 16 13.2	Sugar Island-USLS	4693.2	3.671467
		32 26 01.5	212 25 34.5	Detroit River light No. 22	1725.8	3.236980
		34 43 44.5	214 43 19.1	Delay	1529.7	3.184609
		40 14 02.6	220 13 37.2	Dingle 1942	1346.9	3.129338
		42 27 54.2	222 27 30.8	Dump	1186.7	3.074336
		72 32 47.4	252 31 40.5	Knud	2402.8	3.380722
		145 54 23.6	325 54 04.0	Upper Entrance Lighthouse 1942	1199.8	3.079123
Boundary Mon. 1 (Sugar Is.Dike)	42 05 24.647	91 41 43.2	271 41 20.2	Sugar Island-USLS	801.7	2.904009
1944; r.1956 d.m.	83 08 00.430	97 36 30.2	277 36 30.0	Sugar Dike	6.015	0.779247
		193 55 54.7	13 56 05.1	Deduce	1483.8	3.171373
		201 09 54.3	21 10 40.3	Ref.Mon. 3-42	4369.8	3.640461
Boundary Mon. 2 (West Dike of	42 06 11.382	13 52 09.2	193 51 58.8	Boundary Mon.1 (Sugar Is. Dike)	1485.3	3.171804
Livingston Channel) 1944 d.m.	83 07 44.939					
r.1956		14 05 59.2	194 05 48.6	Sugar Dike	1485.9	3.171999
		194 18 03.2	14 18 13.4	Delay	1419.6	3.152175
		204 53 42.5	24 54 18.1	Ref.Mon. 3-42	2902.7	3.462803
		324 51 24.2	144 51 24.2	Deduce	2.248	0.351778
Boundary Mon. 3 (East Dike of	42 06 56.179	13 52 19.1	193 52 09.2	Boundary Mon. 2 (West Dike)	1423.7	3.153407
Livingston Channel) 1944 d.m.	83 07 30.084					
r.1956		215 09 02.0	35 09 27.7	Ref.Mon. 3-42	1529.8	3.184621
		304 43 18.8	124 43 19.1	Delay	11.445	1.058614
Ref. Mon. 4-42	42 10 25.170	186 40 51.0	6 40 55.5	North Grosse-USLS	1324.7	3.122123
Michigan 1911; r. 1942;1956 d.m.	83 08 38.461	187 14 58.5	7 15 03.3	South Channel, front range light	1299.1	3.113644
		208 29 03.5	28 30 03.7	Nellis 1942	4311.6	3.634635
		244 16 37.6	64 17 51.6	Turkey 1942	2806.3	3.448128
		275 57 27.4	95 57 50.7	Fighting Island, south light	799.4	2.902742

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STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 5-42	42 14 12.529	17 42 22.8	197 41 44.6	Hennepin-USLS	4285.5	3.631999
Ontario 1925; r. 1942 d.m.	83 07 31.958	40 38 30.6	220 37 56.9	Grassy-USLS	1765.8	3.246949
		104 30 13.1	284 29 20.6	Ecorse Church-USLS	1849.2	3.266975
		137 37 56.0	317 37 13.3	Ecorse School-USLS	2163.8	3.335217
		168 00 13.5	347 59 48.4	Rouge School-USLS	4119.1	3.614798
		215 38 23.5	35 39 09.7	Whampas-USLS	2701.3	3.431577
		352 46 21.0	172 46 33.0	Nellis-USLS	3257.3	3.512863
Ref. Mon. 6-42	42 15 28.034	32 23 08.6	212 23 06.1	Whampas 1942	159.4	2.202401
Ontario 1925; r. 1942;1956 d.m.	83 06 19.560	124 03 05.0	304 01 51.2	Rouge School-USLS	3035.7	3.482263
		166 51 58.2	346 51 45.4	Inner Entrance, light	1913.8	3.281902
		192 43 04.8	12 43 14.7	Ojibway-USLS	1535.0	3.186108
Ref. Mon. 7-42	42 17 20.848	31 21 04.2	211 21 02.9	Cansalt-USLS	81.0	1.908632
Ontario 1911; r. 1942;1956 d.m.	83 05 29.316	91 41 21.2	271 40 55.5	Process-USLS	874.0	2.941501
Ref. Mon. 8-42	42 18 23.452	99 38 15.2	279 37 53.0	Scotten	767.3	2.884958
Ontario 1911; r. 1942;1956 d.m.	83 04 31.070	136 43 15.1	316 43 01.8	Ref.Mon. 48-D.H.L.	661.6	2.820592
		175 50 22.4	355 50 20.6	Gas 1942	846.7	2.927745
Ref. Mon. 9-42	42 18 52.466	54 13 36.8	234 13 28.7	Sandwich east base-USLS	339.4	2.530671
Ontario 1911; r. 1942;1956 d.m.	83 03 38.289	105 45 17.9	285 44 52.1	Union-USLS	912.2	2.960113
		194 13 03.4	14 13 10.3	Wall-USLS	950.4	2.977899
		222 58 50.0	42 59 29.5	Siegel-USLS	1969.3	3.294321
Ref. Mon. 10-45	42 19 32.698	100 58 41.7	280 57 26.4	Penobscot-USC&GS	2608.4	3.416377
Ontario 1945 n.r.1956 d.m.	83 00 59.686	100 58 53.6	280 57 38.3	Penobscot Bldg., red ball-USC&GS	2608.6	3.416406
		113 59 27.7	293 58 52.6	Glengwo-USLS	1305.8	3.115881
		196 11 24.8	16 11 36.0	Buhl-USLS	1367.8	3.136027
		207 58 40.3	27 59 07.3	Monia-USLS	1957.1	3.291612
		234 04 09.1	54 04 50.2	Scott	1727.9	3.237524
		290 16 43.4	110 16 47.9	Peabody-USLS	164.5	2.216275
Ref. Mon. 11-42	42 20 00.619	58 13 23.4	238 12 47.5	Ford Tank	1434.4	3.156669
Michigan 1911; r. 1942; d.m.	82 59 20.951	253 04 16	73 04 17	C.P.No. 3-D.H.L.	39.610	1.597809
1956		303 45 02	123 45 27	Convent Cupola, cross	1020.8	3.008949
		306 23 45.7	126 24 06.6	Pillette	884.7	2.946810
		340 58 28	160 58 35	Latimer-USLS	722.4	2.858764
Ref. Mon. 12-42	42 20 24.082	53 12 05.3	233 11 16.2	Pillette	2084.7	3.319045
Michigan 1911; r. 1942; d.m.	82 57 36.938	56 45 31	236 44 28	Latimer-USLS	2565.9	3.409239
1956		73 05 56.3	253 04 46.3	Ref.Mon. 11-42	2488.8	3.395988
		232 01 22.8	52 02 36.3	Windmill Point, lighthouse	3166.9	3.500634
		262 05 10.3	82 05 40.8	View-USLS	1029.0	3.012416

International boundary line Detroit River Reference Monuments *State* Michigan *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 13-42	42 20 47.970	51 36 08.0	231 35 45.9	View-USLS	958.6	2.981654
Ontario 1911; r. 1942 d.m.	82 56 19.594	60 00 45.6	239 59 04.4	Pillette	3971.9	3.598994
		67 24 15.5	247 23 23.4	Ref.Mon. 12-42	1917.7	3.282791
		99 20 29.9	279 18 29.0	Whittier Bldg.flag pole	4167.3	3.619854
		99 24 12.7	279 22 11.8	Whittier-USC&GS	4167.0	3.619824
		102 15 15.0	282 14 00.2	North Belle-USLS	2601.0	3.415135
		112 29 36.7	292 27 54.8	Detroit Water Works, tower	3749.6	3.573986
		120 44 08.9	300 43 24.6	Edison-USLS	1750.4	3.243134
		199 17 25.3	19 17 37.1	11A-USLS	1212.5	3.083679
		210 56 51.0	30 57 12.4	Windmill Point, lighthouse	1412.3	3.149932
		269 04 54.1	89 05 21.9	Campbell-USLS	943.7	2.974855
Puce	42 18 11.217	95 49 41.7	275 45 18.7	Tecumseh, Catholic Church cross	8999.0	3.954195
Ontario 1942 n.r.1956 d.m.	82 46 40.607					
		121 32 17.7	301 22 56.5	Detroit Airport, tank	22850.5	4.349287
		152 02 08.8	331 58 20.0	Vernier	16554.1	4.218905
		186 06 51.3	6 07 48.3	Mid	18120.4	4.258168
		276 38 28.4	96 41 22.4	Belle River, tank	5962.0	3.775393
Ref. Mon. 14-42	42 18 11.858	287 14 28.9	107 14 30.8	Puce-1942	66.684	1.824019
Ontario 1911; r. 1942;1.1956 d.m.	82 46 43.387					
Gaukler	42 27 12.300	5 35 42.6	185 34 57.2	Tecumseh, Catholic Church cross	15862.6	4.200374
Michigan 1942 p.1.1956 d.m.	82 52 03.978					
		10 07 26.0	190 07 15.1	Vernier	2111.2	3.324537
		177 17 50.2	357 17 38.8	St. Clair Shores, water tank	8216.9	3.914710
		261 53 19.0	81 57 54.3	Mid	9412.0	3.973683
		322 30 18.1	142 36 50.2	Belle River, tank	21898.8	4.340420
Ref. Mon. 15-42	42 27 14.327	322 29 27.6	142 29 29.0	Gaukler	78.843	1.896762
Michigan 1911; r. 1942;1956 d.m.	82 52 06.079					

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STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Bois Blanc lighthouse 1942	42 05 12.920	38 28 49.3	218 26 14.9	Ref. Mon. 1-42	8523.0	3.930595
Canada d.	83 07 10.509	101 13 23.2	281 12 25.8	Sugar Island (USLS)	1973.4	3.295222
		107 27 42.3	287 27 07.7	Sugardike	1208.9	3.082373
		355 38 33.4	175 38 41.3	Bar Point (USLS)	3559.7	3.551411
Amherstburg Church, spire 1942	42 06 10.670	58 52 13.1	238 51 33.8	Dancehall (USLS)	1573.0	3.196720
Canada r. 1956 d.	83 06 14.593	121 35 34.2	301 34 02.4	Knud	3692.7	3.567349
		137 05 16.8	317 04 28.5	Dump	2429.9	3.385585
Upper Entrance lighthouse 1942	42 08 08.921	10 11 50.8	190 11 24.2	Sugardike	5148.9	3.711716
Canada r. 1956 d.	83 07 21.024	48 38 44.4	228 38 08.2	Stony (USLS)	1645.7	3.216346
		325 54 04.0	145 54 23.6	Ref. Mon. 3-42	1199.8	3.079123
Detroit River, Light No. 13	42 04 17.532	158 36 03.5	338 35 39.7	Sugar Island (USLS)	2247.8	3.351750
Canada 1942 r. 1956 d.	83 07 59.049	176 34 40.9	356 34 30.3	Stony (USLS)	6062.6	3.782661
		188 02 49.4	8 03 11.2	Dump	5322.7	3.726128
Detroit River, Light No. 14	42 04 17.008	155 07 24.3	335 06 55.9	Sugar Island (USLS)	2324.7	3.366361
Canada 1942 r. 1956 d.	83 07 52.184	175 06 21.5	355 06 06.3	Stony (USLS)	6090.2	3.784631
		186 20 24.9	6 20 42.1	Dump	5318.9	3.725823
Detroit River, Light No. 15	42 05 08.719	166 47 15.6	346 46 49.3	Knud	3949.9	3.596585
Canada 1942 r. 1956 d.	83 07 52.222	173 23 05.2	353 22 50.0	Stony (USLS)	4502.5	3.653451
		189 03 20.8	9 03 38.0	Dump	3737.5	3.572580
Detroit River, Light No. 16	42 05 08.228	164 37 59.3	344 37 28.3	Knud	4003.6	3.602456
Canada 1942 r. 1956 d.	83 07 45.337	171 25 23.0	351 25 03.1	Stony (USLS)	4538.4	3.656904
		186 37 10.6	6 37 23.1	Dump	3730.9	3.571815
Detroit River, Light No. 17	42 05 58.245	155 36 06.7	335 35 36.0	Knud	2544.5	3.405610
Canada 1942 r. 1956 d.	83 07 45.766	167 14 12.6	347 13 53.0	Stony (USLS)	3019.1	3.479872
		191 29 53.1	11 30 05.9	Dump	2207.1	3.343831
Detroit River, Light No. 18	42 05 57.782	152 30 37.1	332 30 01.7	Knud	2628.4	3.419685
Canada 1942 r. 1956 d.	83 07 38.708	164 20 46.1	344 20 21.8	Stony (USLS)	3072.7	3.487523
		187 16 20.2	7 16 28.3	Dump	2194.8	3.341387
Detroit River, Light No. 19	42 06 21.214	8 20 10.0	188 20 08.7	Deduce	308.4	2.489093
Michigan 1942 r. 1956 d.	83 07 42.934	145 14 42.5	325 14 09.9	Knud	1957.9	3.291796
		194 27 24.8	14 27 35.7	Dump	1501.7	3.176584
Detroit River, Light No. 20	42 06 25.329	27 33 00.2	207 32 53.7	Deduce	487.4	2.687846
Canada 1942 r. 1956 d.	83 07 35.070	138 48 25.1	318 47 47.3	Knud	1969.0	3.294253
		188 19 35.5	8 19 41.2	Dump	1341.3	3.127531
Detroit River, Light No. 21	42 06 49.959	120 39 27.0	300 38 51.4	Knud	1415.4	3.150889
Michigan 1942 r. 1956 d.	83 07 38.518	148 17 17.6	328 16 53.1	Stony (USLS)	1585.6	3.200197
		227 37 09.3	47 37 15.2	Delay	275.1	2.439496
Detroit River, Light No. 22	42 06 49.508	118 17 35.5	298 16 55.6	Knud	1552.2	3.190937
Michigan 1942 r. 1956 d.	83 07 32.026	195 10 26.6	15 10 28.2	Delay	206.6	2.315067
		212 25 34.5	32 26 01.5	Ref. Mon. 3-42	1725.8	3.236980

International boundary line Detroit River Auxiliary Stations *State* Michigan *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
	° ′ ″	° ′ ″	° ′ ″			
Detroit River, Light No. 24	42 07 17.228	3 57 56	183 57 55	Dingle 1942	428.0	2.631409
Michigan 1942 r. 1956 d.	83 07 28.320	85 17 34	265 16 52	Knud	1456.8	3.163390
Fighting Island, south light	42 10 22.479	95 57 50.7	275 57 27.4	Ref. Mon. 4-42	799.4	2.902742
Michigan 1942 r. 1956 d.	83 08 03.822	155 23 15.5	335 22 56.7	North Grosse (USLS)	1538.5	3.187110
		233 06 48.6	53 07 39.3	Turkey 1942	2167.1	3.335872
Grosse Isle Light 1942	42 10 05.257	174 43 01.5	354 42 56.3	North Grosse (USLS)	1938.3	3.287429
Michigan r. 1956 d.	83 08 23.968	201 22 35.3	21 23 25.8	Nellis 1942	4729.3	3.674795
		230 09 16.5	50 10 20.8	Turkey 1942	2859.7	3.456315
South Channel, front range light	42 11 06.938	7 15 03.3	187 14 58.5	Ref. Mon. 4-42	1299.1	3.113644
Michigan 1942 r. 1956 d.	83 08 31.317	160 00 50.7	340 00 50.4	North Grosse (USLS)	28.7	1.458363
		271 42 55.2	91 44 04.4	Turkey 1942	2365.3	3.373885
South Channel, rear range light	42 11 20.991	224 27 27.3	44 28 26.7	Nellis 1942	2896.4	3.461855
Michigan 1942 r. 1956 d.	83 08 37.254	281 24 11.4	101 25 24.6	Turkey 1942	2550.8	3.406680
		342 43 43.0	162 43 46.7	North Grosse (USLS)	425.8	2.629172
Firemans Aerial 1942	42 12 08.730	257 59 40	78 01 02	Nellis 1942	2858.7	3.456174
Wyandotte, Michigan d.	83 09 10.717	285 16 20	105 16 48	Hennepin (USLS)	997.6	2.998968
Ecorse Church (U.S.L.S.) 1923	42 14 27.531	196 17 09.2	16 17 19.0	Ecorse School (USLS)	1183.1	3.073036
Michigan r. 1942; 1. 1956 d.	83 08 50.040	284 29 20.6	104 30 13.1	Ref. Mon. 5-42	1849.2	3.266975
		340 26 23.1	160 26 41.9	Grassy (USLS)	1913.3	3.281775
Inner Entrance Light 1942	42 16 28.438	203 26 22.8	23 26 43.7	Process (USLS)	1790.6	3.253006
Michigan r. 1956 d.	83 06 38.537	234 50 58.5	54 51 37.0	Euclid	1604.4	3.205325
		295 21 52.1	115 22 14.8	Ojibway (USLS)	855.3	2.932106
		350 04 32.6	170 04 42.9	Whampas 1942	2028.7	3.307213
Rouge R.C. Church, cross	42 16 26.867	276 13 27.8	96 14 53.2	Ojibway (USLS)	2926.9	3.466408
Michigan 1942;1. 1956 d.	83 08 11.780	308 05 29.0	128 06 42.0	Whampas 1942	3159.9	3.499677
		334 02 30.4	154 02 32.1	Rouge School (USLS)	128.9	2.110305
Penobscot Building, red ball	42 19 48.788	94 50 31.2	274 42 12.9	Rouge (C&GS)	16996.2	4.230353
(C.& G.S.) 1932	83 02 51.535	182 44 28.7	2 44 56.4	Twelve Mile (C&GS)	19579.2	4.291795
Detroit, Michigan r. 1942 d.		215 57 14.1	36 06 46.6	Rosa	32951.8	4.517879
r. 1956		231 09 16.0	51 16 21.6	Vernier	18528.1	4.267830
		238 01 57.5	58 13 49.1	Mid	28422.5	4.453663
		242 42 25.8	62 44 48.8	Whittier (C&GS)	5468.1	3.737840
		252 34 14.9	72 39 00.2	Windmill Point lighthouse	10162.6	4.007006
		254 27 58.6	74 29 25.1	Buhl (USLS)	3053.4	3.484790
		271 37 59.6	91 40 42.3	Fillette	5535.9	3.743187
		278 56 26.8	99 02 57.3	Tecumseh Church,spire	13447.4	4.128637
		281 30 36.6	101 31 56.4	Peabody (USLS)	2771.1	3.442651
		321 31 46.6	141 31 46.6	Penobscot (C&GS)	0.232	9.364830-10
Buhl Water Tank 1942	42 20 19.017	9 43 43.7	189 43 36.2	Peabody (USLS)	1507.9	3.178363
Michigan r. 1956 d.	83 00 41.817	292 45 18.3	112 45 47.4	Scott	1073.6	3.030850
		293 04 32.6	113 05 48.0	Fillette	2786.6	3.445075

INTERNATIONAL BOUNDARY COMMISSION—UNITED STATES, ALASKA, AND CANADA
GEOGRAPHIC POSITIONS—NORTH AMERICAN DATUM 1927

International boundary line Detroit River Auxiliary Stations *State* Michigan *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
	° ′ ″	° ′ ″	° ′ ″			
Ford Low Tank 1942	42 19 26.912	95 10 02.2	275 09 22.7	Peabody (USLS)	1350.5	3.130502
Canada r. 1956 d.	82 59 54.203	175 12 20.6	355 12 17.7	Scott	1196.5	3.077927
		194 07 52.2	14 08 15.9	Whittier (C&GS)	3280.0	3.515868
Whittier Building, flag pole	42 21 09.854	62 46 50.1	242 44 27.1	Penobscot (C&GS)	5465.2	3.737606
Michigan 1942; r. 1956 d.	82 59 19.259	193 01 05.6	13 01 05.6	Whittier (C&GS)	4.511	0.654278
		274 29 43.6	94 30 29.7	North Belle (USLS)	1575.2	3.197347
		279 18 29.0	99 20 29.9	Ref. Mon. 13-42	4167.3	3.619854
		345 47 59.1	165 48 18.8	Pillette	2744.9	3.438526
Convent Cupola, cross	42 19 42.236	107 09 47	287 09 43	Pillette	143.0	2.155304
Canada 1942 d.	82 58 43.880	123 45 27	303 45 02	Ref. Mon. 11-42	1020.8	3.008949
C. P. No. 3 (D.H.L.) 1942	42 20 00.993	73 04 17	253 04 16	Ref. Mon. 11-42	39.610	1.597809
Michigan d.m.	82 59 19.296					
Peach Island, rear range	42 21 14.635	76 16 56.7	256 11 38.5	Penobscot (C&GS)	11135.6	4.046713
Michigan 1942 d.	82 54 59.033	88 38 50.6	268 35 55.4	Whittier (C&GS)	5956.5	3.774990
		109 10 25.8	289 09 52.9	Windmill Point, lighthouse	1183.0	3.072994

International boundary line Detroit River — Boundary Turning Points — *State* Michigan — *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Turning Point No. 161	42 02 27.404	60 48 46.5	240 47 24.9	Ref.Mon. 1-42	3212.7	3.506868
	83 08 59.121	240 54 38.3	60 55 59.5	Ref.Mon. 2-42	3190.8	3.503900
		341 14 52.0	161 18 05.9	Turning Point No.160	20806.2	4.3181924
Boundary Mon. 1 (Sugar Is.Dike)	42 05 24.647	13 51 58.8	193 51 19.5	Turning Point No.161	5632.6	3.750708
1944 r. 1956 d.m.	83 08 00.430	91 41 43.2	271 41 20.2	Sugar Island-USLS	801.7	2.904009
		97 36 30.2	277 36 30.0	Sugar Dike	6.015	0.779247
		193 55 54.7	13 56 05.1	Deduce	1483.8	3.171373
		201 09 54.3	21 10 40.3	Ref.Mon. 3-42	4369.8	3.640461
Boundary Mon. 2 (West Dike of	42 06 11.382	13 52 09.2	193 51 58.8	Boundary Mon. 1 (Sugar	1485.3	3.171804
Livingston Channel) 1944 d.m.	83 07 44.939			Is. Dike)		
r. 1956		14 05 59.2	194 05 48.6	Sugar dike	1485.9	3.171999
		194 18 03.2	14 18 13.4	Delay	1419.6	3.152175
		204 53 42.5	24 54 18.1	Ref.Mon. 3-42	2902.7	3.462803
		324 51 24.2	144 51 24.2	Deduce	2.248	0.351778
Boundary Mon. 3 (East Dike of	42 06 56.179	13 52 19.1	193 52 09.2	Boundary Mon.2 (W.Dike)	1423.7	3.153407
Livingston Channel) 1944 d.m.	83 07 30.084	215 09 02.0	35 09 27.7	Ref.Mon. 3-42	1529.8	3.184621
r. 1956		304 43 18.8	124 43 19.1	Delay	11.445	1.058614
Turning Point No. 162	42 07 31.399	13 52 26.9	193 52 19.1	Boundary Mon.3 (E.Dike)	1119.3	3.048960
	83 07 18.401	13 52 26.9	193 51 19.5	Turning Point No.161	9660.8	3.985015
		254 59 42.1	75 00 00.0	Ref.Mon. 3-42	634.0	2.802111
		356 32 52.2	176 33 06.0	Ref.Mon. 2-42	7842.9	3.894474
Turning Point No. 163	42 10 29.138	81 34 39.3	261 34 15.1	Ref.Mon. 4-42	835.5	2.921966
	83 08 02.450	349 32 47.2	169 33 16.8	Turning Point No.162	5576.5	3.746358
Turning Point No. 164	42 14 19.154	3 57 25.7	183 57 11.3	Turning Point No.163	7114.0	3.852111
	83 07 41.061	314 24 05.1	134 24 11.2	Ref.Mon. 5-42	292.1	2.465598
Turning Point No. 165	42 15 36.363	29 33 49.2	209 33 09.6	Turning Point No.164	2738.7	3.437538
	83 06 42.129	296 24 54.6	116 25 09.8	Ref.Mon. 6-42	577.6	2.761646
Turning Point No. 166	42 17 23.762	20 17 39.2	200 17 03.2	Turning Point No.165	3533.0	3.548143
	83 05 48.667	281 27 45.6	101 27 58.6	Ref.Mon. 7-42	452.4	2.655463
Turning Point No. 167	42 18 31.226	34 24 30.7	214 23 48.8	Turning Point No.166	2522.9	3.401900
	83 04 46.437	304 16 25.2	124 16 35.5	Ref.Mon. 8-42	425.9	2.629332
Southwest Tablet, Ambassador	42 18 42.270	9 19 14.3	189 19 11.5	Ref.Mon. 8-42	588.4	2.769668
Bridge 1929 d.m.	83 04 26.909	52 41 49.8	232 41 36.7	Turning Point No.167	562.3	2.749937
		254 13 08.9	74 13 41.7	Ref.Mon. 9-42	1157.1	3.063357
Northeast Tablet, Ambassador	42 18 42.614	10 28 05.1	190 28 01.9	Ref.Mon. 8-42	601.3	2.779059
Bridge 1929 d.m.	83 04 26.300	52 41 50.2	232 41 49.8	Southwest Tablet, Ambassador Bridge	17.529	1.243764
		254 32 32.1	74 33 04.5	Ref.Mon. 9-42	1140.8	3.057200
Turning Point No. 168	42 19 03.953	52 42 15.7	232 41 50.2	N.E.Tablet, Ambassador Bridge	1086.5	3.036029
	83 03 48.560					
		52 42 15.7	232 41 36.7	Turning Point No. 167	1666.3	3.221750
		326 25 46.7	146 25 53.6	Ref.Mon. 9-42	425.4	2.628774

International boundary line Detroit River — Boundary Turning Points — *State* Michigan — *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
West Disk, Michigan Central RR. Tunnel 1929 d.m.	42 19 07.886 83 03 33.501	12 58 44.5 70 36 55.3	192 58 41.3 250 36 45.2	Ref.Mon. 9-42 Turning Point No.168	488.3 365.6	2.688644 2.562985
West Tablet, Michigan Central RR. Tunnel 1929;r.1956 d.m.	42 19 07.956 83 03 33.231	13 37 24.2 70 36 55.5	193 37 20.8 250 36 55.3	Ref.Mon. 9-42 West Disk,Michigan Central RR. Tunnel	491.8 6.547	2.691778 0.816049
East Tablet, Michigan Central RR. Tunnel 1929;r. 1956 d.m.	42 19 07.980 83 03 33.140	13 50 19.7 70 36 55.6	193 50 16.2 250 36 55.5	Ref.Mon. 9-42 West Tablet, Michigan Central RR. Tunnel	493.0 2.210	2.692843 0.344354
East Disk, Michigan Central RR. Tunnel 1929 d.m.	42 19 08.051 83 03 32.869	14 28 27.3 70 36 55.8	194 28 23.6 250 36 55.6	Ref.Mon. 9-42 East Tablet, Michigan Central RR. Tunnel	496.6 6.584	2.696036 0.818470
West Tablet, Detroit-Windsor Hwy. Tunnel 1930 d.m.	42 19 26.190 83 02 23.378	70 37 42.6 70 37 42.6	250 36 45.2 250 36 55.8	Turning Point No.168 East Disk,Michigan Central RR. Tunnel	2067.7 1686.8	3.315490 3.227061
East Tablet, Detroit-Windsor Hwy. Tunnel 1930 d.m.	42 19 26.278 83 02 23.040	70 37 42.8	250 37 42.6	West Tablet, Detroit-Windsor Hwy.Tunnel	8.211	0.914396
Turning Point No. 169	42 19 45.652 83 01 08.756	70 38 32.8	250 36 55.8	East Disk, Michigan Central RR. Tunnel	3497.9	3.543802
		70 38 32.8	250 36 45.2	Turning Point No.168	3878.8	3.588695
		70 38 32.8	250 37 42.8	East Tablet, Detroit-Windsor Hwy. Tunnel	1802.9	3.255961
		332 32 40.0	152 32 46.1	Ref.Mon.10-45	450.4	2.653624
Turning Point No. 170	42 19 56.665 82 59 19.866	82 14 54.6 168 29 29.5	262 13 41.3 348 29 28.8	Turning Point No.169 Ref.Mon. 11-42	2516.1 124.5	3.400728 2.095184
Turning Point No. 171	42 20 21.833 82 57 33.224	72 21 55.1 129 13 17.1	252 20 43.3 309 13 14.6	Turning Point No.170 Ref.Mon. 12-42	2561.9 109.7	3.408567 2.040384
Turning Point No. 172	42 20 48.853 82 56 43.654	53 41 55.3 272 49 43.8	233 41 21.9 92 50 00.0	Turning Point No.171 Ref.Mon. 13-42	1408.0 551.4	3.148612 2.741467
Turning Point No. 173	42 22 24.132 82 49 41.780	73 06 13.4 159 47 08.1 332 17 58.4	253 01 28.5 339 45 30.8 152 19 58.6	Turning Point No. 172 Ref.Mon. 15-42 Ref.Mon. 14-42	10092.0 9542.7 8790.2	4.0039789 3.9796698 3.9439986

International boundary line Lake St. Clair **Third Order Triangulation** *State* Michigan *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Rosa 1942	42 34 12.399	36 06 45.10	215 57 12.57	Penobscot (C&GS)	32951.9	4.5178802
Michigan 1. 1956 d.m.	82 48 43.282	185 41 37.60	5 41 38.86	Mt. Clemens (USLS)	425.09	2.6284790
Vernier 1942	42 26 04.942	51 16 18.95	231 09 13.39	Penobscot(C&GS)	18528.1	4.2678301
Michigan r. 1966 d.m.	82 52 20.214	198 12 24.92	18 14 51.48	Rosa	15835.5	4.1996331
Mid 1942	42 27 55.138	58 13 45.84	238 01 54.21	Penobscot (C&GS)	28422.5	4.4536623
Michigan r. 1956 d.	82 45 16.128	70 42 22.25	250 37 36.02	Vernier	10270.3	4.0115840
		157 54 40.82	337 52 20.82	Rosa	12564.6	4.0991491
Tecumseh Catholic Church,cross	42 18 40.648	99 02 54.84	278 56 24.32	Penobscot (C&GS)	13447.1	4.1286295
Canada 1942 r. 1956 d.	82 53 11.508	118 43 47.17	298 39 39.55	Whittier (C&GS)	9597.2	3.9821460
		184 53 18.00	4 53 52.57	Vernier	13759.0	4.1385857
		212 23 39.75	32 29 00.23	Mid	20272.2	4.3069001
Detroit Airport, tank 1942	42 24 29.271	20 02 30.91	200 00 57.99	Penobscot (C&GS)	9211.7	3.9643390
Michigan d.	83 00 33.645	253 03 45.62	73 14 04.74	Mid	21912.3	4.3406881
		255 17 21.88	75 22 54.74	Vernier	11660.8	4.0667282
		316 42 39.83	136 47 37.74	Tecumseh Cath.Ch.cross	14767.7	4.1693141
		344 30 51.19	164 31 41.37	Whittier (C&GS)	6380.1	3.8048281
Macomb, 1942	42 35 48.875	27 19 28.92	207 14 08.93	Detroit Airport tank	23594.1	4.3728033
Michigan r. 1956 d.	82 52 40.019	325 14 05.39	145 19 05.46	Mid	17785.0	4.2500544
		358 33 38.68	178 33 52.07	Vernier	18023.5	4.2558402
Beacon 1942	42 32 21.811	32 47 57.22	212 45 20.45	Mid	9786.7	3.9906358
Michigan r. 1956 d.m.	82 41 24.081	52 14 58.32	232 07 35.16	Vernier	18967.7	4.2780156
		108 50 52.98	288 45 55.96	Rosa	10584.9	4.0246888
		112 34 24.64	292 26 47.39	Macomb	16688.9	4.2224268
Puce 1942	42 18 11.217	95 49 41.7	275 45 18.7	Tecumseh Cath.Ch.cross	8999.0	3.954195
Canada n.r. 1956 d.m.	82 46 40.607	121 32 17.7	301 22 56.5	Detroit Airport tank	22350.5	4.349287
		152 02 08.8	331 58 20.0	Vernier	16554.1	4.218905
		186 06 51.3	6 07 48.3	Mid	18120.4	4.258168
Belle River, tank 1942	42 17 48.789	96 12 02.0	276 04 45.0	Tecumseh Cath.Ch.cross	14960.7	4.174951
Canada r. 1956 d.	82 42 22.090	96 41 22.4	276 38 28.4	Puce	5962.0	3.775393
		138 15 30.4	318 08 47.4	Vernier	20535.0	4.312495
		168 00 08.5	347 58 11.2	Mid	19128.1	4.281671
St.Clair Shores, water tank	42 31 38.303	176 46 56.8	356 46 43.9	Macomb	7743.9	3.888962
Michigan 1942 p.1. 1956 d.	82 52 20.954	226 13 34.7	46 16 01.8	Rosa	6875.6	3.837308
		305 19 42.0	125 24 29.0	Mid	11896.4	4.075416
		359 54 20.7	179 54 21.2	Vernier	10286.2	4.012253
Gaukler 1942	42 27 12.300	5 35 42.6	185 34 57.2	Tecumseh Cath.Ch.cross	15862.6	4.200374
Michigan p.1. 1956 d.m.	82 52 03.978	10 07 26.0	190 07 15.1	Vernier	2111.2	3.324537
		177 17 50.2	357 17 38.8	St.Clair Shores,w.tank	8216.9	3.914710
		261 53 19.0	81 57 54.3	Mid	9412.0	3.973683
		322 30 18.1	142 36 50.2	Belle River, tank	21898.8	4.340420

INTERNATIONAL BOUNDARY COMMISSION—UNITED STATES, ALASKA, AND CANADA

GEOGRAPHIC POSITIONS—NORTH AMERICAN DATUM 1927

International boundary line Lake St. Clair Third Order Triangulation *State* Michigan *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
	° ′ ″	° ′ ″	° ′ ″			
Selfridge Field, tank 1942	42 36 39.390	71 58 16.6	251 55 54.5	Macomb	5031.1	3.701660
Michigan r. 1956 d.	82 49 10.177	306 44 29.7	126 49 44.9	Beacon	13272.8	4.122961
		341 42 23.0	161 45 01.2	Mid	17035.3	4.231351
St. Clair Flats, light No. 4	42 31 33.471	43 05 05.8	223 01 59.6	Mid	9220.4	3.964748
Michigan 1942 r. 1956 d.m.	82 40 40.448	115 42 50.7	295 34 44.0	Macomb	18208.2	4.260267
		146 16 37.8	326 16 08.2	Beacon	1793.4	3.253685
St. Clair River, light No. 3	42 33 32.379	39 31 28.3	219 29 58.6	St.Clair Flats,lt.No.4	4755.8	3.677223
Michigan r. 1956 d.	82 38 27.843	41 53 24.0	221 48 48.1	Mid	13970.0	4.145197
		61 34 48.4	241 32 49.1	Beacon	4572.7	3.660177
		102 18 29.4	282 08 52.8	Macomb	19885.3	4.298532
Colony Tower 1942	42 37 55.223	14 23 11.9	194 22 10.2	St.Clair R.,lt.No. 3	8372.7	3.922866
Michigan r. 1956 d.	82 36 56.649	30 40 56.0	210 37 55.0	Beacon	11959.5	4.077712
		31 39 27.3	211 33 49.6	Mid	21742.3	4.337305
		79 48 40.9	259 38 02.2	Macomb	21851.9	4.339489

INTERNATIONAL BOUNDARY COMMISSION—UNITED STATES, ALASKA, AND CANADA
GEOGRAPHIC POSITIONS—NORTH AMERICAN DATUM 1927

International boundary line St. Clair River Third Order Triangulation *State* Michigan *Province* Ontario

STATION		LATITUDE AND LONGITUDE			AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE (METERS)	LOGARITHM
		°	′	″	°	′	″	°	′	″			
Bassett 1942		42	32	18.023	80	46	32.8	260	42	23.0	St. Clair flats, light No. 4	8544.2	3.931669
Canada r. 1956	d.m.	82	34	30.944									
					113	01	20.5	292	58	40.3	St. Clair River, light No. 3	5871.9	3.768776
Chris Craft, tank 1942		42	36	45.122	17	22	12.7	197	20	56.3	Bassett	8635.0	3.936264
Algonac, Michigan r. 1956	d.	82	32	37.975	46	41	01.5	226	32	29.0	Mid	23806.4	4.376694
					53	19	43.9	233	15	47.2	St. Clair River, light No. 3	9950.7	3.997855
					55	56	42.5	235	50	46.5	Beacon	14490.5	4.161083
					86	29	19.6	266	15	45.9	Macomb	27456.2	4.438640
St. Clair Flats, light No. 6		42	32	00.474	40	38	23.7	220	38	02.5	St. Clair Flats, light	1098.0	3.040600
Michigan 1942; r. 1956	d.m.	82	40	09.116	111	03	22.5	291	02	31.7	Beacon No. 4	1833.0	3.263172
					219	09	54.0	39	11	02.5	St. Clair River, light No. 3	3658.1	3.563253
					265	57	16.3	86	01	04.9	Bassett	7736.3	3.888532
St. Clair River, light No. 1		42	33	02.484	38	12	47.2	218	12	02.6	St. Clair Flats, light No. 6	2435.0	3.386506
Michigan 1942; r. 1956	d.m.	82	39	03.114	38	58	16.0	218	57	10.2	St. Clair Flats, light No. 4	3532.4	3.548064
					221	05	45.3	41	06	09.2	St. Clair River, light No. 3	1224.1	3.087806
					282	25	53.8	102	28	57.9	Bassett	6360.0	3.803454
St. Clair Flats, light No. 2		42	31	06.681	173	13	45.8	353	13	37.5	Beacon	2334.5	3.368192
Michigan 1942; r. 1956	d.	82	41	12.020	219	47	26.6	39	49	17.6	St. Clair Riv., lt. No. 3	5852.1	3.767312
					221	04	44.3	41	05	05.6	St. Clair Flats, lt. No. 4	1096.6	3.040065
					256	26	26.1	76	30	57.2	Bassett	9414.9	3.973814
Ref. Mon. 17-42 1911		42	32	22.593	47	45	18.3	227	44	56.0	St. Clair Flats, lt. No. 6	1015.1	3.006529
Canada r. 1942; 1956	d.m.	82	39	36.187	211	30	33.8	31	30	56.1	St. Clair Riv., lt. No. 1	1443.8	3.159510
Old 1942		42	32	20.273	16	24	22.1	196	24	16.8	St. Clair Flats, lt. No. 6	636.9	2.804048
Michigan r. 1956	d.m.	82	40	01.235	31	47	24.3	211	46	57.8	St. Clair Flats, lt. No. 4	1699.0	3.230187
					225	30	39.5	45	31	18.8	St. Clair Riv., lt. No. 1	1858.8	3.269234
					262	51	30.6	82	51	47.6	Ref. Mon. 17-42	576.0	2.760440
Ref. Mon. 18-42 1911		42	32	43.551	60	00	55.9	240	00	19.0	Old	1436.9	3.157441
Canada r. 1942; 1956	d.m.	82	39	06.693	187	57	21.2	7	57	23.6	St. Clair Riv., lt. No. 1	589.9	2.770782
					210	27	50.6	30	28	16.9	St. Clair Riv., lt. No. 3	1748.0	3.242548
Ref. Mon. 19-42 1911		42	33	12.840	48	25	45.4	228	25	15.2	Ref. Mon. 18-42	1361.9	3.134147
Canada r. 1942 1. 1956	d.m.	82	38	22.038	71	10	34.3	251	10	06.5	St. Clair Riv., lt. No. 1	990.1	2.995685
					167	36	42.2	347	36	38.3	St. Clair Riv., lt. No. 3	617.3	2.790472
Kelly 1942		42	33	18.685	29	33	58.6	209	33	40.4	Ref. Mon. 18-42	1246.4	3.095650
Michigan	d.m.	82	38	39.739	46	51	13.4	226	50	57.6	St. Clair Riv., lt. No. 1	730.9	2.863880
					294	03	48.6	114	04	00.6	Ref. Mon. 19	442.3	2.645694
Ref. Mon. 20-42 1911		42	33	18.837	71	17	39.8	251	16	55.6	St. Clair Riv., lt. No. 1	1572.8	3.196678
Canada r. 1942; 1956	d.m.	82	37	57.818	71	29	15.2	251	28	58.8	Ref. Mon. 19-42	582.7	2.765452
					89	43	23.0	269	42	54.6	Kelly	956.4	2.980632
					121	23	16.5	301	22	56.2	St. Clair Riv., lt. No. 3	802.3	2.904363

International boundary line St. Clair River Third Order Triangulation *State* Michigan *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Beebe 1942	42 33 29.765	40 19 18.5	220 19 05.3	Ref.Mon. 19-42	685.0	2.835670
Michigan d.m.	82 38 02.610	68 01 19.9	248 00 54.7	Kelly	913.4	2.960674
		342 02 13.6	162 02 16.8	Ref.Mon. 20-42	354.5	2.549603
Ref. Mon. 21-42 1911	42 33 18.602	53 26 22.4	233 24 12.9	St.Clair Flats,1t.No.4	5443.6	3.735885
Canada r. 1942 1. 1956 d.m.	82 37 28.878	76 59 02.4	256 57 58.7	St.Clair Riv.,1t.No.1	2206.7	3.343743
		81 39 52.8	261 39 16.9	Ref.Mon. 19-42	1225.7	3.088400
		90 37 51.9	270 37 32.4	Ref.Mon. 20-42	660.3	2.819716
		107 32 34.9	287 31 55.1	St.Clair Riv.,1t.No.3	1410.7	3.149442
		114 07 01.6	294 06 38.9	Beebe	843.1	2.925880
Oso 1942	42 33 28.967	28 47 47.0	208 47 41.7	Ref.Mon. 21-42	365.0	2.562248
Michigan 1. 1956 d.m.	82 37 21.172	69 30 07.7	249 29 42.9	Ref.Mon. 20-42	892.5	2.950625
		91 29 44.8	271 29 16.8	Beebe	945.6	2.975719
Ref. Mon. 22-42 1911	42 33 11.917	58 20 24.8	238 17 58.9	St.Clair Flats,1t.No.4	5784.1	3.762236
Canada r. 1942 1. 1956 d.m.	82 37 04.743	83 51 36.3	263 50 16.2	St.Clair Riv.,1t.No.1	2716.2	3.433968
		108 25 40.5	288 24 44.3	St.Clair Riv.,1t.No.3	1998.2	3.300629
		110 32 26.9	290 32 10.6	Ref.Mon. 21-42	588.0	2.769369
		144 32 09.5	324 31 58.4	Oso	646.0	2.810213
Speed 1942	42 33 20.192	34 15 07.4	214 15 02.2	Ref.Mon. 22-42	308.9	2.489848
Michigan r. 1956 d.m.	82 36 57.122	86 07 44.5	266 07 23.0	Ref.Mon. 21-42	726.1	2.861014
		116 16 10.4	296 15 54.1	Oso	611.8	2.786634
Ref. Mon. 23-42 1911	42 32 52.910	65 35 25.8	245 32 45.9	St.Clair Flats,1t.No.4	5926.4	3.772790
Canada r. 1942; 1956 d.m.	82 36 44.004	95 19 50.8	275 18 16.7	St.Clair Riv.,1t. No.1	3187.6	3.503464
		117 12 59.1	297 11 48.9	St.Clair Riv.,1t.No.3	2663.7	3.425485
		141 06 19.9	321 06 05.9	Ref.Mon. 22-42	753.5	2.877106
		160 25 49.4	340 25 40.6	Speed	893.4	2.951060
George 1942	42 33 06.244	19 53 57.2	199 53 52.7	Ref.Mon. 23-42	437.6	2.641039
Michigan r. 1956 d.m.	82 36 37.477	105 43 03.0	285 42 44.5	Ref.Mon. 22-42	646.2	2.810380
		133 50 26.8	313 50 13.5	Speed	621.4	2.793345
Ref. Mon. 24-42 1911	42 32 46.794	69 06 01.4	249 03 06.1	St.Clair Flats,1t.No.4	6335.2	3.801759
Canada r. 1942 d.m.	82 36 21.147	97 28 45.2	277 26 55.7	St.Clair Riv.,1t. No.1	3727.0	3.571362
		109 53 45.1	289 53 29.6	Ref.Mon. 23-42	554.6	2.744007
		115 57 37.1	295 56 11.5	St.Clair Riv.,1t. No.3	3214.6	3.507124
		127 56 05.6	307 55 36.1	Ref.Mon. 22-42	1261.1	3.100742
		141 28 03.2	321 27 38.9	Speed	1317.5	3.119738
		148 10 07.9	328 09 56.9	George	706.4	2.849061
		289 26 03.0	109 27 17.5	Bassett	2666.8	3.425983
Lind 1942	42 33 00.445	9 33 08.1	189 33 06.0	Ref.Mon. 24-42	427.1	2.630563
Michigan r. 1956 d.m.	82 36 18.040	68 34 31.5	248 34 13.9	Ref.Mon. 23-42	636.4	2.803720
St. Clair River, light No. 17A	42 34 25.304	0 12 33.6	180 12 33.2	Bassett	3927.4	3.594109
Michigan 1942;r. 1956 d.	82 34 30.315	73 14 53.8	253 12 13.2	St.Clair Riv.,1t.No. 3	5658.7	3.752714
(Now No. 35A)						

International boundary line St. Clair River — Third Order Triangulation — *State* Michigan — *Province* Ontario

STATION		LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Ref. Mon. 25-42 1911		42 32 53.435	71 07 18.3	251 03 44.9	St.Clair Flats,1t.No.4	7614.3	3.881631
Canada r. 1942; 1956	d.m.	82 35 24.788	80 57 02.8	260 56 24.7	Ref.Mon. 24-42	1302.1	3.114659
			89 29 38.8	269 28 45.2	Ref.Mon. 23-42	1807.5	3.257079
			93 13 44.2	273 11 16.6	St.Clair Riv.,1t.No. 1	4989.1	3.698020
			100 05 55.6	280 05 19.6	Lind	1234.1	3.091351
			203 39 54.7	23 40 31.5	St.Clair Riv.,1t.No.17A	3095.1	3.490679
			311 38 36.0	131 39 12.4	Bassett	1644.2	3.215957
Canclub 1942		42 33 19.155	49 17 46.1	229 17 18.8	Ref.Mon. 25-42	1216.9	3.085243
Canada	d.m.	82 34 44.357	350 47 00.7	170 47 09.8	Bassett	1911.0	3.281255
Ref.Mon. 26 ecc. 1942		42 33 22.034	16 48 38.9	196 48 31.0	Ref.Mon. 25-42	921.9	2.964667
Michigan	d.	82 35 13.103	277 42 41.2	97 43 00.6	Canclub	661.8	2.820721
Joyce 1942		42 33 31.155	18 08 41.2	198 08 29.9	Ref.Mon. 25-42	1224.8	3.088070
Michigan	d.m.	82 35 08.071	304 23 14.1	124 23 30.1	Canclub	655.6	2.816620
Ref. Mon. 27-42 1911		42 33 49.503	1 24 13.3	181 24 12.6	Canclub	936.7	2.971611
Canada r. 1942; 1956	d.m.	82 34 43.351	28 39 22.8	208 38 54.8	Ref.Mon. 25-42	1971.5	3.294798
			38 41 16.6	218 40 56.5	Ref.Mon. 26 ecc.	1085.9	3.035771
			44 53 14.4	224 52 57.7	Joyce	799.1	2.902588
Squirrel 1942		42 33 53.985	3 00 53.9	183 00 49.3	Bassett	2965.1	3.472044
Canada	d.m.	82 34 24.110	23 15 28.3	203 15 14.6	Canclub	1169.8	3.068096
			36 32 25.5	216 31 44.5	Ref.Mon. 25-42	2325.3	3.366476
			54 55 02.1	234 54 32.4	Joyce	1225.5	3.088312
			72 30 53.1	252 30 40.1	Ref.Mon. 27-42	460.2	2.662908
			83 11 06.0	263 08 21.2	St.Clair Riv.,1t.No. 3	5599.7	3.748161
			171 40 05.8	351 40 01.6	St.Clair Riv.,1t.No.17A	976.7	2.989758
Ref. Mon. 26-42 1942		42 33 21.666	16 16 42.2	196 16 34.7	Ref.Mon. 25-42	907.5	2.957845
Michigan r. 1956	d.m.	82 35 13.639	218 48 35.9	38 48 56.4	Ref.Mon. 27-42	1102.4	3.042326
			227 08 49.4	47 08 49.8	Ref.Mon. 26 ecc.	16.692	1.223519
			276 36 46.4	96 37 06.2	Canclub	672.5	2.827704
Harsen 1942		42 34 04.309	18 06 09.1	198 05 59.2	Joyce	1076.3	3.031918
Michigan	d.m.	82 34 53.411	18 07 35.3	198 07 14.1	Ref.Mon. 25-42	2301.1	3.361931
			295 28 52.3	115 29 12.1	Squirrel	740.4	2.869461
			333 19 38.8	153 19 45.6	Ref.Mon. 27-42	511.2	2.708617
			351 06 53.3	171 07 08.5	Bassett	3319.4	3.521060
			351 33 59.7	171 34 05.8	Canclub	1408.5	3.148758
Ref. Mon. 28-42 1911		42 34 20.233	38 20 02.9	218 19 43.9	Squirrel	1032.5	3.013888
Canada r. 1942; 1956	d.m.	82 33 56.034	48 42 09.0	228 41 37.0	Ref.Mon. 27-42	1436.6	3.157338
			69 25 32.5	249 24 53.7	Harsen	1398.5	3.145675
Tashmoo 1942		42 34 37.793	13 05 04.4	193 04 55.1	Squirrel	1387.8	3.142318
Michigan r. 1956	d.m.	82 34 10.336	43 33 41.1	223 33 12.0	Harsen	1425.7	3.154031
			328 57 03.7	148 57 13.4	Ref.Mon. 28-42	632.4	2.801010
Sans 1942		42 34 51.046	17 28 13.5	197 28 04.6	Ref.Mon. 28-42	996.7	2.998585
Michigan	d.m.	82 33 42.914	56 49 11.7	236 48 53.1	Tashmoo	747.2	2.873439

International boundary line St. Clair River Third Order Triangulation *State* Michigan *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Ref. Mon. 29-42 1911	42 34 39.638	47 17 13.1	227 16 53.9	Ref.Mon. 28-42	882.7	2.945803
Canada r. 1942; 1956 d.m.	82 33 27.598	86 39 35.9	266 39 07.0	Tashmoo	976.3	2.989595
		135 13 25.1	315 13 14.8	Sans	495.9	2.695382
Road 1942	42 35 05.570	1 27 17.4	181 27 16.8	Ref.Mon. 29-42	800.4	2.903323
Michigan r. 1956 d.m.	82 33 26.707	39 30 43.7	219 30 32.8	Sans	580.9	2.764103
Ref. Mon. 30-42 1911	42 35 01.301	40 29 41.7	220 29 24.8	Ref.Mon. 29-42	878.9	2.943960
Canada r. 1942; 1956 d.m.	82 33 02.571	71 01 24.4	251 00 57.2	Sans	972.9	2.988062
		103 27 49.2	283 27 32.9	Road	565.9	2.752767
Bend 1942	42 35 19.315	33 33 42.4	213 33 34.1	Road	509.0	2.706684
Michigan r. 1956 d.m.	82 33 14.368	334 10 28.2	154 10 36.2	Ref.Mon. 30-42	617.5	2.790659
Ref. Mon. 31-42 1911	42 35 22.175	28 19 48.4	208 19 38.1	Ref.Mon. 30-42	731.7	2.864354
Canada r. 1942 1.-1944	82 32 47.343	60 17 06.9	240 16 40.3	Road	1033.5	3.014322
		81 51 11.2	261 50 52.9	Bend	622.5	2.794136
Grande 1942	42 35 53.739	18 14 17.3	198 14 07.8	Ref.Mon. 31-42	1025.5	3.010922
Michigan 1. 1956 d.m.	82 32 33.268	41 25 22.3	221 24 54.5	Bend	1416.5	3.151209
Cabin 1942	42 35 38.016	46 52 29.8	226 52 14.3	Ref.Mon. 31-42	715.0	2.854324
Canada d.m.	82 32 24.455	63 07 02.0	243 06 28.2	Bend	1276.0	3.105846
		157 30 18.1	337 30 12.1	Grande	525.1	2.720249
		171 32 06.7	351 31 57.5	Chris Craft Tank	2093.5	3.320866
Indian 1942 (Walpole South	42 36 07.352	51 32 59.5	231 32 25.7	Cabin	1455.5	3.163023
base) Canada d.m.	82 31 34.458	72 36 34.4	252 35 54.6	Grande	1405.0	3.147662
		128 50 19.2	308 49 36.2	Chris Craft Tank	1858.6	3.269196
Smith 1942	42 36 21.614	33 37 53.9	213 37 27.4	Cabin	1615.6	3.208339
Michigan r. 1956 d.m.	82 31 45.208	51 52 14.8	231 51 42.3	Grande	1392.9	3.143910
		121 05 59.3	301 05 23.6	Chris Craft Tank	1404.6	3.147550
		330 53 12.4	150 53 19.7	Indian	503.7	2.702156
Beach 1942 (Walpole North	42 36 20.871	44 07 20.6	224 07 08.6	Indian	581.096	2.764248
base) Canada 1. 1956 d.m.	82 31 16.712	92 01 17.0	272 00 57.7	Smith	650.0	2.812899
		112 00 20.1	291 59 25.1	Chris Craft Tank	1997.8	3.300543
Sans R.M. 1942	42 34 51.166	17 02 48.7	197 02 40.0	Ref.Mon. 28-42	998.3	2.999273
Michigan d.m.	82 33 43.202	56 18 16.0	236 17 57.6	Tashmoo	743.8	2.871430
		220 14 21.8	40 14 33.1	Road	582.3	2.765132
		251 20 45.1	71 21 12.5	Ref.Mon. 30-42	977.9	2.990301
		299 20 51.6	119 20 51.8	Sans	7.54	0.877416
		314 59 09.1	134 59 19.6	Ref.Mon. 29-42	503.1	2.701692
Base 23 1942	42 36 35.703	11 21 51.6	191 21 46.2	Indian	892.3	2.950522
Michigan r. 1956 d.m.	82 31 26.745	44 04 08.2	224 03 55.7	Smith	605.1	2.781828
(Now No. 39B)		333 26 50.5	153 26 57.3	Beach	511.6	2.708963
Use-U.S. Engineers 1932	42 36 45.482	26 36 55.2	206 36 43.9	Beach	849.4	2.929122
Canada r. 1942 d.m.	82 31 00.018	63 39 09.6	243 38 51.5	Base 23	679.8	2.832401

International boundary line St. Clair River — Third Order Triangulation — *State* Michigan — *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Ref. Mon. 33-42 1911	42 36 50.479	22 18 23.9	202 18 18.3	Base 23	492.8	2.692671
Michigan r. 1942 1. 1956 d.m.	82 31 18.539	290 03 44.1	110 03 56.6	Use-U.S. Engineers	449.4	2.652647
		357 23 22.8	177 23 24.0	Beach	914.5	2.961207
Squaw 1942	42 37 08.374	31 12 33.3	211 12 20.6	Use-U.S. Engineers	825.9	2.916922
Canada r. 1956 d.m.	82 30 41.242	56 59 42.1	236 59 16.9	Ref.Mon. 33-42	1013.7	3.005889
Nun 1942	42 37 46.445	12 48 44.0	192 48 32.4	Ref.Mon. 33-42	1771.0	3.248226
Michigan r. 1956 d.m.	82 31 01.307	338 43 48.4	158 44 02.0	Squaw	1260.6	3.100578
		359 06 16.8	179 06 17.7	Use-U.S. Engineers	1881.4	3.274471
Misko 1942	42 37 56.905	10 50 11.6	190 50 03.1	Squaw	1524.7	3.183182
Canada r. 1956 d.m.	82 30 28.664	29 00 48.3	209 00 14.6	Ref.Mon. 33-42	2343.7	3.369910
		66 32 43.7	246 32 21.6	Nun	810.8	2.908924
Dan 1942	42 38 13.198	12 39 02.2	192 38 56.7	Nun	846.0	2.927394
Michigan 1. 1956 d.m.	82 30 53.176	311 59 26.9	131 59 43.5	Misko	751.4	2.875896
		352 15 24.7	172 15 32.8	Squaw	2018.7	3.305062
Baby 1942	42 38 34.644	8 16 48.1	188 16 43.1	Misko	1176.8	3.070695
Canada 1. 1956 d.m.	82 30 21.226	31 33 15.0	211 32 47.9	Nun	1745.3	3.241861
		47 43 38.3	227 43 16.7	Dan	983.8	2.992885
Willow 1942	42 38 38.635	11 34 28.4	191 34 23.7	Dan	801.2	2.903743
Michigan 1. 1956 d.m.	82 30 46.120	282 14 55.6	102 15 12.5	Baby	580.3	2.763674
		342 50 04.1	162 50 16.0	Misko	1347.7	3.129586
U.S.E. Station (1) 1942	42 37 57.898	19 36 17.9	199 36 17.6	Misko	32.513	1.512058
Canada d.m.	82 30 28.185					
Willow, ref. bolt (1) 1942	42 38 38.023	225 48 56.8	45 48 57.4	Willow	27.097	1.432918
Michigan r. 1956 d.m.	82 30 46.973					
Port 1942	42 39 18.446	23 20 17.2	203 20 01.4	Willow	1337.9	3.126415
Canada r. 1956 d.m.	82 30 22.855	358 25 39.2	178 25 40.3	Baby	1352.1	3.131004
Roberts 1942	42 39 22.045	279 30 47.6	99 31 07.3	Port	671.7	2.827206
Michigan r. 1956 d.m.	82 30 51.941	334 25 56.8	154 26 17.6	Baby	1621.4	3.209881
		354 20 44.5	174 20 48.4	Willow	1346.0	3.129056
Lamb 1942 Port Lambton south	42 39 45.430	40 05 52.4	220 05 34.3	Roberts	943.3	2.974640
base Canada r. 1956 d.m.	82 30 25.267	356 13 30.2	176 13 31.8	Port	834.4	2.921399
See 1942	42 39 55.261	298 00 40.5	118 00 57.5	Lamb	645.9	2.810157
Michigan r. 1956 d.m.	82 30 50.305	331 10 18.7	151 10 37.3	Port	1296.7	3.112828
Pergola 1942	42 40 17.882	5 04 18.1	185 04 13.5	Roberts	1729.7	3.237978
Michigan 1. 1956 d.m.	82 30 45.228	9 24 18.0	189 24 14.5	See	707.5	2.849741
		335 34 57.7	155 35 11.2	Lamb	1099.7	3.041282
Wash 1942 Port Lambton north	42 39 59.462	13 47 11.7	193 47 08.5	Lamb (south base)	445.815	2.649155
base Canada r. 1956 d.m.	82 30 20.602	79 09 21.0	259 09 00.8	See	688.7	2.838052
		135 23 20.1	315 23 03.4	Pergola	798.5	2.902261

INTERNATIONAL BOUNDARY COMMISSION—UNITED STATES, ALASKA, AND CANADA

GEOGRAPHIC POSITIONS—NORTH AMERICAN DATUM 1927

International boundary line St. Clair River Third Order Triangulation *State* Michigan *Province* Ontario

STATION		LATITUDE AND LONGITUDE			AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE (METERS)	LOGARITHM
		°	′	″	°	′	″	°	′	″			
Sight 1942		42	40	35.195	19	49	30.5	199	49	18.7	Wash	1172.1	3.068954
Canada r. 1956	d.m.	82	30	03.147	60	51	48.7	240	51	20.2	Pergola	1097.1	3.040229
Salt 1942		42	41	16.780	0	10	30.5	180	10	30.3	Wash	2385.8	3.377637
Michigan r. 1956	d.m.	82	30	20.282	17	21	27.2	197	21	10.3	Pergola	1904.1	3.279686
					343	05	16.4	163	05	28.0	Sight	1341.2	3.127486
Cot 1942		42	41	13.335	20	56	52.6	200	56	39.2	Sight	1260.2	3.100430
Canada	d.m.	82	29	43.360	39	28	04.8	219	27	22.9	Pergola	2216.3	3.345636
					97	12	37.3	277	12	12.3	Salt	847.2	2.928004
Marine 1942		42	42	19.060	17	56	28.8	197	56	10.3	Salt	2020.0	3.305350
Michigan 1. 1956	d.m.	82	29	52.949	353	51	23.7	173	51	30.2	Cot	2039.8	3.309586
Tick 1942		42	42	06.811	49	41	08.6	229	40	14.4	Salt	2385.8	3.377637
Canada	d.m.	82	29	00.371	107	32	03.8	287	31	28.1	Marine	1254.9	3.098621
Sombra 1942		42	42	41.664	5	34	31.7	185	34	28.6	Tick	1080.6	3.033663
Canada 1. 1956	d.m.	82	28	55.758	61	49	05.7	241	48	26.9	Marine	1476.7	3.169280
City 1942		42	43	00.637	24	32	00.3	204	31	42.8	Marine	1410.2	3.149293
Michigan r. 1956	d.m.	82	29	27.220	309	16	14.9	129	16	36.2	Sombra	924.8	2.966062
					339	47	59.9	159	48	18.1	Tick	1769.8	3.247912
Gold 1942		42	43	34.597	12	07	11.4	192	07	00.9	Sombra	1670.6	3.222874
Canada r. 1956	d.m.	82	28	40.345	45	30	31.9	225	30	00.1	City	1495.2	3.174708
Burns 1942		42	43	21.241	245	27	35.4	65	28	02.3	Gold	992.4	2.996690
Michigan	d.m.	82	29	20.025	335	40	06.4	155	40	22.8	Sombra	1340.3	3.127198
Mad 1942		42	44	28.895	6	09	06.5	186	08	59.8	Burns	2099.7	3.322155
Michigan	d.m.	82	29	10.135	337	58	31.0	157	58	51.2	Gold	1807.3	3.257042
Dock 1942		42	44	05.199	31	38	22.7	211	37	57.8	Burns	1593.1	3.202256
Canada r. 1956	d.m.	82	28	43.293	140	08	24.7	320	08	06.5	Mad	952.6	2.978911
					355	56	10.4	175	56	12.4	Gold	946.7	2.976194
Work 1942		42	44	32.441	20	21	40.1	200	21	30.8	Dock	896.6	2.952618
Canada	d.m.	82	28	29.579	83	14	21.2	263	13	53.7	Mad	928.9	2.967984
Sand 1942		42	45	07.672	3	38	21.9	183	38	18.2	Dock	1931.6	3.285927
Michigan 1. 1956	d.m.	82	28	37.903	31	29	49.3	211	29	27.4	Mad	1403.2	3.147135
					350	07	13.3	170	07	18.9	Work	1103.5	3.042768
Clay 1942		42	45	10.017	33	48	51.1	213	48	27.9	Work	1395.5	3.144725
Canada 1. 1956	d.m.	82	27	55.436	53	15	05.5	233	14	14.8	Mad	2120.5	3.326434
					85	43	10.5	265	42	41.7	Sand	968.5	2.986088
Guy 1942		42	45	23.336	2	26	32.6	182	26	30.6	Work	1571.9	3.196427
Michigan	d.m.	82	28	26.634	27	56	00.4	207	55	52.8	Sand	547.1	2.738058
					300	04	52.9	120	05	14.1	Clay	819.9	2.913769
Thorn 1942		42	45	47.501	10	12	04.7	190	11	58.5	Clay	1175.2	3.070126
Canada	d.m.	82	27	46.284	50	54	12.4	230	53	45.0	Guy	1182.3	3.072732

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STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Recors 1942	42 45 48.359	18 09 52.3	198 09 44.7	Guy	812.6	2.909901
Michigan r. 1956 d.m.	82 28 15.494	272 16 53.0	92 17 12.8	Thorn	664.7	2.822618
		338 55 01.5	158 55 15.1	Clay	1268.0	3.103126
Hi 1942	42 46 09.552	41 50 10.0	221 49 52.5	Recors	877.7	2.943345
Canada d.	82 27 49.747	353 23 59.3	173 24 01.6	Thorn	685.0	2.835684
Lace 1942	42 46 02.129	249 54 47.0	69 55 05.7	Hi	667.0	2.824144
Michigan r. 1956 d.m.	82 28 17.301	302 37 08.4	122 37 29.4	Thorn	837.3	2.922889
Ref. Mon. 40 ecc. 1942	42 46 15.231	285 28 00.9	105 28 19.8	Hi	657.0	2.817544
Michigan r. 1956 d.m.	82 28 17.597	320 14 11.6	140 14 32.8	Thorn	1113.1	3.046541
		359 02 50.8	179 02 51.0	Lace	404.3	2.606753
Bowen 1942	42 46 31.424	18 50 53.3	198 50 39.7	Recors	1404.1	3.147413
Canada 1. 1956 d.m.	82 27 55.544	45 05 52.6	225 05 37.6	Ref.Mon. 40,ecc.	707.8	2.849936
		348 57 03.5	168 57 07.4	Hi	687.7	2.837372
Remer 1942	42 46 25.321	250 18 43.1	70 18 58.8	Bowen	559.1	2.747477
Michigan 1. 1956 d.m.	82 28 18.700	306 28 13.3	126 28 32.9	Hi	818.5	2.913040
		355 23 50.6	175 23 51.3	Ref.Mon. 40,ecc.	312.4	2.494646
Vista 1942	42 46 47.138	30 29 10.8	210 28 59.0	Remer	781.2	2.892783
Canada 1. 1956 d.m.	82 28 01.265	344 59 07.1	164 59 11.0	Bowen	502.0	2.700745
Flag 1942	42 46 30.986	218 38 00.7	38 38 12.6	Vista	638.1	2.804866
Michigan 1. 1956 d.	82 28 18.790	268 32 00.2	88 32 16.0	Bowen	528.6	2.723155
		315 02 46.8	135 03 06.5	Hi	934.6	2.970609
Mat 1942	42 46 46.729	268 38 41.2	88 38 57.1	Vista	534.0	2.727576
Michigan 1. 1956 d.m.	82 28 24.752	305 25 20.5	125 25 40.3	Bowen	814.8	2.911059
		344 24 41.6	164 24 45.6	Flag	504.4	2.702740
Line 1942	42 46 56.620	296 38 21.8	116 38 39.2	Vista	652.5	2.814596
Michigan r. 1956 d.m.	82 28 26.923	317 27 44.5	137 28 05.8	Bowen	1055.2	3.023315
		350 48 46.3	170 48 47.8	Mat	309.2	2.490204
Ref.Mon. 41-42 1934	42 47 12.375	27 20 24.7	207 20 12.5	Mat	890.9	2.949808
Canada r. 1942; 1956 d.m.	82 28 06.753	43 19 25.7	223 19 12.0	Line	668.2	2.824929
		350 53 56.8	170 54 00.5	Vista	788.7	2.896898
Hart 1942	42 47 08.876	258 56 30.0	78 56 46.5	Ref.Mon. 41-42	563.0	2.750537
Michigan 1. 1956 d.m.	82 28 31.064	314 43 02.2	134 43 22.4	Vista	953.3	2.979223
		346 01 20.6	166 01 23.4	Line	389.7	2.590745
Landi 1942 (St. Clair south	42 47 21.380	291 25 01.8	111 25 23.0	Ref.Mon. 41-42	760.9	2.881312
base) Michigan r. 1956 d.m.	82 28 37.917	338 01 04.2	158 01 08.9	Hart	416.1	2.619192
Orchard 1942	42 47 26.390	37 57 15.4	217 57 02.8	Hart	685.4	2.835934
Canada d.m.	82 28 12.519	75 00 35.4	255 00 18.1	Landi	597.6	2.776402
		343 08 27.0	163 08 30.9	Ref.Mon. 41-42	451.9	2.655030

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STATION		LATITUDE AND LONGITUDE			AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE (METERS)	LOGARITHM
		°	′	″	°	′	″	°	′	″			
Shore 1942		42	47	35.163	47	10	12.8	227	09	59.1	Landi	625.6	2.796298
Canada	d.m.	82	28	17.731	336	22	08.7	156	22	12.3	Orchard	295.5	2.470555
Trail 1942 (St. Clair north base) Michigan	d.m.	42	47	58.678	308	54	23.6	128	54	50.5	Shore	1155.2	3.062675
		82	28	57.287	314	23	48.1	134	24	18.6	Orchard	1424.0	3.153509
					339	04	03.7	159	04	16.9	Landi (St.Clair south base)	1232.236	3.090694
Ref. Mon. 42-42 1911		42	48	11.480	46	46	09.5	226	45	56.9	Trail	576.7	2.760986
Canada r. 1942; 1956	d.m.	82	28	38.795	336	52	07.8	156	52	22.1	Shore	1218.6	3.085866
					359	15	39.1	179	15	39.7	Landi	1546.1	3.189239
Boul 1942		42	48	11.857	271	08	55.6	91	09	12.9	Ref.Mon. 42-42	578.8	2.762533
Michigan 1. 1956	d.m.	82	29	04.262	316	57	14.8	136	57	46.4	Shore	1549.3	3.190125
					338	42	23.2	158	42	27.9	Trail	436.5	2.639957
Mud 1942		42	48	27.376	22	32	07.7	202	31	56.7	Trail	958.8	2.981715
Canada	d.	82	28	41.117	47	40	51.9	227	40	36.2	Boul	711.3	2.852041
					353	51	38.5	173	51	40.1	Ref.Mon. 42-42	493.4	2.693157
Court 1942		42	48	45.256	6	50	01.9	186	49	59.9	Mud	555.7	2.744828
Canada 1. 1956	d.m.	82	28	38.207	29	52	34.0	209	52	16.3	Boul	1188.6	3.075021
Moore 1942		42	48	55.182	295	34	12.5	115	34	31.7	Court	709.6	2.851008
Michigan r. 1956	d.m.	82	29	06.381	326	13	01.1	146	13	18.3	Mud	1032.3	3.013815
					335	04	12.1	155	04	30.9	Ref.Mon. 42-42	1487.1	3.172338
					357	56	16.9	177	56	18.4	Boul	1337.8	3.126390
Right 1942		42	49	23.863	16	28	18.6	196	28	08.1	Court	1242.3	3.094230
Canada	d.m.	82	28	22.703	48	16	20.7	228	15	51.0	Moore	1329.6	3.123718
					123	32	02.6	303	31	30.7	St.Clair (U.S.L.S.)	1279.3	3.106979
Inn 1942		42	49	41.632	3	34	41.8	183	34	39.1	Moore	1436.2	3.157200
Michigan	d.m.	82	29	02.436	134	00	19.3	314	00	14.4	St.Clair (U.S.L.S.)	227.9	2.357770
					301	16	37.2	121	17	04.2	Right	1056.0	3.023673
					342	26	29.7	162	26	46.2	Court	1824.6	3.261178
Rose 1942		42	49	59.738	17	45	06.4	197	44	55.8	Right	1162.4	3.065350
Canada r. 1956	d.m.	82	28	07.101	66	02	13.2	246	01	35.6	Inn	1375.4	3.138429
					74	16	00.2	254	15	17.7	St.Clair (U.S.L.S.)	1476.1	3.169103
St. Clair, ecc. 1942		42	49	46.196	115	11	13.6	295	11	12.5	St.Clair (U.S.L.S.)	41.115	1.614002
Michigan 1. 1956	d.m.	82	29	08.015	253	11	14.1	73	11	55.5	Rose	1445.2	3.159942
					303	48	04.7	123	48	35.5	Right	1238.7	3.092950
					318	01	05.2	138	01	09.0	Inn	189.5	2.277519
Mac 1942		42	50	16.418	25	43	28.3	205	43	12.8	Inn	1191.5	3.076092
Michigan 1. 1956	d.m.	82	28	39.667	304	49	53.2	124	50	15.3	Rose	901.1	2.954758
					346	38	01.3	166	38	12.8	Right	1666.9	3.221907
Wind 1942		42	50	23.335	7	16	13.9	187	16	11.1	Rose	734.0	2.865725
Canada	d.m.	82	28	03.011	75	37	19.4	255	36	54.5	Mac	859.4	2.934186

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STATION	LATITUDE AND LONGITUDE			AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE (METERS)	LOGARITHM
	°	′	″	°	′	″	°	′	″			
Swim 1942	42	50	29.344	284	53	59.7	104	54	20.6	Wind	721.0	2.857918
Michigan d.m.	82	28	33.691	326	31	58.2	146	32	16.3	Rose	1095.1	3.039456
Waves 1942	42	50	49.682	8	40	01.0	188	39	57.3	Wind	822.4	2.915082
Canada 1. 1956 d.m.	82	27	57.554	52	35	41.6	232	35	17.0	Swim	1033.1	3.014132
Weed 1942	42	50	50.357	271	50	02.7	91	50	22.2	Waves	650.3	2.813099
Michigan r. 1956 d.m.	82	28	26.177	327	45	02.4	147	45	18.2	Wind	985.9	2.993844
Ref. Mon. 46, ecc. 1942	42	51	17.424	11	27	33.0	191	27	27.8	Waves	873.5	2.941255
Canada d.	82	27	49.912	44	35	44.3	224	35	19.6	Weed	1172.9	3.069253
Lawn 1942	42	51	09.853	251	58	21.0	71	58	42.5	Ref.Mon. 46, ecc.	755.0	2.877960
Michigan d.m.	82	28	21.534	318	49	12.4	138	49	28.7	Waves	827.0	2.917501
Bitter 1942	42	51	50.279	6	33	17.2	186	33	13.7	Ref.Mon. 46, ecc.	1020.5	3.008818
Canada d.m.	82	27	44.781	33	46	52.6	213	46	27.6	Lawn	1500.8	3.176322
Ship 1942	42	51	44.158	258	41	45.6	78	42	13.9	Bitter	963.9	2.984050
Michigan 1. 1956 d.m.	82	28	26.420	314	51	44.2	134	52	09.0	Ref.Mon. 46, ecc.	1169.4	3.067968
Limit 1942	42	52	36.315	323	28	24.7	143	28	56.2	Bitter	1767.7	3.247418
Michigan d.m.	82	28	31.129	356	11	58.9	176	12	02.1	Ship	1613.0	3.207643
Edwards 1942	42	52	37.365	34	46	05.2	214	45	31.0	Ship	1998.6	3.300724
Canada d.m.	82	27	36.216	88	31	00.6	268	30	23.2	Limit	1246.7	3.095778
Gar 1942	42	53	22.789	1	07	44.6	181	07	43.7	Limit	1434.4	3.156664
Michigan 1. 1956 d.m.	82	28	29.884	319	00	28.7	139	01	05.2	Edwards	1856.9	3.268795
				340	16	06.4	160	16	37.0	Bitter	3032.7	3.481828
Corunna 1942	42	53	55.735	4	55	02.8	184	54	56.5	Edwards	2427.3	3.385122
Canada d.m.	82	27	27.048	54	30	51.8	234	30	09.0	Gar	1751.1	3.243306
Wood 1942	42	53	58.313	14	29	09.8	194	29	01.3	Gar	1132.2	3.053918
Michigan 1. 1956 d.m.	82	28	17.403	273	58	42.6	93	59	16.9	Corunna	1145.2	3.058888
Talford 1942	42	54	23.146	37	06	54.6	217	06	12.3	Gar	2335.5	3.368379
Canada d.m.	82	27	27.778	55	45	45.1	235	45	11.3	Wood	1361.9	3.134142
				358	52	44.4	178	52	44.9	Corunna	846.0	2.927390
Cozy 1942	42	54	35.955	22	07	46.9	202	07	32.7	Wood	1253.9	3.098277
Michigan d.m.	82	27	56.583	301	10	00.3	121	10	19.9	Talford	763.7	2.882911
				331	38	05.5	151	38	25.6	Corunna	1410.4	3.149356
Brick 1942	42	54	41.956	12	37	27.1	192	37	23.2	Talford	594.8	2.774380
Canada d.m.	82	27	22.047	76	42	14.7	256	41	51.2	Cozy	805.0	2.905788
90-I.W.C. (Cottage, U.S.L.S.)	42	54	51.979	21	07	43.4	201	07	37.7	Cozy	530.1	2.724359
Michigan r. 1911; 1942;1956 d.m.	82	27	48.159	297	34	14.4	117	34	32.2	Brick	668.2	2.824899
				332	32	24.8	152	32	38.7	Talford	1002.7	3.001161
Hill 1942 Corunna south base	42	54	53.748	11	58	35.5	191	58	33.2	Brick	372.0	2.570508
Canada r. 1956 d.m.	82	27	18.644	85	20	30.1	265	20	10.0	90-I.W.C.(Cottage,USLS)	671.7	2.827166

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STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Morton 1942	42 55 11.222	16 08 52.2	196 08 47.0	90-I.W.C.(Cottage,USLS)	618.2	2.791123
Michigan d.m.	82 27 40.579	317 18 06.0	137 18 20.9	Mill-1942	733.7	2.865504
		335 02 19.3	155 02 31.9	Brick	996.1	2.998315
Rocks 1942 Corunna north base	42 55 17.345	13 02 40.4	193 02 35.3	Mill-1942 (south base)	747.444	2.873578
Canada r. 1956 d.m.	82 27 11.206	74 10 07.7	254 09 47.7	Morton	692.5	2.840389
Keel 1942	42 55 23.029	13 29 14.2	193 29 11.6	Morton	374.7	2.573641
Michigan d.m.	82 27 36.726	286 51 24.0	106 51 41.4	Rocks	604.8	2.781592
		335 35 06.9	155 35 19.2	Mill-1942	992.3	2.996631
Park 1942	42 55 54.476	15 27 21.0	195 27 12.9	Keel	1006.8	3.002941
Michigan r. 1956 d.m.	82 27 24.896	344 50 18.6	164 50 27.9	Rocks	1187.1	3.074487
Pap 1942	42 55 52.984	20 10 39.4	200 10 27.2	Rocks	1171.6	3.068795
Canada d.m.	82 26 53.387	46 45 37.5	226 45 07.9	Keel	1349.2	3.130082
		93 41 22.7	273 41 01.2	Park	716.0	2.854898
Backus 1942	42 56 24.139	31 50 31.6	211 50 14.5	Park	1077.5	3.032415
Michigan r. 1956 d.m.	82 26 59.827	351 21 47.6	171 21 52.0	Pap	972.4	2.987855
Ref. Mon. 50-42 1911	42 56 10.374	30 22 30.5	210 22 21.1	Pap	622.0	2.793802
Canada r. 1942; 1956 d.m.	82 26 39.517	64 30 47.2	244 30 16.3	Park	1140.0	3.056888
		132 41 21.3	312 41 07.5	Backus	626.5	2.796911
Bush 1942	42 56 21.993	42 13 12.9	222 13 03.1	Ref.Mon. 50-42	484.1	2.684966
Canada d.m.	82 26 25.169	94 49 11.2	274 48 47.6	Backus	788.6	2.896852
Iris 1942	42 56 43.042	2 54 23.5	182 54 22.0	Ref.Mon. 50-42	1009.4	3.004053
Michigan d.m.	82 26 37.259	41 15 25.8	221 15 10.5	Backus	775.9	2.889816
		337 07 04.4	157 07 12.7	Bush	705.0	2.848195
Poly 1942	42 56 39.539	49 21 11.7	229 20 52.8	Bush	831.1	2.919678
Canada d.m.	82 25 57.355	96 49 04.2	276 48 37.0	Iris	911.1	2.959574
Pile 1942	42 56 59.639	17 55 40.7	197 55 29.5	Bush	1221.0	3.086701
Michigan d.m.	42 26 08.592	51 45 44.5	231 45 25.0	Iris	827.4	2.917734
		337 40 10.1	157 40 17.8	Poly	670.5	2.826420
Mer 1942	42 57 02.082	39 26 46.4	219 26 29.2	Poly	900.8	2.954634
Canada d.m.	82 25 32.110	84 47 39.8	264 47 14.9	Pile	830.5	2.919314
Boat 1942	42 57 14.897	7 50 27.3	187 50 22.8	Poly	1101.4	3.041939
Michigan 1. 1956 d.m.	82 25 50.727	40 42 03.1	220 41 50.9	Pile	621.0	2.793119
		313 08 08.2	133 08 20.9	Mer	578.3	2.762183
Muel 1942	42 57 24.394	28 33 30.2	208 33 19.0	Mer	783.9	2.894249
Canada d.m.	82 25 15.579	69 48 25.0	249 48 01.1	Boat	848.9	2.928859
Pere 1942	42 57 34.808	307 50 51.8	127 51 04.2	Muel	523.7	2.719123
Michigan d.m.	82 25 33.825	357 47 42.8	177 47 44.0	Mer	1010.6	3.004592
Ref. Mon. 49, ecc. 1942	42 55 40.978	233 27 09.8	53 27 46.5	Ref.Mon. 50-42	1523.5	3.182843
Michigan n.d.	82 27 33.495	247 50 01.5	67 50 28.8	Pap	982.1	2.992146
		325 16 15.8	145 16 30.9	Rocks	887.3	2.948084

INTERNATIONAL BOUNDARY COMMISSION—UNITED STATES, ALASKA, AND CANADA
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International boundary line St. Clair River Third Order Triangulation *State* Michigan *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Rex 1942	42 57 49.742	36 05 46.1	216 05 28.9	Muel	968.0	2.985877
Canada d.m.	82 24 50.419	64 54 15.9	244 53 46.3	Pere	1086.4	3.035979
Marq 1942 (Port Huron south base) Michigan d.m.	42 57 48.610	267 25 31.5	87 25 54.9	Rex	778.9	2.891481
	82 25 24.751	344 27 06.6	164 27 12.8	Muel	775.6	2.889658
Kail 1942 (Port Huron north base) Michigan d.m.	42 58 15.533	18 16 36.4	198 16 28.1	Marq (south base)	874.933	2.941975
	82 25 12.645	327 40 05.2	147 40 20.3	Rex	941.9	2.973986
Junk 1942	42 58 28.705	18 37 41.3	198 37 29.1	Rex	1268.8	3.103392
Canada d.m.	82 24 32.537	43 43 38.2	223 43 02.6	Marq	1712.0	3.233512
		65 54 28.7	245 54 01.4	Kail	995.6	2.998101
Ware 1942	42 58 58.128	32 46 41.7	212 46 16.1	Kail	1563.3	3.194041
Canada d.m.	82 24 35.297	356 03 31.7	176 03 33.6	Junk	910.1	2.959088
Huron 1942	42 58 41.013	235 02 54.6	55 03 17.3	Ware	922.0	2.964710
Michigan d.m.	82 25 08.649	294 53 42.0	114 54 06.6	Junk	902.2	2.955279
		345 21 50.1	165 22 02.5	Rex	1635.2	3.213572
Bay 1942	42 59 10.085	3 21 31.0	183 21 29.4	Huron	898.7	2.953593
Canada d.m.	82 25 06.326	297 41 24.9	117 41 46.0	Ware	794.0	2.899796
		329 03 04.9	149 03 27.9	Junk	1488.9	3.172852
Intake 1942	42 59 09.305	184 37 44.9	4 37 50.4	Fort Gratiot Lighthouse (USLS)	2269.0	3.355830
Michigan d.m.	82 25 29.155	267 20 03.0	87 20 18.6	Bay	517.8	2.714143
		285 46 42.7	105 47 19.4	Ware	1268.1	3.103137
		314 18 59.9	134 19 38.5	Junk	1793.2	3.253618
Sarnia 1942	42 59 08.501	16 28 35.3	196 28 24.4	Junk	1280.6	3.107422
Canada r. 1956 d.m.	82 24 16.508	90 52 14.3	270 51 24.8	Intake	1646.1	3.216453
Blue 1942	42 59 47.087	8 23 20.2	188 23 15.2	Bay	1154.2	3.062283
Canada r. 1956 d.m.	82 24 58.893	30 27 28.9	210 27 08.3	Intake (USLS)	1352.5	3.131148
		155 22 22.5	335 22 07.4	Fort Gratiot Lighthouse	1205.3	3.081097
		159 58 11.4	339 57 48.9	Conger	2185.5	3.339552
		213 20 49.5	33 21 05.7	Ref.Mon. 57, ecc.	977.8	2.990241
		321 06 47.5	141 07 16.4	Sarnia	1529.7	3.184594
Yard 1942	42 59 47.570	199 07 08.1	19 07 19.4	Fort Gratiot Lighthouse (USLS)	1143.9	3.058370
Michigan d.m.	82 25 37.611	270 58 11.2	90 58 37.6	Blue	877.2	2.943087
		350 47 02.2	170 47 08.0	Intake	1196.3	3.077826

INTERNATIONAL BOUNDARY COMMISSION—UNITED STATES, ALASKA, AND CANADA

GEOGRAPHIC POSITIONS—NORTH AMERICAN DATUM 1927

International boundary line St. Clair River Reference Monuments *State* Michigan *Province* Ontario

STATION		LATITUDE AND LONGITUDE			AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE (METERS)	LOGARITHM
		°	′	″	°	′	″	°	′	″			
Ref. Mon. 16-42	d.m.	42	31	59.216	112	28	11.4	292	27	21.4	Beacon	1824.7	3.261186
Michigan 1926;r.1942;1.1956		82	40	10.190	197	27	33.2	17	27	39.3	Old	681.1	2.833230
					212	15	32.6	32	15	33.4	St.Clair Flats,light No.6	45.9	1.661762
Ref. Mon. 17-42	d.m.	42	32	22.593	47	05	32.0	227	05	08.9	Ref. Mon. 16-42	1059.4	3.025078
Ontario 1911;r.1942;1956		82	39	36.187	47	45	18.3	227	44	56.0	St.Clair Flats,lt.No.6	1015.1	3.006529
					82	51	47.6	262	51	30.6	Old	576.0	2.760440
					211	30	33.8	31	30	56.1	St.Clair River,lt.No.1	1443.8	3.159510
Ref. Mon. 18-42	d.m.	42	32	43.551	60	00	55.9	240	00	19.0	Old	1436.9	3.157441
Ontario 1911;r.1942;1956		82	39	06.693	187	57	21.2	7	57	23.6	St.Clair River,lt.No.1	589.9	2.770782
					209	33	40.4	29	33	58.6	Kelly	1246.4	3.095650
					210	27	50.6	30	28	16.9	St.Clair River,lt.No.3	1748.0	3.242548
Ref. Mon. 19-42	d.m.	42	33	12.840	48	25	45.4	228	25	15.2	Ref. Mon. 18-42	1361.9	3.134147
Ontario 1911;r.1942;1.1956		82	38	22.038	71	10	34.3	251	10	06.5	St.Clair River,lt.No.1	990.1	2.995685
					114	04	00.6	294	03	48.6	Kelly	442.3	2.645694
					167	36	42.2	347	36	38.3	St.Clair River,lt.No.3	617.3	2.790472
					220	19	05.3	40	19	18.5	Beebe	685.0	2.835670
Ref. Mon. 20-42	d.m.	42	33	18.837	71	17	39.8	251	16	55.6	St.Clair River,lt.No.1	1572.8	3.196678
Ontario 1911;r.1942;1956		82	37	57.818	71	29	15.2	251	28	58.8	Ref. Mon. 19-42	582.7	2.765452
					83	00	00.1	262	59	48.1	St.Clair River,lt.No.2	407.5	2.610110
					89	43	23.0	269	42	54.6	Kelly	956.4	2.980632
					121	23	16.5	301	22	56.2	St.Clair River,lt.No.3	802.3	2.904363
					149	09	09.8	329	09	04.3	St.Clair River,lt.No.5	362.1	2.558838
					162	02	16.8	342	02	13.6	Beebe	354.5	2.549603
					249	29	42.9	69	30	07.7	Oso	892.5	2.950625
					250	54	33.3	70	54	57.6	St.Clair River,lt.No.7	865.1	2.937087
Ref. Mon. 21-42	d.m.	42	33	18.602	53	26	22.4	233	24	12.9	St.Clair Flats,lt.No.4	5443.6	3.735885
Ontario 1911;r.1942;1.1956		82	37	28.878	76	59	02.4	256	57	58.7	St.Clair River,lt.No.1	2206.7	3.343743
					81	39	52.8	261	39	16.9	Ref. Mon. 19-42	1225.7	3.088400
					90	37	51.9	270	37	32.4	Ref. Mon. 20-42	660.3	2.819716
					107	32	34.9	287	31	55.1	St.Clair River,lt.No.3	1410.7	3.149442
					110	36	49.8	290	36	24.8	St.Clair River,lt.No.5	903.7	2.956036
					114	07	01.6	294	06	38.9	Beebe	843.1	2.925880
					208	28	22.9	28	28	27.7	St.Clair River,lt.No.7	330.1	2.518616
					208	47	41.7	28	47	47.0	Oso	365.0	2.562248
					266	07	23.0	86	07	44.5	Speed	726.1	2.861014
					284	57	12.3	104	57	27.7	St.Clair River,lt.No.4	537.8	2.730614

INTERNATIONAL BOUNDARY COMMISSION—UNITED STATES, ALASKA, AND CANADA

GEOGRAPHIC POSITIONS—NORTH AMERICAN DATUM 1927

International boundary line St. Clair River Reference Monuments *State* Michigan *Province* Ontario

STATION		LATITUDE AND LONGITUDE			AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE (METERS)	LOGARITHM
		°	′	″	°	′	″	°	′	″			
Ref. Mon. 22-42	d.m.	42	33	11.917	58	20	24.8	238	17	58.9	St.Clair Flats,lt.No.4	5784.1	3.762236
Ontario 1911;r.1942;1.1956		82	37	04.743	83	51	36.3	263	50	16.2	St.Clair River,lt.No.1	2716.2	3.433968
					108	25	40.5	288	24	44.3	St.Clair River,lt.No.3	1998.2	3.300629
					110	32	26.9	290	32	10.6	Ref.Mon. 21-42	588.0	2.769369
					141	37	06.7	321	36	55.1	St.Clair River,lt.No.7	633.3	2.801618
					144	32	09.5	324	31	58.4	Oso	646.0	2.810213
					214	15	02.2	34	15	07.4	Speed	308.9	2.489848
					218	10	33.2	38	10	38.2	St.Clair River,lt.No.9	272.0	2.434623
					285	42	44.5	105	43	03.0	George	646.2	2.810380
					291	00	32.8	111	00	57.0	St.Clair River,lt.No.11	874.1	2.941543
					291	15	28.1	111	16	16.6	St.Clair River,lt.No.8	1754.2	3.244091
					319	42	17.5	139	42	27.0	St.Clair River,lt.No.6	494.4	2.694107
Ref. Mon. 23-42	d.m.	42	32	52.910	65	35	25.8	245	32	45.9	St.Clair Flats,lt.No.4	5926.4	3.772790
Ontario 1911;r.1942;1956		82	36	44.004	95	19	50.8	275	18	16.7	St.Clair River,lt.No.1	3187.6	3.503464
					117	12	59.1	297	11	48.9	St.Clair River,lt.No.3	2663.7	3.425485
					141	06	19.9	321	06	05.9	Ref.Mon. 22-42	753.5	2.877106
					143	46	01.9	323	45	57.4	St.Clair River,lt.No.6	259.5	2.414194
					159	08	21.2	339	08	12.2	St.Clair River,lt.No.9	856.5	2.932709
					160	25	49.4	340	25	40.6	Speed	893.4	2.951060
					199	53	52.7	19	53	57.2	George	437.6	2.641039
					248	34	13.9	68	34	31.5	Lind	636.4	2.803720
					259	37	06.0	79	37	39.3	St.Clair River,lt.No.13	1141.8	3.057584
					272	26	51.5	92	27	26.0	St.Clair River,lt.No.8	1162.8	3.065493
Ref. Mon. 24-42	d.m.	42	32	46.794	69	06	01.4	249	03	06.1	St.Clair Flats,lt.No.4	6335.2	3.801759
Ontario 1911;r.1942		82	36	21.147	97	28	45.2	277	26	55.7	St.Clair River,lt.No.1	3727.0	3.571362
					109	53	45.1	289	53	29.6	Ref.Mon. 23-42	554.6	2.744007
					115	57	37.1	295	56	11.5	St.Clair River,lt.No.3	3214.6	3.507124
					120	32	04.7	300	31	44.7	St.Clair River,lt.No.6	783.6	2.894084
					127	56	05.6	307	55	36.1	Ref.Mon. 22-42	1261.1	3.100742
					140	07	08.1	320	06	43.6	St.Clair River,lt.No.9	1288.9	3.110228
					141	28	03.2	321	27	38.9	Speed	1317.5	3.119738
					148	10	07.9	328	09	56.9	George	706.4	2.849061
					158	50	37.7	338	50	32.4	St.Clair River,lt.No.11	495.2	2.694742
					189	33	06.0	9	33	08.1	Lind	427.1	2.630563
					236	44	58.4	56	45	16.2	St.Clair River,lt.No.13	719.3	2.856939
					257	44	57.5	77	45	16.5	St.Clair River,lt.No.8	655.1	2.816301
					289	26	03.0	109	27	17.5	Bassett	2666.8	3.425983

International boundary line St. Clair River Reference Monuments *State* Michigan *Province* Ontario

STATION		LATITUDE AND LONGITUDE			AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE (METERS)	LOGARITHM
		°	′	″	°	′	″	°	′	″			
Ref. Mon. 25-42	d.m.	42	32	53.435	71	07	18.3	251	03	44.9	St. Clair Flats,lt.No.4	7614.3	3.881631
Ontario 1911;r.1942;1956		82	35	24.788	80	57	02.8	260	56	24.7	Ref.Mon. 24-42	1302.1	3.114659
					89	29	38.8	269	28	45.2	Ref.Mon. 23-42	1807.5	3.257079
					93	13	44.2	273	11	16.6	St.Clair River;lt.No.1	4989.1	3.698020
					100	05	55.6	280	05	19.6	Lind	1234.1	3.091351
					105	28	46.0	285	28	25.7	St.Clair River;lt.No.13	710.0	2.851282
					169	16	37.0	349	16	34.8	St.Clair River,lt.No.15	382.8	2.583017
					196	48	31.0	16	48	38.9	Ref.Mon. 26,ecc.	921.9	2.964667
					198	07	14.1	18	07	35.3	Harsen	2301.1	3.361931
					198	08	29.9	18	08	41.2	Joyce	1224.8	3.088070
					203	39	54.7	23	40	31.5	St.Clair Riv.,lt.No.17A	3095.1	3.490679
					207	23	39.2	27	24	06.2	St.Clair River,lt.No.12	1985.0	3.297756
					216	31	44.5	36	32	25.5	Squirrel	2325.3	3.366476
					220	38	43.8	40	38	51.5	St.Clair River,lt.No.10	398.7	2.600593
					229	17	18.8	49	17	46.1	Canclub	1216.9	3.085243
					311	38	36.0	131	39	12.4	Bassett	1644.2	3.215957
Ref. Mon. 26-42	d.m.	42	33	21.666	16	16	42.2	196	16	34.7	Ref.Mon. 25-42	907.5	2.957845
Michigan 1942;r.1956		82	35	13.639	227	08	49.4	47	08	49.8	Ref.Mon. 26,ecc.	16.692	1.222519
					276	36	46.4	96	37	06.2	Canclub	672.5	2.827704
Ref. Mon. 27-42	d.m.	42	33	49.503	1	24	13.3	181	24	12.6	Canclub	936.7	2.971611
Ontario 1911;r.1942;1956		82	34	43.351	25	39	25.8	205	39	05.5	St.Clair River,lt.No.10	1583.7	3.199682
					28	39	22.8	208	38	54.8	Ref.Mon. 25-42	1971.5	3.294798
					38	41	16.6	218	40	56.5	Ref.Mon. 26,ecc.	1085.9	3.035771
					38	48	56.4	218	48	35.9	Ref.Mon. 26-42	1102.4	3.042326
					44	53	14.4	224	52	57.7	Joyce	799.1	2.902588
					135	18	26.4	315	18	25.4	St.Clair River,lt.No.12	45.4	1.656614
					153	19	45.6	333	19	38.8	Harsen	511.2	2.708617
					182	00	35.7	2	00	36.6	St.Marks R.C.Ch.spire	863.7	2.936380
					193	39	33.7	13	39	40.6	St.Clair River,lt.No.17	985.7	2.993746
					252	30	40.1	72	30	53.1	Squirrel	460.2	2.662908
Ref. Mon. 28-42	d.m.	42	34	20.233	38	20	02.9	218	19	43.9	Squirrel	1032.5	3.013888
Ontario 1911;r.1942;1956		82	33	56.034	48	42	09.0	228	41	37.0	Ref.Mon. 27-42	1436.6	3.157338
					50	30	15.2	230	29	42.2	St.Clair River,lt.No.12	1440.0	3.158362
					69	25	32.5	249	24	53.7	Harsen	1398.5	3.145675
					85	22	17.2	265	21	46.1	St.Marks R.C.Ch.spire	1052.3	3.022147
					90	39	16.9	270	38	51.8	St.Clair River,lt.No.17	846.4	2.927600
					148	57	13.4	328	57	03.7	Tashmoo	632.4	2.801010
					197	02	40.0	17	02	48.7	Sans R.M.	998.3	2.999273
					197	28	04.6	17	28	13.5	Sans	996.7	2.998585
Ref. Mon. 29-42	d.m.	42	34	39.638	47	17	13.1	227	16	53.9	Ref.Mon. 28-42	882.7	2.945803
Ontario 1911;r.1942;1956		82	33	27.598	68	03	55.2	248	03	04.9	St.Marks R.C.Ch.spire	1829.9	3.262432
					86	39	35.9	266	39	07.0	Tashmoo	976.3	2.989595
					134	59	19.6	314	59	09.1	Sans R.M.	503.1	2.701692
					135	13	25.1	315	13	14.8	Sans	495.9	2.695382
					181	27	16.8	1	27	17.4	Road	800.4	2.903323
					184	56	31.3	4	56	33.5	St.Clair River,lt.No.19	860.8	2.934915

International boundary line St. Clair River Reference Monuments *State* Michigan *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
	° ′ ″	° ′ ″	° ′ ″			
Ref. Mon. 30-42 d.m.	42 35 01.301	40 29 41.7	220 29 24.8	Ref.Mon. 29-42	878.9	2.943960
Ontario 1911;r.1942;1956	82 33 02.571	59 12 22.5	239 11 15.3	St.Marks R.C.Ch.spire	2640.6	3.421695
		71 01 24.4	251 00 57.2	Sans	972.9	2.988062
		71 21 12.5	251 20 45.1	Sans R.M.	977.9	2.990301
		103 27 49.2	283 27 32.9	Road	565.9	2.752767
		110 51 37.1	290 51 22.4	St.Clair River,lt.No.19	531.4	2.725398
		154 10 36.2	334 10 28.2	Bend	617.5	2.790659
Ref. Mon. 31-44 d.m.	42 35 21.653	25 34 58.2	205 34 57.2	Bend	79.97	1.902930
Michigan 1944;r.1956	82 33 12.854	268 24 39.5	88 24 56.8	Ref.Mon. 31-42	581.9	2.764846
		339 31 30.4	159 31 37.4	Ref.Mon. 30-42	670.3	2.826292
Ref. Mon. 32-42 d.m.	42 36 30.329	239 45 10.3	59 45 34.1	Use(U.S.Engrs.)	928.3	2.967690
Michigan 1911;r.1942;1956	82 31 35.202	293 42 00.5	113 42 20.6	Walpole Is.R.C.Ch.spire	733.9	2.865661
		296 02 02.1	116 02 19.8	Walpole Is.School,pole	662.2	2.821065
		304 41 58.3	124 42 10.8	Beach	512.7	2.709822
		358 37 51.3	178 37 51.8	Indian	709.2	2.850773
Ref. Mon. 33-42 d.m.	42 36 50.479	22 18 23.9	202 18 18.3	Base 23	492.8	2.692671
Michigan 1911; r. 1942;1956	82 31 18.539	31 25 11.9	211 25 00.6	Ref. Mon. 32-42	728.6	2.862471
		192 48 32.4	12 48 44.0	Nun	1771.0	3.248226
		209 00 14.6	29 00 48.3	Misko	2343.7	3.369910
		222 49 26.7	42 49 51.7	St.Clair River,lt.No.18	1241.4	3.093898
		236 59 16.9	56 59 42.1	Squaw	1013.7	3.005889
		290 03 44.1	110 03 56.6	Use-U.S. Engrs.	449.4	2.652647
		308 02 31.1	128 02 41.2	St.Clair River,lt.No.16	431.7	2.635142
		341 36 34.7	161 36 35.2	St.Clair River,lt.No.25	58.71	1.768714
		346 43 27.4	166 43 33.8	Walpole Is.School,pole	937.5	2.971980
		357 23 22.8	177 23 24.0	Beach	914.5	2.961207
Ref. Mon. 34-42 d.m.	42 38 22.740	244 12 31.5	64 12 54.1	Baby	844.3	2.926500
Michigan 1911;r.1942;1956	82 30 54.595	323 27 16.7	143 27 34.3	Misko	992.3	2.996632
		353 43 53.2	173 43 54.2	Dan	296.2	2.471627
Ref. Mon. 35-42 d.m.	42 39 51.489	14 06 24.7	194 06 23.3	Lamb	192.8	2.285058
Ontario 1911;r.1942;1956	82 30 23.204	35 46 16.8	215 45 57.3	Roberts	1119.7	3.049121
		100 40 57.4	280 40 39.0	See	628.1	2.798008
		148 22 32.6	328 22 17.7	Pergola	956.5	2.980666
		181 18 23.0	1 18 24.8	Salt Dock light	2631.1	3.420137
Ref. Mon. 36-42 d.m.	42 41 57.168	5 59 04.3	185 59 00.1	Cot	1360.0	3.133527
Ontario 1911; r.1942;1956	82 29 37.132	13 10 48.9	193 10 31.3	Sight	2597.9	3.414616
		38 14 49.9	218 14 20.7	Salt	1586.8	3.200525
		151 56 52.6	331 56 41.9	Marine	765.5	2.883925
		160 50 21.8	340 50 04.5	Marine City, tank	1773.9	3.248936
		176 11 54.6	356 11 51.7	Marine City R.C.School cross	1504.4	3.177364
		177 13 33.2	357 13 31.0	Marine City R.C.Church cross	1530.6	3.184868
		186 34 10.0	6 34 16.8	City	1971.4	3.294780
		213 01 47.9	33 02 28.4	Sombra Anglican Church cross	2487.7	3.395791
		214 26 18.4	34 26 46.5	Sombra	1664.9	3.221387

International boundary line St. Clair River Reference Monuments *State* Michigan *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Ref. Mon. 37-42 d.m.	42 43 03.866	29 30 49.4	209 30 37.8	Sombra	787.2	2.896093
Ontario 1934;r.1942;1956	82 28 38.716	32 51 55.4	212 51 15.7	Ref.Mon. 36-42	2450.1	3.389189
		69 20 29.4	249 19 47.5	Marine City R.C.Ch.cross	1499.8	3.176041
		84 50 46.6	264 50 13.7	City	1108.2	3.044604
		119 42 27.0	299 41 59.0	Burns	1082.1	3.034261
		177 45 47.0	357 45 45.9	Gold	949.0	2.977279
		224 20 59.0	44 20 59.8	Sombra Anglican Ch.cross	38.28	1.583008
Ref. Mon. 38-42 d.m.	42 44 04.277	234 18 52.8	54 19 28.9	Work	1490.0	3.173186
Michigan 1911;r.1942;1956	82 29 22.787	268 10 59.8	88 11 26.6	Dock	898.9	2.953688
		313 28 57.7	133 29 26.5	Gold	1330.8	3.124115
		330 43 38.9	150 44 09.6	Sombra Anglican Ch.cross	2105.6	3.323370
		331 43 18.1	151 43 48.0	Ref.Mon. 37-42	2116.7	3.325657
Ref. Mon. 39-42 d.m.	42 45 43.042	56 36 10.5	236 35 42.9	Guy	1104.6	3.043209
Ontario 1911;r.1942;1956	82 27 46.080	103 42 30.1	283 42 10.1	Recors Point light	689.7	2.838660
		103 47 10.7	283 46 50.7	Recors	688.6	2.837991
		129 41 05.7	309 40 44.5	Lace	922.4	2.964915
		178 04 05.9	358 04 05.7	Thorn	137.7	2.138801
Ref. Mon. 40, ecc. d.m.	42 46 15.231	175 23 51.3	355 23 50.6	Remer	312.4	2.494646
Michigan 1942	82 28 17.597	225 05 37.6	45 05 52.6	Bowen	707.8	2.849936
		285 28 00.9	105 28 19.8	Hi	657.0	2.817544
		320 14 11.6	140 14 32.8	Thorn	1113.1	3.046541
		324 11 20.3	144 11 41.7	Ref.Mon. 39-42	1224.8	3.088052
		359 02 50.8	179 02 51.0	Lace	404.3	2.606753
Ref. Mon. 40-42 d.m.	42 46 13.783	185 12 30.2	5 12 30.3	Ref.Mon. 40, ecc.	44.867	1.651927
Michigan 1911;r.1942;1956	82 28 17.776					
Ref. Mon. 41-42 d.m.	42 47 12.375	27 20 24.7	207 20 12.5	Mat	890.9	2.949808
Ontario 1934;r.1942;1956	82 28 06.753	43 19 25.7	223 19 12.0	Line	668.2	2.824929
		78 56 46.5	258 56 30.0	Hart	563.0	2.750537
		111 25 23.0	291 25 01.8	Landi	760.9	2.881312
		139 55 38.4	319 54 35.2	St. Clair, aerial	3277.6	3.515552
		163 08 30.9	343 08 27.0	Orchard	451.9	2.655030
		350 53 56.8	170 54 00.5	Vista	788.7	2.896898
Ref. Mon. 42-42 d.m.	42 48 11.480	46 46 09.5	226 45 56.9	Trail	576.7	2.760986
Ontario 1911;r.1942;1956	82 28 38.795	91 09 12.9	271 08 55.6	Boul	578.8	2.762533
		116 20 06.4	296 19 25.0	St. Clair, aerial	1542.0	3.188081
		155 04 30.9	335 04 12.1	Moore	1487.1	3.172338
		173 51 40.1	353 51 38.5	Mud	493.4	2.693157
		336 52 07.8	156 52 22.1	Shore	1218.6	3.085866
		359 15 39.1	179 15 39.7	Landi	1546.1	3.189239
Ref. Mon. 43-42 d.m.	42 48 30.663	237 53 32.5	57 53 54.0	Court	847.3	2.928031
Michigan 1911;r.1942;1.1956	82 29 09.796	278 50 41.6	98 51 01.1	Mud	659.5	2.819198
		310 00 23.7	130 00 44.8	Ref.Mon. 42-42	919.2	2.963409

International boundary line St. Clair River Reference Monuments *State* Michigan *Province* Ontario

STATION		LATITUDE AND LONGITUDE			AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE (METERS)	LOGARITHM
		°	′	″	°	′	″	°	′	″			
Ref. Mon. 44-42	d.m.	42	49	25.858	40	23	37.2	220	23	35.6	Right	80.9	1.907697
Ontario 1935;r.1942;1956		82	28	20.397	47	49	20.6	227	48	49.3	Moore	1409.7	3.149133
					99	45	01.1	279	44	29.4	St. Clair, tank	1075.7	3.031698
					117	00	47.8	297	00	19.2	Inn	1071.8	3.030114
					164	19	51.6	344	19	38.5	Mac	1620.4	3.209622
Ref. Mon. 45-42	d.m.	42	50	18.329	22	43	53.5	202	43	36.3	St. Clair, tank	1558.0	3.192580
Michigan 1911;r. 1942;1956		82	28	40.565	225	16	05.7	45	16	34.9	Waves	1374.8	3.138232
					259	43	48.0	79	44	13.5	Wind	866.7	2.937882
					340	55	01.7	160	55	02.3	Mac	62.4	1.795220
					344	12	02.9	164	12	16.6	Ref. Mon. 44-42	1682.7	3.226006
					346	25	39.2	166	25	51.3	Right	1729.0	3.237794
Ref. Mon. 46-42	d.m.	42	51	18.300	44	23	08.3	224	23	07.5	Ref.Mon. 46, ecc.	37.8	1.577695
Ontario 1911;r.1942;1956		82	27	48.747	70	42	22.1	250	41	59.8	Lawn	788.7	2.896930
					133	02	00.1	313	01	34.5	Ship	1169.7	3.068073
Ref. Mon. 47-42	d.m.	42	53	13.999	189	52	19.7	9	52	26.0	Gar Wood, tank	1223.1	3.087464
Michigan 1911;r.1942; 1.1956		82	28	31.226	192	55	02.4	12	55	11.8	Wood	1402.9	3.147042
					214	00	00.6	34	00	43.8	Talford	2574.0	3.410604
					228	30	15.1	48	30	58.8	Corunna	1944.0	3.288701
					343	40	26.1	163	40	47.9	Stag Is.Shoal, light	2593.1	3.413823
Ref. Mon. 48-42	d.m.	42	54	17.527	36	35	36.2	216	34	52.5	Ref.Mon. 47-42	2441.4	3.387646
Ontario 1925; r.1942;1956		82	27	27.089	58	46	03.3	238	45	25.9	Gar Wood, tank	1456.6	3.163328
					62	33	21.5	242	32	47.2	Wood	1286.3	3.109329
					130	21	58.0	310	21	37.9	Cozy	878.1	2.943535
					174	51	18.7	354	51	18.2	Talford	174.1	2.240840
Ref. Mon. 49-42	d.m.	42	55	40.851	228	28	57.6	48	28	57.7	Ref.Mon. 49, ecc.	5.934	0.773382
Michigan 1911; r. 1942;1956		82	27	33.691	247	43	10.7	67	43	38.1	Pap	987.7	2.994616
Ref. Mon. 50-42	d.m.	42	56	10.374	30	22	30.5	210	22	21.1	Pap	622.0	2.793802
Ontario 1911;r.1942;1956		82	26	39.517	53	26	37.2	233	25	59.4	Ref.Mon. 49-42	1529.4	3.184524
					53	27	46.5	233	27	09.8	Ref.Mon. 49, ecc.	1523.5	3.182843
					64	30	47.2	244	30	16.3	Park	1140.0	3.056888
					125	04	37.6	305	04	09.3	Airgrip Tank	1151.8	3.061378
					132	41	21.3	312	41	07.5	Backus	626.5	2.796911
					136	07	52.0	316	07	31.0	Auto-Lite Tank	1010.7	3.004606
					168	44	35.2	348	44	30.3	Sunoco Steeple	832.6	2.920454
					182	54	22.0	2	54	23.5	Iris	1009.4	3.004053
					222	13	03.1	42	13	12.9	Bush	484.1	2.684966
Ref. Mon. 51-42	d.m.	42	57	12.328	3	25	30.1	183	25	28.3	Poly	1013.6	3.005888
Michigan 1925; r.1942;1956		82	25	54.684	247	12	42.6	67	13	09.2	Muel	961.4	2.982912
					257	52	55.2	77	53	23.1	Mueller Tank	947.6	2.976616
					301	42	36.4	121	42	51.8	Mer	601.5	2.779250

International boundary line St. Clair River Reference Monuments *State* Michigan *Province* Ontario

STATION		LATITUDE AND LONGITUDE			AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE (METERS)	LOGARITHM
		°	′	″	°	′	″	°	′	″			
Ref. Mon. 52-42	d.m.	42	57	48.758	133	44	02.9	313	44	01.9	Rex	43.9	1.642737
Ontario 1911;r.1942;1956		82	24	49.018	134	23	39.4	314	22	57.7	First Methodist Ch.spire	1938.1	3.287381
					141	55	46.7	321	55	16.6	Port Huron,Post Office	1621.1	3.209812
					145	37	33.7	325	37	01.9	First Baptist Ch.spire	1872.9	3.272508
					147	03	24.5	327	03	08.4	Rail	984.6	2.993238
					151	28	24.0	331	27	56.0	Port Huron,City Hall	1951.1	3.290281
					164	34	42.5	344	34	29.1	Huron	1672.8	3.223435
					170	38	54.1	350	38	41.8	Bay Point Light	2500.3	3.397990
					179	05	14.1	359	05	12.2	St.Paul's Anglican Ch. spire	3830.1	3.583210
					196	51	19.4	16	51	30.6	Junk	1288.1	3.109933
					204	28	58.1	24	29	16.0	St.Andrews Presby. Ch. spire	1438.7	3.157970
					205	20	34.0	25	20	45.1	Sarnia, Post Office	871.0	2.940003
Ref. Mon. 53-42	d.m.	42	58	32.956	89	45	30.0	269	44	33.8	First Methodist Ch.spire	1868.4	3.271461
Ontario 1911;r.1942; 1.1956		82	24	27.682	96	44	12.5	276	43	26.2	First Baptist Ch.spire	1551.6	3.190775
					103	54	26.2	283	53	43.7	Port Huron,City Hall	1458.0	3.163750
					104	59	53.4	284	59	25.5	Huron	961.0	2.982730
					128	51	03.4	308	50	21.5	Intake	1788.4	3.252454
					141	06	57.1	321	06	30.3	Bay Point Light	1417.3	3.151448
					142	36	59.1	322	36	32.8	Bay	1442.0	3.158968
					167	28	36.4	347	28	31.2	Ware	795.7	2.900751
					223	43	04.0	43	43	14.1	Our Lady of Mercy Ch. cross	483.2	2.684112
					295	49	44.6	115	49	48.0	St.Andrews Presby. Ch. spire	125.3	2.097815
Ref. Mon. 54-42	d.m.	42	59	06.975	149	54	52.3	329	54	51.0	Intake	83.1	1.919540
Michigan 1911;r.1942;1956		82	25	27.317	207	28	50.2	27	29	09.5	Blue	1395.3	3.144661
					258	35	25.4	78	35	39.7	Bay	485.2	2.685879
					292	34	05.8	112	34	56.5	Our Lady of Mercy Ch. spire	1824.9	3.261243
					303	13	15.8	123	14	04.8	St.Georges Anglican Ch. spire	1948.7	3.289755
					307	01	26.4	127	02	10.4	St.Andrews Presby. Ch. spire	1833.8	3.263349
					307	50	21.0	127	51	01.6	Ref.Mon. 53-42	1711.1	3.233272
Ref. Mon. 55, ecc.	d.m.	42	59	26.106	23	03	04.4	203	02	56.9	Ref.Mon. 54-42	641.6	2.807251
Ontario 1942; r.1950		82	25	16.228	29	27	39.3	209	27	30.5	Intake	595.4	2.774844
					143	49	26.2	323	49	11.6	Yard	820.6	2.914124
					209	02	53.0	29	03	04.3	Point Edward,rear range	771.9	2.887579
					211	14	10.6	31	14	22.4	Blue	757.2	2.879238
					320	15	00.6	140	15	42.1	St.Georges Anglican Ch. spire	2156.6	3.333766
					324	24	33.6	144	25	10.1	St.Andrews Presby. Ch. spire	2083.9	3.318877
Ref. Mon. 55-42	d.m.	42	59	26.058	28	47	41.8	208	47	33.3	Intake	592.9	2.774844
Ontario 1911;r.1942,1950,1956		82	25	16.612	144	22	39.4	324	22	25.1	Yard	816.7	2.912048
					260	25	09.9	80	25	10.2	Ref.Mon. 55, ecc.	8.827	0.945813

INTERNATIONAL BOUNDARY COMMISSION—UNITED STATES, ALASKA, AND CANADA

GEOGRAPHIC POSITIONS—NORTH AMERICAN DATUM 1927

International boundary line St. Clair River Reference Monuments *State* Michigan *Province* Ontario

STATION		LATITUDE AND LONGITUDE			AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE (METERS)	LOGARITHM
		°	′	″	°	′	″	°	′	″			
Ref. Mon. 55, ecc. No. 2	d.m.	42	59	23.683	26	02	24.6	206	02	17.0	Ref.Mon. 54-42	578.9	2.762575
Ontario 1950		82	25	16.091	33	25	15.2	213	25	06.3	Intake	537.0	2.729969
					146	22	20.0	326	22	05.3	Yard	879.9	2.944423
					158	44	40.4	338	44	28.4	Ref.Mon. 56-42	1094.5	3.039230
					177	37	46.4	357	37	46.3	Ref.Mon. 55, ecc.	74.82	1.874032
					208	30	18.5	28	30	30.2	Blue	816.7	2.912081
Ref. Mon. 56-42	d.m.	42	59	56.885	17	28	06.1	197	28	03.4	Yard	301.3	2.479068
Michigan 1911; r.1942,1956		82	25	33.618	241	45	27.9	61	45	51.2	Point Edward, front range, 1942	878.1	2.943557
					291	01	23.1	111	01	46.8	Blue	842.7	2.925665
					337	28	22.9	157	28	34.8	Ref.Mon. 55, ecc.	1028.3	3.012103
Ref. Mon. 57-49	d.m.	43	00	16.061	73	45	18	253	44	52	North Wireless Pole	903.0	2.955694
Ontario 1949; r.1950,1956		82	24	24.760	76	57	32.3	256	57	08.7	Point Edward Front range light	806.7	2.906705
					98	59	06.9	278	58	28.6	Fort Gratiot Lighthouse	1291.2	3.110985
Ref. Mon. 58-42	d.m.	43	00	47.562	303	09	39.6	123	10	24.5	Ref. Mon. 57-42	1776.8	3.249643
Michigan 1911; r.1942,1956		82	25	30.433	337	49	05.7	157	49	56.9	St.Georges Anglican Ch. spire	4505.1	3.653701
					339	03	03.3	159	03	24.8	Blue	1998.2	3.300646
					339	15	08.8	159	15	29.8	Point Edward, rear range	1966.3	3.293651

International boundary line St. Clair River Auxiliary Stations *State* Michigan *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
St. Clair River, light No.2=12	42 33 17.227	94 39 41.9	274 39 25.5	Kelly	553.8	2.743322
Ontario 1942; r.1956 d.	82 38 15.546	217 20 06.0	37 20 14.8	Beebe	486.6	2.687162
		253 42 53.4	73 43 30.2	Oso	1292.3	3.111350
		262 59 48.1	83 00 00.1	Ref.Mon. 20-42	407.5	2.610110
St. Clair River, light No.4=18	42 33 14.104	104 57 27.7	284 57 12.3	Ref.Mon. 21-42	537.8	2.730614
Ontario 1942; r.1956 d.	82 37 06.104	143 08 51.6	323 08 41.4	Oso	573.2	2.758270
		227 29 10.4	47 29 16.5	Speed	278.0	2.444012
		290 22 13.4	110 22 31.1	George	696.7	2.843033
St. Clair River, light No.5=13	42 33 28.912	250 58 20.9	70 58 23.2	Beebe	80.8	1.907217
Michigan 1942; r.1956 d.	82 38 05.957	269 53 59.5	89 54 29.8	Oso	1021.7	3.009306
		290 36 24.8	110 36 49.8	Ref.Mon. 21-42	903.7	2.956036
		329 09 04.3	149 09 09.8	Ref.Mon. 20-42	362.1	2.558838
St. Clair River, light No.6=20	42 32 59.695	139 42 27.0	319 42 17.5	Ref.Mon. 22-42	494.4	2.694107
Ontario 1942; r. 1956 d.	82 36 50.728	236 14 14.6	56 14 23.6	George	363.7	2.560684
		300 31 44.7	120 32 04.7	Ref.Mon. 24-42	783.6	2.894084
		323 45 57.4	143 46 01.9	Ref.Mon. 23-42	259.5	2.414194
St. Clair River, light No.7=17	42 33 28.005	28 28 27.7	208 28 22.9	Ref.Mon. 21-42	330.1	2.518616
Michigan 1942; r. 1956 d.	82 37 21.980	70 54 57.6	250 54 33.3	Ref.Mon. 20-42	865.1	2.937087
		93 21 24.1	273 20 56.6	Beebe	928.5	2.967765
		321 36 55.1	141 37 06.7	Ref.Mon. 22-42	633.3	2.801618
St. Clair River, light No.8=26	42 32 51.298	77 45 16.5	257 44 57.5	Ref.Mon. 24-42	655.1	2.816301
Ontario 1942; r.1956 d.	82 35 53.089	92 27 26.0	272 26 51.5	Ref.Mon. 23-42	1162.8	3.065493
		111 16 16.6	291 15 28.1	Ref.Mon. 22-42	1754.2	3.244091
		116 22 24.2	296 22 07.3	Lind	635.4	2.803050
St. Clair River, light No.9=19	42 33 18.847	38 10 38.2	218 10 33.2	Ref.Mon. 22-42	272.0	2.434623
Michigan 1942; r.1956 d.	82 36 57.373	310 35 08.2	130 35 21.7	George	597.7	2.776494
		320 06 43.6	140 07 08.1	Ref.Mon. 24-42	1288.9	3.110228
		339 08 12.2	159 08 21.2	Ref.Mon. 23-42	856.5	2.932709
St. Clair River, light No.10=30	42 33 03.237	40 38 51.5	220 38 43.8	Ref.Mon. 25-42	398.7	2.600593
Ontario 1942; r. 1956 d.	82 35 13.407	205 39 05.5	25 39 25.8	Ref.Mon. 27-42	1583.7	3.199682
		215 40 50.4	35 41 23.7	Squirrel	1927.9	3.285080
		233 27 19.4	53 27 39.0	Canclub	824.9	2.916412
St. Clair River, light No.11=21	42 33 01.759	111 00 57.0	291 00 32.8	Ref.Mon. 22-42	874.1	2.941543
Michigan 1942; r.1956 d.	82 36 28.979	125 31 10.7	305 31 05.0	George	238.2	2.376936
		279 13 55.3	99 14 02.7	Lind	252.9	2.402882
		338 50 32.4	158 50 37.7	Ref.Mon. 24-42	495.2	2.694742
St. Clair River, light No.12=36	42 33 50.548	27 24 06.2	207 23 39.2	Ref.Mon. 25-42	1985.0	3.297756
Ontario 1942; r.1956 d.	82 34 44.749	230 29 42.2	50 30 15.2	Ref.Mon. 28-42	1440.0	3.158362
		315 18 25.4	135 18 26.4	Ref.Mon. 27-42	45.4	1.656614
		359 28 13.1	179 28 13.4	Canclub	968.7	2.986200
St. Clair River, light No.13=25	42 32 59.576	56 45 16.2	236 44 58.4	Ref.Mon. 24-42	719.3	2.856939
Michigan 1942; r.1956 d.	82 35 54.780	79 37 39.3	259 37 06.0	Ref.Mon. 23-42	1141.8	3.057584
		92 53 42.1	272 53 26.4	Lind	531.4	2.725401
		285 28 25.7	105 28 46.0	Ref.Mon. 25-42	710.0	2.851282

International boundary line St. Clair River Auxiliary Stations *State* Michigan *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
St. Clair River, light No.15=27	42 33 05.625	224 16 46.8	44 17 30.0	Squirrel	2084.5	3.318995
Michigan 1942; r. 1956 d.	82 35 27.911	247 12 21.4	67 12 50.9	Canclub	1077.8	3.032534
		349 16 34.8	169 16 37.0	Ref.Mon. 25-42	382.8	2.583017
St. Clair River, light No.17=35	42 34 20.545	7 41 24.6	187 41 17.0	Canclub	1911.4	3.281362
Michigan 1942; r.1956 d.	82 34 33.145	13 39 40.6	193 39 33.7	Ref.Mon. 27-42	985.7	2.993746
		270 38 51.8	90 39 16.9	Ref.Mon. 28-42	846.4	2.927600
		345 53 04.7	165 53 10.8	Squirrel	845.1	2.926887
St. Clair River, light No.14=38	42 35 28.400	32 05 22.7	212 05 19.1	Ref.Mon. 31-42	226.7	2.355507
Ontario 1942; r. 1956 d.	82 32 42.061	69 10 07.3	249 09 45.4	Bend	788.2	2.896629
		194 22 48.3	14 22 54.2	Grande	807.2	2.906961
		233 31 35.5	53 31 47.4	Cabin	499.2	2.698247
St. Clair River, light No.19=37	42 35 07.432	4 56 33.5	184 56 31.3	Ref.Mon. 29-42	860.8	2.934915
Michigan 1942; r. 1956 d.	82 33 24.346	241 39 55.5	61 40 20.5	Ref.Mon. 31-42	958.6	2.981623
		290 51 22.4	110 51 37.1	Ref.Mon. 30-42	531.4	2.725398
St. Clair River, light No.21=39A	42 36 20.788	52 41 29.8	232 40 57.3	Grande	1376.9	3.138905
Michigan 1942; r. 1956 d.	82 31 45.229	181 05 32.8	1 05 32.8	Smith	25.5	1.405890
		269 46 17.7	89 46 37.0	Beach	650.1	2.812958
		329 21 48.1	149 21 55.4	Indian	481.8	2.682910
St. Marks R.C. Church, spire	42 34 17.479	2 00 36.6	182 00 35.7	Ref.Mon. 27-42	863.7	2.936380
Michigan 1942; r.1956 d.	82 34 42.022	32 35 18.8	212 35 11.1	Harsen	482.3	2.683316
		229 03 33.6	49 03 55.0	Tashmoo	956.6	2.980744
		239 11 15.3	59 12 22.5	Ref.Mon. 30-42	2640.6	3.421695
		248 03 04.9	68 03 55.2	Ref.Mon. 29-42	1829.9	3.262432
		265 21 46.1	85 22 17.2	Ref.Mon. 28-42	1052.3	3.022147
Walpole Island Catholic Church,	42 36 20.767	57 07 43.6	237 06 16.4	Bend	3492.6	3.543143
cross Ontario 1942;r.1956 d.	82 31 05.720	67 19 44.2	247 18 44.8	Grande	2163.0	3.335065
		90 43 48.6	270 43 41.0	Beach	250.6	2.398955
		91 39 49.1	271 39 22.4	Smith	900.5	2.954492
		113 42 20.6	293 42 00.5	Ref.Mon. 32-42	733.9	2.865661
		133 52 51.7	313 52 37.5	Base 23	664.9	2.822754
Walpole Island School pole	42 36 20.908	116 02 19.8	296 02 02.1	Ref.Mon. 32-42	662.2	2.821065
Ontario 1942; r.1956 d.	82 31 09.095	166 43 33.8	346 43 27.4	Ref.Mon. 33-42	937.5	2.971980
Algonac, tank	42 37 04.550	6 42 51.5	186 42 42.2	Cabin	2688.6	3.429523
Michigan 1942; r.1956 d.	82 32 10.668	266 40 40.8	86 41 51.3	Squaw	2041.5	3.309942
		290 03 57.1	110 04 44.9	Use	1714.4	3.234101
		334 56 04.0	154 56 28.5	Indian	1948.4	3.289678
		336 20 40.5	156 20 57.7	Smith	1446.4	3.160294
St. Clair River, light No.16=40	42 36 41.858	70 11 06.9	250 10 51.2	Base 23	560.2	2.748329
Ontario 1942; r.1956 d.	82 31 03.624	128 02 41.2	308 02 31.1	Ref.Mon. 33-42	431.7	2.635142
		216 18 49.8	36 18 52.2	Use	138.8	2.142354

International boundary line St. Clair River Auxiliary Stations *State* Michigan *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
St. Clair River, light No.18=42	42 37 19.983	21 36 50.4	201 36 37.9	Use	1145.1	3.058843
Ontario 1942; r.1956 d.	82 30 41.512	42 49 51.7	222 49 26.7	Ref.Mon. 33-42	1241.4	3.093898
		151 04 58.4	331 04 45.0	Nun	932.9	2.969813
		170 48 24.3	350 48 16.4	Dan	1663.4	3.220999
		194 24 36.7	14 24 45.4	Misko	1176.3	3.070520
		359 01 01.1	179 01 01.3	Squaw	358.3	2.554211
St. Clair River, light No.25=41	42 36 48.673	27 11 16.2	207 11 10.1	Base 23	449.9	2.653134
Michigan 1942; r.1956 d.	82 31 17.726	161 36 35.2	341 36 34.7	Ref.Mon. 33-42	58.71	1.768714
		283 42 31.0	103 42 43.0	Use	415.5	2.618525
		358 27 20.9	178 27 21.6	Beach	858.2	2.933588
Salt Dock Light	42 41 16.734	1 18 24.8	181 18 23.0	Ref.Mon. 35-42	2631.1	3.420137
Michigan 1942; r. 1956 d.	82 30 20.569	198 05 59.8	18 06 18.5	Marine	2023.3	3.306070
		229 44 47.0	49 45 41.4	Tick	2391.7	3.378707
		277 03 18.2	97 03 43.4	Cot	853.5	2.931226
		342 48 12.6	162 48 24.4	Sight	1341.8	3.127673
Marine City, tank	42 42 51.471	0 07 59.0	180 07 58.7	Sight	4205.1	3.623774
Michigan 1942; r. 1956 d.	82 30 02.719	314 09 29.1	134 10 11.4	Tick	1978.0	3.296222
		340 50 04.5	160 50 21.8	Ref.Mon. 36-42	1773.9	3.248936
		351 43 11.0	171 43 24.1	Cot	3060.1	3.485732
Marine City Catholic school cross	42 42 45.814	0 50 36.2	180 50 34.9	Cot	2854.0	3.455447
Michigan 1942; r. 1956 d.	82 29 41.515	6 58 02.3	186 57 47.6	Sight	4060.5	3.608581
		277 00 25.4	97 00 56.4	Sombra	1049.1	3.020822
		322 06 46.3	142 07 14.2	Tick	1524.9	3.183240
		356 11 51.7	176 11 54.6	Ref.Mon. 36-42	1504.4	3.177364
Marine City Catholic Ch. cross	42 42 46.713	1 20 44.0	181 20 42.0	Cot	2882.2	3.459721
Michigan 1942; r.1956 d.	82 29 40.387	7 16 37.7	187 16 22.3	Sight	4091.2	3.611853
		208 12 08.3	28 12 47.1	Dock	2748.2	3.439055
		222 45 04.4	42 45 45.2	Gold	2012.4	3.303713
		249 19 47.5	69 20 29.4	Ref.Mon. 37-42	1499.8	3.176041
		278 43 01.6	98 43 31.9	Sombra	1027.5	3.011774
		323 30 29.3	143 30 56.5	Tick	1531.5	3.185111
		357 13 31.0	177 13 33.2	Ref.Mon. 36-42	1530.6	3.184868
Sombra Anglican Ch. cross	42 43 04.752	30 11 43.8	210 11 31.4	Sombra	824.3	2.916074
Ontario 1942; r. 1956 d.	82 28 37.541	33 02 28.4	213 01 47.9	Ref.Mon. 36-42	2487.7	3.395791
		44 20 59.8	224 20 59.0	Ref.Mon. 37-42	38.28	1.583008
		50 35 58.4	230 35 07.2	Marine	2221.0	3.346546
		83 35 39.1	263 35 05.4	City	1137.5	3.055970
		117 45 52.6	297 45 23.8	Burns	1092.4	3.038378
		150 44 09.6	330 43 38.9	Ref.Mon. 38-42	2105.6	3.323370
		176 02 13.1	356 02 11.2	Gold	923.1	2.965266
Recors Point Light	42 45 48.338	18 05 41.6	198 05 34.0	Guy	811.6	2.909358
Michigan 1942 d.	82 28 15.549	221 51 48.8	41 52 06.3	Hi	879.0	2.944002
		272 13 13.7	92 13 33.5	Thorn	665.9	2.823420
		283 42 10.1	103 42 30.1	Ref.Mon. 39-42	689.7	2.838660
		338 51 12.5	158 51 26.1	Clay	1267.9	3.103070

International boundary line St. Clair River Auxiliary Stations *State* Michigan *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Flagpole	42 46 35.300	281 23 37.5	101 23 55.2	Bowen	605.2	2.781920
Michigan 1942; 1. 1956 n.d.	82 28 21.642	317 36 41.9	137 37 03.5	Hi	1075.6	3.031669
St. Clair, tank	42 49 31.759	199 03 40.4	19 03 43.5	Inn	322.3	2.508293
Michigan 1942; r. 1956 d.	82 29 07.070	202 43 36.3	22 43 53.5	Ref.Mon. 45-42	1558.0	3.192580
		204 18 11.1	24 18 30.0	Mac	1512.1	3.179583
		208 14 46.3	28 15 37.9	Ref.Mon. 46, ecc.	3701.6	3.568390
		213 16 54.4	33 17 40.8	Waves	2876.5	3.458866
		222 25 34.9	42 26 18.7	Wind	2156.3	3.333714
		237 37 30.8	57 38 11.8	Rose	1612.7	3.207546
		279 44 29.4	99 45 01.1	Ref.Mon. 44-42	1075.7	3.031698
		283 35 17.1	103 35 47.5	Right	1036.8	3.015713
		335 26 26.7	155 26 46.6	Court	1577.7	3.198026
		343 28 06.6	163 28 24.5	Mud	2072.4	3.316469
		358 31 04.4	178 31 06.6	Boul	2466.5	3.392074
		359 12 19.3	179 12 20.0	Moore	1128.8	3.052622
St. Clair, aerial	42 48 33.643	228 25 28.1	48 26 20.4	Right	2335.6	3.368391
Michigan 1942; r.1956 d.	82 29 39.619	278 16 21.8	98 17 01.6	Mud	1343.2	3.128144
		296 19 25.0	116 20 06.4	Ref.Mon. 42-42	1542.0	3.188081
		319 54 35.2	139 55 38.4	Ref.Mon. 41-42	3277.6	3.515552
Courtright Hotel, acorn	42 49 06.647	26 19 58.9	206 19 33.9	Boul	1886.4	3.275633
Ontario 1942; r. 1956 d.	82 28 27.437	68 12 32.6	248 12 06.1	Moore	952.8	2.979016
Courtright, chimney	42 48 43.097	18 52 18.1	198 52 04.1	Trail	1448.5	3.160927
Ontario 1942; r.1956 d.	82 28 36.669	33 02 27.6	213 02 08.9	Boul	1149.9	3.060676
		118 55 19.9	298 54 59.7	Moore	771.2	2.887156
Gar Wood, tank	42 53 53.049	9 52 26.0	189 52 19.7	Ref.Mon. 17-42	1223.1	3.087464
Michigan 1942; r.1956 d.	82 28 21.984	212 36 33.0	32 36 36.1	Wood	192.8	2.285211
		217 29 11.3	37 29 54.4	Hill 1942	2360.7	3.373045
		222 00 41.4	42 01 22.2	Brick	2031.4	3.307792
		232 55 59.4	52 56 36.3	Talford	1541.1	3.187825
		238 45 25.9	58 46 03.3	Ref.Mon. 48-42	1456.6	3.163328
		266 11 23.4	86 12 00.8	Corunna	1249.1	3.096612
Stag Island Shoal light	42 51 53.353	1 49 27.2	181 49 24.5	Wind	2779.2	3.443919
Ontario 1942; r.1956 d.	82 27 59.116	20 46 01.6	200 45 46.3	Lawn	1435.6	3.157027
		65 24 19.7	245 24 01.1	Ship	681.7	2.833591
		151 16 30.4	331 16 08.6	Limit	1511.8	3.179502
		163 40 47.9	343 40 26.1	Ref.Mon. 47-42	2593.1	3.413823
		200 56 27.0	20 56 42.6	Edwards	1454.2	3.162622
		286 15 05.5	106 15 15.2	Bitter	339.0	2.530137
		349 19 35.4	169 19 41.6	Ref.Mon. 46, ecc.	1128.2	3.052395
		358 57 58.6	178 57 59.6	Waves	1965.1	3.293385
Stag Island Middle light	42 53 09.403	183 22 48.1	3 22 48.8	Gar	413.8	2.616789
Michigan 1942; r. 1956 d.	82 28 30.959	225 24 02.5	45 24 46.0	Corunna	2036.4	3.308873
Corunna South light	42 52 35.042	91 50 38.9	271 50 02.2	Limit	1224.0	3.087778
Ontario 1942; r. 1956 d.	82 27 37.228	197 46 27.0	17 46 27.7	Edwards	75.3	1.876536

International boundary line St. Clair River Auxiliary Stations *State* Michigan *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Chrysler tank	42 54 25.230	239 14 51.3	59 15 35.7	Hill 1942	1721.3	3.235864
Michigan 1942; r.1956 d.	82 28 23.862	249 47 11.2	69 47 53.3	Brick	1494.2	3.174410
		272 53 16.2	92 53 54.4	Talford	1273.9	3.105141
		305 13 21.2	125 13 59.9	Corunna	1577.9	3.198077
Auto-Lite tank	42 56 33.984	248 43 51.9	68 44 58.8	Mer	2391.2	3.378621
Michigan 1942; r.1956 d.	82 27 10.410	264 05 05.8	84 05 55.5	Poly	1665.1	3.221444
		289 49 58.8	109 50 29.6	Bush	1090.4	3.037597
		316 07 31.0	136 07 52.0	Ref.Mon. 50-42	1010.7	3.004606
		343 02 01.4	163 02 13.0	Pap	1322.8	3.121488
Sunoco Steeple	42 56 36.837	6 24 25.3	186 24 20.8	Pap	1361.8	3.134101
Michigan 1942; n.r. 1956 d.	82 26 46.686	33 32 17.8	213 31 51.8	Park	1568.3	3.195416
		265 43 57.6	85 44 31.2	Poly	1121.5	3.049802
		313 11 42.7	133 11 57.4	Bush	669.2	2.825553
		348 44 30.3	168 44 35.2	Ref.Mon. 50-42	832.6	2.920454
Airgrip tank	42 56 31.822	262 50 34.2	82 51 31.2	Poly	1913.4	3.281795
Michigan 1942; n.r.1956 d.	82 27 21.093	283 26 52.4	103 27 30.5	Bush	1303.7	3.115181
		305 04 09.3	125 04 37.6	Ref.Mon. 50-42	1151.8	3.061378
Port Huron, City Hall	42 58 44.307	283 53 43.7	103 54 26.2	Ref.Mon. 53-42	1458.0	3.163750
Michigan 1942; l. 1956 d.	82 25 30.141	331 27 56.0	151 28 24.0	Ref.Mon. 52-42	1951.1	3.290281
Mueller Tank	42 57 18.773	39 11 42.0	219 11 12.3	Poly	1562.1	3.193709
Ontario 1942; r.1956 d.	82 25 13.811	46 23 41.5	226 22 06.4	Ref.Mon. 49, ecc.	4374.5	3.640933
		59 46 17.8	239 45 20.9	Iris	2189.6	3.340359
		77 53 23.1	257 52 55.2	Ref.Mon. 51-42	947.6	2.976616
		81 52 08.1	261 51 43.6	Boat	845.3	2.927012
		137 29 19.1	317 29 05.4	Pere	671.3	2.826919
		164 55 40.1	344 55 32.6	Marq	953.5	2.979333
		180 51 52.4	0 51 53.2	Rail	1751.7	3.243465
Our Lady of Mercy Church, cross	42 58 44.272	26 46 55.6	206 46 30.0	Rex	1884.9	3.275283
Ontario 1942; r. 1956 d.	82 24 12.945	40 32 26.4	220 31 31.2	Pere	2820.4	3.450305
		43 27 29.1	223 26 40.1	Marq	2366.1	3.374029
		43 43 14.1	223 43 04.0	Ref.Mon. 53-42	483.2	2.684112
		56 45 27.0	236 44 46.3	Rail	1617.6	3.208872
		85 26 57.7	265 26 19.7	Huron	1266.2	3.102504
		112 34 56.5	292 34 05.8	Ref.Mon. 54-42	1824.9	3.261243
		123 22 23.0	303 21 46.6	Bay	1448.2	3.160831
		151 46 00.9	331 45 29.5	Blue	2200.2	3.342469
		153 02 45.9	333 01 59.4	Fort Gratiot Light	3404.0	3.531988
		155 16 50.9	335 14 04.5	Linda	13185.1	4.120084
		155 51 32.1	335 50 38.2	Conger	4374.5	3.640927
		173 50 14.3	353 50 11.8	Sarnia	752.0	2.876222
		238 35 43.7	58 46 07.6	Blue Point	24228.6	4.384329

International boundary line St. Clair River Auxiliary Stations *State* Michigan *Province* Ontario

STATION	LATITUDE AND LONGITUDE			AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE (METERS)	LOGARITHM
	°	′	″	°	′	″	°	′	″			
St.Andrews Presbyterian Ch.,spire	42	58	31.188	24	29	16.0	204	28	58.1	Ref.Mon. 52-42	1438.7	3.157970
Ontario 1942; r. 1956 d.	82	24	22.707	26	09	20.4	206	09	01.5	Rex	1424.8	3.153760
				42	49	07.7	222	48	19.2	Pere	2371.6	3.375043
				46	56	56.4	226	55	53.2	Marq	1924.4	3.284305
				66	53	14.2	246	52	40.2	Rail	1230.4	3.090059
				106	14	34.4	286	14	03.1	Huron	1084.3	3.035149
				115	49	48.0	295	49	44.6	Ref.Mon. 53-42	125.3	2.097815
				127	02	10.4	307	01	26.4	Ref.Mon. 54	1833.8	3.263349
				140	32	11.9	320	31	42.2	Bay	1554.9	3.191690
				144	15	14.2	324	14	23.1	Yard	2904.5	3.463065
				144	25	10.1	324	24	33.6	Ref.Mon. 55, ecc.	2083.9	3.318877
				161	03	39.1	341	03	30.5	Ware	878.9	2.943956
				186	57	13.2	6	57	17.4	Sarnia	1160.0	3.064453
St.Georges Anglican Ch., spire	42	58	32.370	31	07	31.7	211	07	07.8	Rex	1536.6	3.186568
Ontario 1942; r. 1956 d.	82	24	15.372	45	02	03.0	225	01	09.5	Pere	2513.2	3.400231
				49	20	50.8	229	20	07.5	Marq	2072.6	3.316510
				68	11	11.2	248	10	32.0	Rail	1398.0	3.145501
				102	27	45.9	282	27	09.6	Huron	1236.3	3.092137
				123	14	04.8	303	13	15.8	Ref.Mon. 54-42	1948.7	3.289755
				135	14	05.4	315	13	30.7	Bay	1639.3	3.214661
				140	15	42.1	320	15	00.6	Ref.Mon. 55, ecc.	2156.6	3.333766
				150	24	18.1	330	24	04.5	Ware	914.1	2.960995
				156	22	24.2	336	21	39.4	Fort Gratiot Light	3712.7	3.569691
				156	51	01.0	336	50	31.3	Blue	2507.7	3.399270
				157	49	56.9	337	49	05.7	Ref.Mon. 58-42	4505.1	3.653701
Sarnia, Post Office	42	58	14.266	25	20	45.1	205	20	34.0	Ref.Mon. 52-42	871.0	2.940003
Ontario 1942; r. 1956 d.	82	24	32.568	28	07	48.6	208	07	36.5	Rex	858.1	2.933549
				56	12	16.3	236	11	40.8	Marq	1423.2	3.153259
				92	28	04.5	272	27	37.1	Rail	909.1	2.958588
				135	16	25.8	315	16	01.3	Huron	1161.8	3.065129
				156	03	29.1	336	03	06.2	Bay	1884.7	3.275242
				168	14	22.0	348	14	04.1	Blue	2925.8	3.466244
				177	23	01.8	357	23	00.0	Ware	1354.9	3.131915
Port Huron, Post Office	42	58	30.113	184	30	01.1	4	30	09.3	Fort Gratiot Light	3481.7	3.541794
Michigan 1942; r. 1956 d.	82	25	33.132	198	04	56.1	18	05	19.4	Blue	2498.8	3.397730
				236	34	55.4	56	35	34.8	Ware	1569.9	3.195879
				271	48	23.6	91	49	04.9	Junk	1373.8	3.137920
				321	55	16.6	141	55	46.7	Ref.Mon. 52-42	1621.1	3.209812
				322	08	51.1	142	09	30.2	Rex	1577.7	3.198022
First Methodist Church, spire d.	42	58	32.692	190	59	03.6	10	59	23.4	Fort Gratiot Light	3454.7	3.538412
Port Huron, Michigan 1942;r.1956	82	25	50.134	206	49	11.6	26	49	46.5	Blue	2572.6	3.410367
				269	44	33.8	89	45	30.0	Ref.Mon. 53-42	1868.4	3.271461
				273	59	44.2	94	00	37.1	Junk	1762.7	3.246168
				314	22	57.7	134	23	39.4	Ref.Mon. 52-42	1938.1	3.287381
				314	23	52.9	134	24	33.6	Rex	1894.2	3.277425

International boundary line St. Clair River Auxiliary Stations *State* Michigan *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
First Baptist Church, spire d.	42 58 38.849	185 54 10.2	5 54 20.1	Fort Gratiot Light	3218.5	3.507651
Port Huron, Michigan 1942;r.1956	82 25 35.684	201 35 29.7	21 35 54.7	Blue	2264.7	3.355015
		276 43 26.2	96 44 12.5	Ref.Mon. 53-42	1551.6	3.190775
		282 20 01.2	102 20 44.2	Junk	1464.7	3.165760
		325 37 01.9	145 37 33.7	Ref.Mon. 52-42	1872.9	3.272508
		325 54 02.2	145 54 33.0	Rex	1829.9	3.262430
St. Pauls Anglican Church,spire	42 59 52.859	42 24 21.2	222 24 16.3	Blue	241.2	2.382433
Ontario 1942; r.1956 d.	82 24 51.711	144 04 14.5	324 03 54.5	Fort Gratiot Light	1133.2	3.054288
		210 24 32.1	30 24 43.4	Ref.Mon. 57, ecc.	740.5	2.869543
		359 05 12.2	179 05 14.1	Ref.Mon. 52-42	3830.1	3.583210
Bay Point Light	42 59 08.705	2 34 44.1	182 34 43.0	Huron	855.4	2.932162
Ontario 1942; r.1956 d.	82 25 06.951	321 06 30.3	141 06 57.1	Ref.Mon. 53-42	1417.3	3.151448
		350 38 41.8	170 38 54.1	Ref.Mon. 52-42	2500.3	3.397990
Sarnia City Hall	42 58 24.916	75 20 40.6	255 20 07.3	Rail	1144.1	3.058459
Ontario 1942; r. 1956 d.	82 24 23.801	116 03 14.3	296 02 43.7	Huron	1131.2	3.053524
Point Edward, front range light	43 00 10.161	128 05 12.5	308 04 57.8	Ft. Gratiot Lighthouse	621.9	2.793727
Ontario 1950; r. 1956 d.	82 24 59.457	256 57 08.7	76 57 32.3	Ref.Mon. 57-49	806.7	2.906705
		358 58 19.7	178 58 20.1	Blue	712.2	2.852575
Point Edward, rear range light	42 59 47.973	29 03 04.3	209 02 53.0	Ref.Mon. 55, ecc.	771.9	2.887579
Ontario 1942; r.1956 d.	82 24 59.682	89 10 23.2	269 09 57.3	Yard	859.3	2.934126
		155 36 34.8	335 36 20.2	Ft. Gratiot Light	1173.0	3.069297
		159 15 29.8	339 15 08.8	Ref.Mon. 58-42	1966.3	3.293651
		215 07 34.9	35 07 51.6	Ref.Mon. 57, ecc.	965.2	2.984625
North Wireless Pole	43 00 07.874	138 02 19	318 02 07	Ft. Gratiot Light	610.8	2.785929
Ontario 1950 d.	82 25 03.036	228 56 59	48 57 01	Pt.Edward Front Range Light	107.5	2.031406
		253 44 52	73 45 18	Ref. Mon. 57-49	903.0	2.955694
		351 40 33	171 40 36	Blue	648.3	2.811758

International boundary line St. Clair River Boundary Turning Points *State* Michigan *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
	° ′ ″	° ′ ″	° ′ ″			
Turning Point No. 174	42 32 00.089	36 38 37.7	216 32 08.0	Turning Point No. 173	22133.5	4.3450499
	82 40 04.406	78 27 59.4	258 27 55.5	Ref. Mon. 16-42	134.7	2.129434
Turning Point No. 175	42 32 29.110	27 19 15.4	207 19 01.7	Turning Point No. 174	1007.9	3.003403
	82 39 44.136	317 56 54.6	137 57 00.0	Ref. Mon. 17-42	270.8	2.432649
Turning Point No. 176	42 32 49.156	46 06 58.4	226 06 39.3	Turning Point No. 175	892.3	2.950498
	82 39 15.953	309 18 05.7	129 18 12.0	Ref. Mon. 18-42	273.0	2.436231
Turning Point No. 177	42 33 17.603	51 02 46.9	231 02 14.7	Turning Point No. 176	1396.0	3.144900
	82 38 28.372	315 29 02.1	135 29 06.4	Ref. Mon. 19-42	206.1	2.314098
Turning Point No. 178	42 33 25.441	70 06 40.4	250 06 20.6	Turning Point No. 177	710.8	2.851726
	82 37 59.075	351 59 22.3	171 59 23.1	Ref. Mon. 20-42	205.8	2.313409
Turning Point No. 179	42 33 25.250	16 36 52.0	196 36 50.2	Ref. Mon. 21-42	214.1	2.330555
	82 37 26.195	90 27 10.8	270 26 48.6	Turning Point No. 178	750.1	2.875120
Turning Point No. 180	42 33 15.951	38 45 26.2	218 45 23.2	Ref. Mon. 22-42	159.6	2.203091
	82 37 00.363	115 57 48.7	295 57 31.2	Turning Point No. 179	655.5	2.816550
Turning Point No. 181	42 32 59.845	27 59 12.6	207 59 09.2	Ref. Mon. 23-42	242.3	2.384400
	82 36 39.020	135 35 08.6	315 34 54.2	Turning Point No. 180	695.8	2.842459
Turning Point No. 182	42 32 54.617	4 34 38.7	184 34 38.1	Ref. Mon. 24-42	242.2	2.384104
	82 36 20.300	110 41 32.0	290 41 19.3	Turning Point No. 181	456.5	2.659486
Turning Point No. 183	42 32 59.937	82 13 25.1	262 12 49.5	Turning Point No. 182	1212.4	3.083630
	82 35 27.653	341 56 58.1	161 57 00.0	Ref. Mon. 25-42	211.0	2.324282
Turning Point No. 184	42 33 14.013	53 09 42.1	233 09 24.9	Turning Point No. 183	724.4	2.859964
	82 35 02.243	132 14 59.4	312 14 51.7	Ref. Mon. 26-42	351.2	2.545580
Turning Point No. 185	42 33 50.802	14 39 49.0	194 39 40.2	Turning Point No. 184	1173.4	3.069438
	82 34 49.223	286 39 33.4	106 39 37.4	Ref. Mon. 27-42	139.8	2.145543
Turning Point No. 186	42 34 27.086	40 37 36.6	220 37 08.1	Turning Point No. 185	1475.1	3.168812
	82 34 07.117	309 54 49.1	129 54 56.6	Ref. Mon. 28-42	329.6	2.517930
Turning Point No. 187	42 34 45.243	50 48 40.9	230 48 20.5	Turning Point No. 186	886.6	2.947728
	82 33 36.986	308 55 52.1	128 55 58.5	Ref. Mon. 29-42	275.2	2.439686
Turning Point No. 188	42 35 06.288	40 36 21.5	220 36 05.0	Turning Point No. 187	855.3	2.932114
	82 33 12.576	303 59 54.3	124 00 01.1	Ref. Mon. 30-42	275.2	2.439631
Turning Point No. 189	42 35 28.218	26 54 33.2	206 54 23.0	Turning Point No. 188	758.9	2.880156
	82 32 57.515	59 55 18.3	239 55 07.9	Ref. Mon. 31-44	404.2	2.606566
Turning Point No. 190	42 36 26.308	49 44 39.2	229 43 36.4	Turning Point No. 189	2773.3	3.443002
	82 31 24.687	117 22 11.1	297 22 04.0	Ref. Mon. 32-42	269.9	2.431192
Turning Point No. 191	42 36 49.325	27 28 10.4	207 27 59.4	Turning Point No. 190	800.5	2.903335
	82 31 08.489	98 50 13.4	278 50 06.6	Ref. Mon. 33-42	231.8	2.365138

International boundary line St. Clair River Boundary Turning Points *State* Michigan *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
Turning Point No. 192	42 38 17.303 82 30 35.078	15 40 10.7 110 40 23.5	195 39 48.1 290 40 10.3	Turning Point No. 191 Ref. Mon. 34-42	2819.5 475.3	3.450167 2.676926
Turning Point No. 193	42 39 53.988 82 30 38.146	282 46 00.0 358 39 29.3	102 46 10.1 178 39 31.4	Ref. Mon. 35-42 Turning Point No. 192	348.9 2984.2	2.542716 3.474830
Turning Point No. 194	42 41 58.512 82 29 42.393	18 17 10.0 289 06 07.8	198 16 32.2 109 06 11.4	Turning Point No. 193 Ref. Mon. 36-42	4046.7 126.7	3.607096 2.102858
Turning Point No. 195	42 43 06.265 82 29 01.469	24 00 56.0 278 08 06.2	204 00 28.2 98 08 21.6	Turning Point No. 194 Ref. Mon. 37-42	2288.7 523.0	3.359593 2.718495
Turning Point No. 196	42 44 00.108 82 29 02.397	105 30 11.0 359 16 18.9	285 29 57.2 179 16 19.5	Ref. Mon. 38-42 Turning Point No. 195	481.3 1661.6	2.682460 3.220520
Turning Point No. 197	42 45 44.553 82 28 02.814	22 48 38.5 276 59 04.2	202 47 58.1 96 59 15.6	Turning Point No. 196 Ref. Mon. 39-42	3496.2 383.3	3.543594 2.583590
Turning Point No. 198	42 46 12.893 82 28 04.481	95 11 34.1 357 31 05.5	275 11 25.1 177 31 06.6	Ref. Mon. 40-42 Turning Point No. 197	303.5 875.3	2.482170 2.942159
Turning Point No. 199	42 47 10.037 82 28 19.279	255 46 45.4 349 11 52.6	75 46 53.9 169 12 02.7	Ref. Mon. 41-42 Turning Point No. 198	293.7 1795.1	2.467910 3.254094
Turning Point No. 200	42 48 08.514 82 28 50.876	251 33 38.3 338 17 49.0	71 33 46.5 158 18 10.5	Ref. Mon. 42-42 Turning Point No. 199	289.4 1942.1	2.461460 3.288272
Turning Point No. 201	42 48 29.539 82 28 55.615	96 08 42.9 350 34 31.9	276 08 33.3 170 34 35.1	Ref. Mon. 43-42 Turning Point No. 200	324.1 657.7	2.510639 2.818008
Turning Point No. 202	42 49 31.121 82 28 44.193	7 46 38.1 286 43 14.9	187 46 30.3 106 43 31.1	Turning Point No. 201 Ref. Mon. 44-42	1917.9 564.4	3.282827 2.751588
Turning Point No. 203	42 50 12.123 82 28 22.178	21 33 58.8 114 38 12.5	201 33 43.8 294 38 00.0	Turning Point No. 202 Ref. Mon. 45-42	1360.4 459.4	3.133680 2.662191
Turning Point No. 204	42 51 20.298 82 28 06.030	9 53 18.9 278 55 40.4	189 53 07.9 98 55 52.2	Turning Point No. 203 Ref. Mon. 46-42	2135.4 397.2	3.329486 2.599016
Turning Point No. 205	42 53 14.552 82 28 13.550	87 33 56.1 357 13 39.7	267 33 44.1 177 13 44.8	Ref. Mon. 47-42 Turning Point No. 204	401.5 3529.8	2.603654 3.547749
Turning Point No. 206	42 54 20.101 82 27 44.619	17 58 55.7 281 17 36.4	197 58 36.0 101 17 48.3	Turning Point No. 205 Ref. Mon. 48-42	2126.6 405.5	3.327682 2.608028
Turning Point No. 207	42 55 36.150 82 27 19.448	13 40 32.8 114 11 14.2	193 40 15.7 294 11 04.5	Turning Point No. 206 Ref. Mon. 49-42	2415.2 354.1	3.382949 2.549098
Turning Point No. 208	42 56 15.467 82 26 52.320	26 53 18.3 298 25 45.2	206 52 59.8 118 25 53.9	Turning Point No. 207 Ref. Mon. 50-42	1360.3 330.1	3.133628 2.518657
Turning Point No. 209	42 57 07.179 82 25 44.204	44 04 01.7 123 46 36.8	224 03 15.3 303 46 29.7	Turning Point No. 208 Ref. Mon. 51-42	2220.6 285.8	3.346476 2.456064

INTERNATIONAL BOUNDARY COMMISSION—UNITED STATES, ALASKA, AND CANADA
GEOGRAPHIC POSITIONS—NORTH AMERICAN DATUM 1927

International boundary line St. Clair River Boundary Turning Points *State* Michigan *Province* Ontario

STATION	LATITUDE AND LONGITUDE	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE (METERS)	LOGARITHM
	° ′ ″	° ′ ″	° ′ ″			
South Tablet, Canadian Nat. Rwy. Tunnel 1929 d.m.	42 57 33.051 82 25 23.034	31 00 34.7	211 00 20.3	Turning Point No. 209	931.5	2.969179
North Tablet, Canadian Nat. Rwy. Tunnel 1929 d.m.	42 58 33.233 82 25 22.885	31 00 34.8	211 00 34.7	South Tablet, Can. Nat. Rwy. Tunnel	6.553	0.816454
Turning Point No. 210	42 58 00.300 82 25 00.732	31 00 49.9	211 00 34.8	North Tablet, Can. Nat. Rwy. Tunnel	974.5	2.988796
		31 00 49.9	211 00 20.3	Turning Point No. 209	1912.6	3.281619
		323 17 55.1	143 18 03.1	Ref. Mon. 52-42	444.2	2.647605
Turning Point No. 211	42 58 38.399 82 24 47.516	14 17 32.1	194 17 23.1	Turning Point No. 210	1213.3	3.083969
		290 29 24.6	110 29 38.1	Ref. Mon. 53-42	479.8	2.681050
Turning Point No. 212	42 59 07.583 82 25 17.456	85 12 02.0	265 11 55.3	Ref. Mon. 54-42	224.2	2.350636
		323 00 26.5	143 00 46.9	Turning Point No. 211	1127.5	3.052106
Turning Point No. 213	42 59 32.094 82 25 28.829	302 54 50.2	122 54 58.8	Ref. Mon. 55 ecc.	340.1	2.531543
		303 56 22.0	123 56 30.3	Ref. Mon. 55-42	333.6	2.523233
		311 58 04.9	131 58 13.6	Ref. Mon. 55 ecc.No.2	388.1	2.588952
		341 11 15.7	161 11 23.6	Turning Point No. 212	799.1	2.902579
Turning Point No. 214	42 59 52.063 82 25 27.189	3 27 02.0	183 27 00.9	Turning Point No. 213	617.3	2.790521
		135 37 06.0	315 37 01.6	Ref. Mon. 56-42	208.2	2.318488
South Tablet, Blue Water Bridge 1938 d.m.	42 59 55.454 82 25 24.582	29 26 06.6	209 26 04.8	Turning Point No. 214	120.2	2.079735
		102 10 32.6	282 10 26.4	Ref. Mon. 56-42	209.4	2.320938
		185 25 33.3	5 25 35.9	Fort Gratiot Light	841.2	2.924909
		244 51 10.4	64 51 51.3	Ref. Mon. 57-49	1496.8	3.175158
North Tablet, Blue Water Bridge 1938 d.m.	42 59 55.787 82 25 24.326	29 26 06.7	209 26 06.6	South Tablet, Blue Water Bridge	11.802	1.071952
		99 08 42.8	279 08 36.5	Ref. Mon. 56-42	213.2	2.328749
		185 05 41.3	5 05 43.8	Fort Gratiot Light	830.5	3.919317
		245 06 58.9	65 07 39.7	Ref. Mon. 57-49	1487.2	3.172364

We certify that the foregoing is a true record of the work done under the direction of the present and former Commissioners on the maintenance of the International Boundary between Canada and the United States of America from the mouth of Niagara River to the head of St. Clair River, in accordance with the provisions of Article IV of the Treaty between His Britannic Majesty in respect of Canada and the United States signed at Washington, February 24, 1925, and that the tables show the geodetic positions on the 1927 North American datum of survey stations, reference monuments and boundary turning points in this section of the International Boundary in 1956.

J.E.R. ROSS
Canadian Commissioner

SAMUEL L. GOLAN
United States Commissioner

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