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FIRST-ORDER TRIANGULATION IN SOUTHEAST ALASKA

By

WALTER F. REYNOLDS
Senior Mathematician

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FIRST-ORDER TRIANGULATION IN SOUTHEAST ALASKA

By WALTER F. REYNOLDS, *Senior Mathematician, United States Coast and Geodetic Survey*

PART I

GENERAL STATEMENT

This publication contains the results for the arc of first-order triangulation beginning in Dixon Entrance and extending a total distance of 425 miles through Clarence Strait, Stikine Strait, Dry Strait, Frederick Sound, Stephens Passage, Lynn Canal, Chilkoot Inlet, and Taiya Inlet to Skagway, Alaska. Only those supplementary stations which were determined in connection with the first-order triangulation are included in this volume. The data for the third-order triangulation in southeast Alaska, much of which is now in manuscript form, will be given in later publications. The region through which the first-order arc runs may be most easily identified and the approximate location of the control points which it determined most readily seen by reference to the index sketch and other sketches at the end of this volume.

The engineer who wishes to make use of the data in this publication should consult the explanation of tables on page 17, especially the paragraph on How to Find the Data Desired.

The geographic positions of 222 principal stations and 82 supplementary stations included in this publication are all on the North American datum of 1927.

HISTORICAL DEVELOPMENT OF NORTH AMERICAN DATUM OF 1927 IN ALASKA

For many years after the purchase of Alaska by the United States from Russia in 1867, triangulation was executed at various detached points. The triangulation in each section was based on independent astronomic data in that section. These detached portions were extended from time to time until they began to overlap, and with this overlapping came the difficulty in making the charts fit. Each chart was correct in itself—that is, the positions of the various points on it were relatively correct—but when the charts were joined the shore lines would not fit. Consequently it was necessary to adopt a geodetic datum that would connect all the triangulation.

SOUTHEAST ALASKA DATUM

Toward the close of 1901 the computation of a continuous framework of triangulation from the upper end of Lynn Canal to Port Simpson in southeast Alaska had been completed. The field work

for this triangulation dated back as far as 1882. Nine different groups of triangulation schemes were joined by this computation to make one continuous scheme on one datum, known as the southeast Alaska datum.

The astronomical stations used in adopting the mean datum for southeast Alaska were connected geodetically by this triangulation. Eight astronomic longitude stations, all chronometric, were used in determining the adopted geodetic longitude, and the adopted geodetic latitude was based on 32 observed latitudes. The triangulation was assumed to be too weak to carry the azimuth, so the azimuths were adjusted to fit the various astronomical azimuth determinations.

In 1915 practically all the triangulation in Alaska was based on three separate datums, namely, southeast Alaska, Valdez, and Yukon. It was planned to have all the triangulation, based on these three datums, connected to form one continuous network of triangulation, so that it could be placed on one datum.

After a conference between the officials of the Geodetic Survey of Canada and of the United States Coast and Geodetic Survey, the former agreed to carry a scheme of first-order triangulation from Point Roberts, in the vicinity of the Straits of Fuca, in the northwest part of the State of Washington, along the western coast of British Columbia to Dixon Entrance, Alaska. The Coast and Geodetic Survey agreed to carry the first-order triangulation from Dixon Entrance through the route mentioned above to Skagway, Alaska.

From this point Canada agreed to carry the scheme of first-order triangulation across the Yukon Province to Eagle at the Yukon crossing of the one hundred and forty-first meridian, which is the boundary line between Alaska and Canada. Then the United States planned an arc of first-order triangulation to be carried from Cook Inlet to Fairbanks, then eastward to Eagle to connect with the Canadian triangulation. The United States plans also to carry triangulation from Fairbanks to the mouth of the Yukon.

When this proposed scheme of first-order triangulation shall have been completed, sufficient control will be provided to place practically all the triangulation of Alaska, Canada, United States, and Mexico on the same datum.

At the time the plan of connecting the triangulation of Alaska with that of the United States by a continuous scheme of triangulation was proposed, the triangulations of the United States, Canada, and Mexico were on what was known as the North American datum. (See p. 4.) About five years ago it was decided to readjust all the first-order triangulation in the United States west of the ninety-eighth meridian. After the completion of this readjustment all the geographic positions of the first-order triangulation west of the ninety-eighth meridian were placed on a new datum, known as the North American datum of 1927. (See p. 4.)

As soon as the geographic positions on the new datum of the triangulation stations in the vicinity of Point Roberts in the northwest part of the State of Washington were available, they were furnished to the Geodetic Survey of Canada, which in turn carried this datum through its scheme of first-order triangulation along the west coast of British Columbia to Dixon Entrance, Alaska.

In January, 1928, the Geodetic Survey of Canada furnished the Coast and Geodetic Survey with the azimuth and length and the

geographic positions of the ends of the line Chacon-Dundas on the North American datum of 1927. Since the adjustment of the first-order triangulation in Alaska had previously been completed, all this triangulation was placed on the new datum by simply computing the geographic positions of all the stations, starting from Chacon and Dundas.

The field work on the first-order triangulation in southeast Alaska considered in this publication was started in 1916 and completed in 1925. Some of the stations included in the first-order net were established as far back as 1887, but as only observations of third-order accuracy were made at that time, they were reoccupied and new observations of first-order accuracy made.

The observations for the triangulation along this arc were made by N. H. Heck, J. H. Hawley, A. M. Sobieralski, F. S. Borden, E. W. Eickelberg, Jack Senior, and J. A. Daniels. The latitude, longitude, and azimuth observations were made by G. D. Cowie, D. B. Pheley, and Charles Pierce.

The office computation and adjustment of the triangulation were made under the direction of the writer. W. D. Sutcliffe, O. P. Sutherland and E. W. Gibson assisted in making these computations. The office computation of the astronomic observations was under the direction of C. H. Swick.

The tabulated arrangement of data follows the general plan adopted by the United States Coast and Geodetic Survey some years ago, and in the text relating to the tables and in several of the statements, the language is identical with that of the earlier publications.

CLASSES OF TRIANGULATION

Triangulation is divided into different classes according to accuracy. According to the plan adopted in 1925 by the Federal Board of Surveys and Maps, four classes of triangulation are prescribed and defined, viz, first order, second order, third order, and fourth order. The first three of these are, respectively, equal in accuracy to the classes primary, secondary, and tertiary, which were formerly used by the United States Coast and Geodetic Survey.

The ultimate criterion applied in classifying the different grades of triangulation is the actual error in the length of any line. This is indicated by the discrepancy between the measured length of a base line and its length as computed through the triangulation from the last preceding base. In first-order triangulation such discrepancies must not exceed 1 part in 25,000, in second-order triangulation 1 part in 10,000, and in third-order triangulation 1 part in 5,000. Before making the comparison between the computed and measured lengths the adjustment of the triangulation should be carried to the point where the side and angle equations have been satisfied.

To secure the accuracy indicated above, certain standards are adopted for the field work, the most important one of which relates to the closing error of the triangles or the discrepancy between the measured sum of the angles in a triangle and 180° plus the spherical excess of the triangle. In first-order triangulation the average closing error of the triangles must not be greatly in excess of 1″, in second order not more than 3″, and in third order not more than about 6″. The shape of the figures in the triangulation scheme, the frequency of bases, the size of the instrument, and the number and

kind of observations are all selected with due regard to the accuracy desired.

Under certain conditions the proportionate error in the length of a line as specified above may be found to be exceeded in any class of triangulation. Where two points are comparatively close together as compared with the size of the triangulation scheme the distance between those points may be in error in excess of that indicated by the class of triangulation of the scheme. The accuracy of the computed length of any line can be estimated by computing the ΣR_1 in accordance with the formula for the strength of figures as given in United States Coast and Geodetic Survey Special Publication No. 120, pages 5–7. In any class of triangulation the subsidiary stations will be located with a less degree of accuracy than the main-scheme stations.

ARRANGEMENT OF SUBJECT MATTER

In Part I are given such data for the southeast Alaska arc of first-order triangulation as will ordinarily be needed for control purposes.

The final results of a system of triangulation take the form of geographic positions, which give the latitude and longitude of each point of the triangulation, the azimuth of each line, and the logarithm of the length in meters of each line, together with its length in meters and feet.

Geographic positions are given in tabulated form in Part I of this publication, followed by the descriptions of the stations. Here the engineer and surveyor will find the data which will give him control points for his local surveys. On page 18, under the heading, How to Find the Data Desired, are instructions for the use of the tables. The tabulation of the various kinds of data given in Part I is arranged in the following order: (1) The geographic positions of the triangulation points are found in the tables on pages 20 to 38. Points of first-order accuracy are found in a separate table from those of third order. (2) The descriptions of all marked points, with the character of the marks, are given on pages 39 to 77. (3) Conversion tables are given on pages 78 to 85. The lengths of the lines are given in this publication in both meters and feet, but for the convenience of those who may wish to convert other quantities from one system to the other these tables are included.

Part II of this publication is devoted to a brief description of the methods employed in making the observations and to a discussion of errors and methods of adjustment. Tabulations of various parts of the computations are given, including the condition equations used in making the adjustments.

THE NORTH AMERICAN DATUM OF 1927

Concerning the actual use of the table of geographic positions, it is necessary to explain the North American datum of 1927, which serves as the basis for all the geodetic values in this report.

Early in the year 1913 the Superintendent of the United States Coast and Geodetic Survey was notified by the director of the Comisión Geodésica Mexicana and by the chief astronomer of the Dominion of Canada Astronomical Observatory that the then so-called United States standard datum had been adopted as the datum for the trian-

gulation of those organizations. They also reported that the Clarke spheroid of 1866, used in the United States, would be used by them.

Owing to the international character of the datum adopted by the three countries, the Superintendent of the United States Coast and Geodetic Survey changed its designation from the "United States standard datum" to the "North American datum."

The geodetic datum for the United States was adopted when the triangulation network of the country consisted principally of the transcontinental and eastern oblique arcs. As the network was expanded the geographic positions determined from the old work were held fixed and as new loops were formed by connecting to the old triangulation, the discrepancies arising were all distributed in the new arcs. Also in the earlier work the true geodetic azimuths, derived by applying the Laplace correction to observed astronomic azimuths, were not held fixed in the adjustments. In forcing the discrepancies of the loops into the new arcs, larger corrections were placed on the observations than the work justified.

In 1924 the chief of the division of geodesy of the Coast and Geodetic Survey suggested and outlined a general plan by which the discrepancies in loop closures of a net of first-order triangulation might be distributed by a method somewhat similar to that used in the adjustment of a first-order level net. Dr. O. S. Adams, senior mathematician, devised a practical method for making the adjustments in accordance with this plan.

By means of this method all the triangulation of the United States west of the ninety-eighth meridian was readjusted and the geographic positions of all the triangulation stations were recomputed on a new datum, which is called the North American datum of 1927. In this adjustment the true geodetic azimuths—that is, the astronomic azimuths to which the Laplace corrections have been applied—were held fixed along the various arcs. Later the triangulation in the eastern part of the country will also be placed on this new datum.

The North American datum may be defined in terms of the position of the station Meades Ranch, Kans., as follows:

	°	′	″
Latitude, ϕ =	39	13	26.686
Longitude, λ =	98	32	30.506
Azimuth to Waldo =	75	28	14.52

The North American datum of 1927, upon which the positions and azimuths given in this publication depend, may be defined in terms of the same latitude and longitude of the same station as given above but the azimuths were controlled by the various Laplace azimuths throughout the network of triangulation. The principal difference between the North American datum and the North American datum of 1927 is due to the difference in the methods used for making the adjustments. (See above.)

Points are then said to be upon the North American datum of 1927 when they are connected with the station Meades Ranch by a continuous triangulation, through which the corresponding latitudes, longitudes, and azimuths have been computed on the Clarke spheroid of 1866, as expressed in meters, starting from the above position of Meades Ranch.

EXPLANATION OF POSITIONS, LENGTHS, AND AZIMUTHS AND OF THE NORTH AMERICAN DATUM

All of the positions and azimuths have been computed upon the Clarke spheroid of 1866, as expressed in meters, which has been in use in the United States Coast and Geodetic Survey for many years.

After a spheroid has been adopted and all the angles and lengths in a triangulation have been fully fixed it is still necessary, before the computation of latitudes, longitudes, and azimuths can be made, to adopt a standard latitude and longitude for a specified station and a standard azimuth of a line from that station. For convenience the adopted standard position (latitude and longitude) of a given station, together with the adopted standard azimuth of a line from that station, is called the geodetic datum.

The first-order triangulation in the United States was commenced at various points and existed at first as a number of detached portions in each of which the geodetic datum was necessarily dependent only upon the astronomic stations connected with that particular portion. As examples of such detached portions of triangulation there may be mentioned the early triangulation in New England and along the Atlantic coast, a detached portion of the transcontinental triangulation centering on St. Louis and another portion of the same triangulation in the Rocky Mountain region, and three separate portions of triangulation in California, in the latitude of San Francisco, in the vicinity of Santa Barbara Channel, and in the vicinity of San Diego. With the lapse of time these separate pieces expanded until they touched.

The transcontinental triangulation, the office computation of which was completed in 1899, joined all the detached portions mentioned and made them one continuous triangulation. As soon as this took place the logical necessity existed of discarding the old geodetic data used in these various pieces and substituting one for the whole country, or at least for as much of the country as is covered by continuous triangulation. To do this was a very tedious piece of work and involved much preliminary study to determine the best datum to be adopted. On March 13, 1901, the superintendent adopted what was known from that time until 1913 as the United States standard datum, and from then until 1927 as the North American datum, and it was decided to reduce the positions to that datum as rapidly as possible. The datum adopted was that formerly in use in New England, and therefore its adoption did not affect the positions which had been used for geographic purposes in New England and along the Atlantic coast to North Carolina, nor those in the States of New York, Pennsylvania, New Jersey, and Delaware.

USE OF HORIZONTAL CONTROL DATA

The plan or map for any extensive engineering project, whether or not map construction is the primary object, should have all of its parts properly correlated and should be on the same datum as adjacent surveys. Federal and State mapping organizations have long been aware of the necessity for having all surveys based upon a common datum, but the local engineers and surveyors in this country have too often in the past been content, and in many cases compelled, to use a local datum for their surveys. The future economic disadvantage of

such a system is now becoming recognized, with the result that city and county surveys are being more generally placed upon a permanent basis by connecting them to stations on the North American datum.

One other factor must be taken into consideration by the engineer of to-day. As the States develop industrially they will undoubtedly follow the lead of one of the Eastern States, Massachusetts, which with splendid foresight has extended its triangulation control over the entire State for the purpose of defining property boundaries in terms of latitude and longitude. The advantage of such a system is well stated in the following extracts from the Report on the Maryland Oyster Survey:

> The difficulties of accurately locating and permanently defining the boundaries of a farmer's plantation on land, even with the aid of monuments, public roads, streams of water, and other points of reference are often great, judging from the disputes frequently arising in connection with boundaries. * * *.
>
> There is only one point on the earth's surface at the intersection of any one parallel of latitude and any one meridian of longitude, and therefore there can be no dispute as to the meaning of such a geographic definition of the location of a point, even though all the original triangulation station marks used in its determination, together with the chart on which its position was originally plotted, have been totally destroyed.
>
> In the case of the destruction of an original triangulation station mark, or any other point defined by a geographic position, a competent geodetic engineer can reestablish its exact location by means of a new system of triangulation connecting with other distant triangulation marks which have not been destroyed.

In a section of the country covered by adequate geodetic control the data are available to the engineer for any of the following operations, in addition to their possible future use as a basis for cadastral surveys:

(1) **Extensive mapping.**—The topographer needs as initial data for beginning a topographic survey the distance and direction between two points and the geographic position of one of them, in latitude and longitude, on the North American datum of 1927. His local triangulation, based on this control, will prevent the accumulation of excessive errors as he carries on his mapping operations. In the event that the available first-order triangulation in that region has lines of too great length to join to conveniently he can measure a base and azimuth at some place visible from a first or second order triangulation station and connect his base to the station by triangulation, thus obtaining proper geographic positions for his local surveys.

Instructions for third-order triangulation, suitable for the control of local surveys, may be found in United States Coast and Geodetic Survey Special Publication No. 145, which can be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 60 cents.

(2) **Boundary lines.**—If it is desired to locate or to delimit accurately and permanently the boundaries of political subdivisions, such as States, counties, or cities, the methods indicated in the preceding paragraph may be followed. Whenever possible, a line of the adjusted triangulation should be used as a basis for local surveys rather than a point, since a line gives the three essentials of position, length, and direction.

(3) **Local intensive surveys.**—The necessity for such surveys arises most frequently in connection with extensive improvements over a considerable area, or as a basis for the modern "city planning," where the needs of a city are being anticipated for a number of years.

Here the requirements are somewhat different from those in the two preceding operations, for it is often necessary to extend first or second order control in considerable detail over the entire area affected, third-order triangulation or traverse then being used to furnish additional points for the survey. In such a control survey the triangulation should invariably be started from a line of adjusted triangulation on the North American datum of 1927.

In local surveys where the area is of limited extent it is usually desirable to use a system of plane coordinates, the origin being connected to some point of the first or second order triangulation scheme. Tables for computing plane coordinates are found in United States Coast and Geodetic Survey Special Publication No. 71, which may be purchased from the Superintendent of Documents, Washington, D. C., for 10 cents.

The United States Coast and Geodetic Survey will be glad to give advice on any problem arising out of the use of its control points or on any proposed extension of triangulation from them.

TABLE FOR POLYCONIC MAP PROJECTION

The engineer or surveyor who makes use of the data in this publication may find it desirable to construct a map covering the territory he is surveying. He may wish to show on this map the meridians and parallels so as to be able to plot the positions of the triangulation stations included in the area and show the details of his survey in the correct geographic positions. To enable him to do this with the least possible difficulty the following table, reprinted in an abbreviated form from United States Coast and Geodetic Survey Special Publication No. 5, has been inserted. This table may also be used to interpret in terms of degrees, minutes, and seconds of arc any distance measured along a meridian or parallel. The method of using the table is described below.

To make a projection for a large-scale map (1–20,000 and larger) first draw a straight line for a central meridian and a construction line *ab* perpendicular thereto, each to be as central to the sheet as the selected interval of latitude and longitude will permit. (See fig. 1.) On the central meridian lay off the distances, mm_2 and mm_4, using the length of 1′ along the meridian, for the latitude in question, as given in the table under "Arcs of the meridian" and multiplying this length by the number of minutes for the interval between the central parallel and the extreme parallels. Through m_2 and m_4 draw straight lines, *cd* and *ef*, parallel to the line *ab*. On the lines *ef*, *ab*, and *cd* lay off the distances mx_2, m_2x_2, and m_4x_2 on both sides of the central meridian taking the values from the table under "Arcs of the parallel," corresponding to the latitude of m, m_2, and m_4, respectively. The value of 1′ as taken from the table must be multiplied by the number of minutes out from the central meridian. Draw straight lines through the points thus determined for the extreme meridians—that is, through the x_2 points.

At the two points designated x_2 on the line *ab* lay off along the meridians the value of Y as given in the table under "Y-coordinate of curvature," using as argument the interval in minutes between the central meridian and the extreme meridian. Draw straight lines from these points to the point m for the middle parallel, and from the

points of intersection with the extreme meridians lay off distances along these meridians, above and below, equal to the distances mm_2 and mm_4 to locate points in the extreme parallels.

Subdivide each of the three meridians and three parallels already determined into parts corresponding with the projection interval and join the corresponding points of subdivision by straight lines to complete the projection.

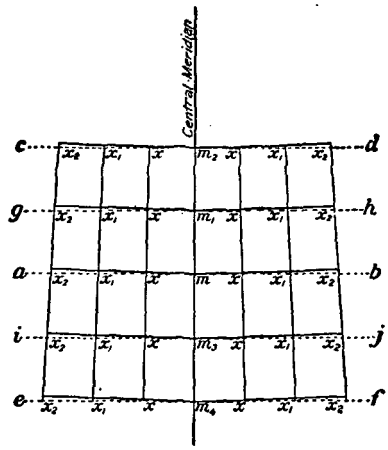

FIGURE 1.—Sketch showing construction of polyconic map projection

NOTE.—In this figure the angle made at the central meridian by the parallels is grossly exaggerated. In an actual projection the parallels appear practically as straight lines.

The method outlined above may be used for all large-scale maps regardless of the number of meridians and parallels shown. For small-scale maps the method is somewhat more complicated and it becomes necessary to make use of Special Publication No. 5, which may be obtained for 20 cents from the Superintendent of Documents, Washington, D. C.

Polyconic map projection table

Latitude	Arc of the parallel		Arc of the meridian		Interval of longitude from central meridian	Y-coordinate of curvature, lat. 54°
	1″	1′	1″	1′		
° ′	*Meters*	*Meters*	*Meters*	*Meters*	° ′	*Meters*
54 00	18.216	1,093.0	30.918	1,855.10		
1	.209	2.5	8	.11	0 1	0.1
2	.202	2.1	9	.11	2	0.5
3	.194	1.7	9	.12	3	1.2
4	.187	1.2	9	.12	4	2.1
54 05	18.180	1,090.8	30.919	1,855.13	0 5	3.2
6	.172	90.3	9	.13	6	4.6
7	.165	89.9	9	.14	7	6.3
8	.158	9.5	9	.14	8	8.2
9	.151	9.0	9	.15	9	10.4
54 10	18.143	1,088.6	30.919	1,855.15	0 10	12.9
11	.136	8.2	9	.16	15	28.9
12	.129	7.7	9	.16	20	51.4
13	.121	7.3	19	.17	25	80.4
14	.114	6.8	20	.17	30	115.7
54 15	18.107	1,086.4	30.920	1,855.18	0 35	157.5
16	.099	6.0	0	.18	40	205.8
17	.092	5.5	0	.19	45	260.4
18	.085	5.1	0	.19	50	321.5
19	.078	4.7	0	.20	55	389.0
54 20	18.070	1,084.2	30.920	1,855.21	1 00	463.0
21	.063	3.8	0	.21	05	543.4
22	.056	3.3	0	.22	10	630.2
23	.048	2.9	0	.22	15	723.4
24	.041	2.5	0	.23	20	823.1
54 25	18.034	1,082.0	30.921	1,855.23	1 25	929.1
26	.026	1.6	1	.24	30	1,041.7
27	.019	1.1	1	.24	35	1,160.6
28	.012	0.7	1	.25	40	1,286.0
29	.004	80.3	1	.25	45	1,417.8
54 30	17.997	1,079.8	30.921	1,855.26	1 50	1,556.0
31	.990	9.4	1	.26	55	1,700.7
32	.982	8.9	1	.27	2 00	1,852
33	.975	8.5	1	.27	3 00	4,166
34	.968	8.1	1	.28	4 00	7,406
54 35	17.960	1,077.6	30.921	1,855.28		
36	.953	7.2	1	.29		
37	.946	6.7	2	.29		
38	.938	6.3	2	.30		
39	.931	5.9	2	.30		
54 40	17.924	1,075.4	30.922	1,855.31		
41	.916	5.0	2	.31		
42	.909	4.5	2	.32		
43	.902	4.1	2	.32		
44	.894	3.7	2	.33		
54 45	17.887	1,073.2	30.922	1,855.34		
46	.880	2.8	2	.34		
47	.872	2.3	2	.35		
48	.865	1.9	3	.35		
49	.858	1.5	3	.36		
54 50	17.850	1,071.0	30.923	1,855.36		
51	.843	0.6	3	.37		
52	.836	70.1	3	.37		
53	.828	69.7	3	.38		
54	.821	9.3	3	.38		
54 55	17.814	1,068.8	30.923	1,855.39		
56	.806	8.4	3	.39		
57	.799	7.9	3	.40		
58	.791	7.5	3	.40		
59	.784	7.0	3	.41		
55 00	17.777	1,066.6	30.924	1,855.41		

Polyconic map projection table—Continued

Latitude	Arc of the parallel		Arc of the meridian		Interval of longitude from central meridian	Y-coordinate of curvature, lat. 55°
	1″	1′	1″	1′		
° ′	*Meters*	*Meters*	*Meters*	*Meters*	° ′	*Meters*
55 00	17.777	1,066.6	30.924	1,855.41		
1	.769	6.2	4	.42	0 1	0.1
2	.762	5.7	4	.42	2	0.5
3	.755	5.3	4	.43	3	1.1
4	.747	4.8	4	.43	4	2.0
55 05	17.740	1,064.4	30.924	1,855.44	0 5	3.2
6	.733	4.0	4	.44	6	4.6
7	.725	3.5	4	.45	7	6.2
8	.718	3.1	4	.45	8	8.1
9	.710	2.6	4	.46	9	10.3
55 10	17.703	1,062.2	30.924	1,855.46	0 10	12.7
11	.696	1.7	4	.47	15	28.6
12	.688	1.3	5	.47	20	50.8
13	.681	0.8	5	.48	25	79.4
14	.673	0.4	5	.49	30	114.4
55 15	17.666	1,060.0	30.925	1,855.49	0 35	155.7
16	.659	59.5	5	.50	40	203.3
17	.651	9.1	5	.50	45	257.3
18	.644	8.6	5	.51	50	317.7
19	.636	8 2	5	.51	55	384.4
55 20	17.629	1,057.7	30.925	1,855.52	1 00	457.5
21	.622	7.3	5	.52	05	536.9
22	.614	6.9	5	.53	10	622.7
23	.607	6.4	6	.53	15	714.8
24	.599	6.0	6	.54	20	813.3
55 25	17.592	1,055.5	30.926	1,855.54	1 25	918.1
26	.585	5.1	6	.55	30	1,029.3
27	.577	4.6	6	.55	35	1,146.8
28	.570	4.2	6	.56	40	1,270.7
29	.562	3.7	6	.56	45	1,400.9
55 30	17.555	1,053.3	30.926	1,855.57	1 50	1,537.5
31	.548	2.9	6	.57	55	1,680.5
32	.540	2.4	6	.58	2 00	1,830
33	.533	2.0	6	.58	3 00	4,117
34	.525	1.5	6	.59	4 00	7.318
55 35	17.518	1,051.1	30.927	1,855.59		
36	.510	0.6	7	.60		
37	.503	50.2	7	.60		
38	.496	49.7	7	.61		
39	.488	9.3	7	.61		
55 40	17.481	1,048.9	30.927	1,855.62		
41	.473	8.4	7	.62		
42	.466	8.0	7	.63		
43	.459	7.5	7	.63		
44	.451	7.1	7	.64		
55 45	17.444	1,046.6	30.927	1,855.64		
46	.436	6.2	7	.65		
47	.429	5.7	8	.65		
48	.421	5.3	8	.66		
49	.414	4.8	8	.66		
55 50	17.406	1,044.4	30.928	1,855.67		
51	.399	3.9	8	.68		
52	.392	3.5	8	.68		
53	.384	3.0	8	.69		
54	.377	2.6	8	.69		
55 55	17.369	1,042.2	30.928	1,855.70		
56	.362	1.7	8	.70		
57	.354	1.3	8	.71		
58	.347	0.8	9	.71		
59	.339	40.4	9	.72		
56 00	17.332	1,039.9	30.929	1,855.72		

92450°—30——2

Polyconic map projection table—Continued

Latitude	Arc of the parallel		Arc of the meridian		Interval of longitude from central meridian	Y-coordinate of curvature, lat. 56°
	1″	1′	1″	1′		
° ′	*Meters*	*Meters*	*Meters*	*Meters*	° ′	*Meters*
56 00	17.332	1,039.9	30.929	1,855.72		
1	.324	9.5	9	.73	0 1	0.1
2	.317	9.0	9	.73	2	0.5
3	.310	8.6	9	.74	3	1.1
4	.302	8.1	9	.74	4	2.0
56 05	17.295	1,037.7	30.929	1,855.75	0 5	3.1
6	.287	7.2	9	.75	6	4.5
7	.280	6.8	9	.76	7	6.1
8	.272	6.3	9	.76	8	8.0
9	.265	5.9	29	.77	9	10.2
56 10	17.257	1,035.4	30.930	1,855.77	0 10	12.5
11	.250	5.0	0	.78	15	28.2
12	.242	4.5	0	.78	20	50.2
13	.235	4.1	0	.79	25	78.4
14	.227	3.6	0	.79	30	112.9
56 15	17.220	1,033.2	30.930	1,855.80	0 35	153.6
16	.212	2.7	0	.80	40	200.6
17	.205	2.3	0	.81	45	253.9
18	.197	1.8	0	.81	50	313.5
19	.190	1.4	0	.82	55	379.3
56 20	17.182	1,030.9	30.930	1,855.82	1 00	451.4
21	.175	0.5	0	.83	05	529.8
22	.167	30.0	1	.83	10	614.4
23	.160	29.6	1	.84	15	705.3
24	.152	9.1	1	.84	20	802.5
56 25	17.145	1,028.7	30.931	1,855.85	1 25	905.9
26	.137	8.2	1	.85	30	1,015.6
27	.130	7.8	1	.86	35	1,131.6
28	.123	7.4	1	.86	40	1,253.8
29	.115	6.9	1	.87	45	1,382.4
56 30	17.108	1,026.5	30.931	1,855.87	1 50	1,517.1
31	.100	6.0	1	.88	55	1,658.2
32	.092	5.5	1	.88	2 00	1,806
33	.085	5.1	1	.89	3 00	4,062
34	.077	4.6	2	.89	4 00	7,221
56 35	17.070	1,024.2	30.932	1,855.90		
36	.062	3.7	2	.90		
37	.055	3.3	2	.91		
38	.047	2.8	2	.91		
39	.040	2.4	2	.92		
56 40	17.032	1,021.9	30.932	1,855.92		
41	.025	1.5	2	.93		
42	.017	1.0	2	.93		
43	.010	0.6	2	.94		
44	.002	20.1	2	.94		
56 45	16.995	1,019.7	30.932	1,855.95		
46	.987	9.2	3	.95		
47	980	8.8	3	.96		
48	.972	8.3	3	.96		
49	.965	7.9	3	.97		
56 50	16.957	1,017.4	30.933	1,855.97		
51	.950	7.0	3	.98		
52	.942	6.5	3	.98		
53	.935	6.1	3	5.99		
54	.927	5.6	3	6.00		
56 55	16.919	1,015.2	30.933	1,856.00		
56	.912	4.7	3	.01		
57	.904	4.3	4	.01		
58	.897	3.8	4	.02		
59	.889	3.4	4	.02		
57 00	16.882	1,012.9	30.934	1,856.03		

Polyconic map projection table—Continued

Latitude	Arc of the parallel		Arc of the meridian		Interval of longitude from central meridian	Y-coordinate of curvature, lat. 57°
	1″	1′	1″	1′		
° ′	*Meters*	*Meters*	*Meters*	*Meters*	° ′	*Meters*
57 00	16.882	1,012.9	30.934	1,856.03		
1	.874	2.5	4	.03	0 1	0.1
2	.867	2.0	4	.04	2	0.5
3	.859	1.5	4	.04	3	1.1
4	.852	1.1	4	.05	4	2.0
57 05	16.844	1,010.6	30.934	1,856.05	0 5	3.1
6	.836	10.2	4	.06	6	4.4
7	.829	09.7	4	.06	7	6.0
8	.821	9.3	4	.07	8	7.9
9	.814	8.8	5	.07	9	10.0
57 10	16.806	1,008.4	30.935	1,856.08	0 10	12.4
11	.799	7.9	5	.08	15	27.8
12	.791	7.5	5	.09	20	49.4
13	.784	7.0	5	.09	25	77.2
14	.776	6.6	5	.10	30	111.2
57 15	16.768	1,006.1	30.935	1,856.10	0 35	151.3
16	.761	5.6	5	.11	40	197.7
17	.753	5.2	5	.11	45	250.2
18	.746	4.7	5	.12	50	308.9
19	.738	4.3	5	.12	55	373.7
57 20	16.731	1,003.8	30.935	1,856.13	1 00	444.8
21	.723	3.4	6	.13	05	522.0
22	.715	2.9	6	.14	10	605.4
23	.708	2.5	6	.14	15	695.0
24	.700	2.0	6	.15	20	790.7
57 25	16.693	1,001.6	30.936	1,856.15	1 25	892.6
26	.685	1.1	6	.16	30	1,000.7
27	.677	0.6	6	.16	35	1,115.0
28	.670	1,000.2	6	.17	40	1,235.5
29	.662	999.7	6	.17	45	1,362.1
57 30	16.655	999.3	30.936	1,856.18	1 50	1,494.9
31	.647	8.8	6	.18	55	1,633.9
32	.640	8.4	6	.19	2 00	1,779
33	.632	7.9	7	.19	3 00	4,003
34	.624	7.5	7	.20	4 00	7,115
57 35	16.617	997.0	30.937	1,856.20		
36	.609	6.5	7	.21		
37	.602	6.1	7	.21		
38	.594	5.6	7	.22		
39	.586	5.2	7	.22		
57 40	16.579	994.7	30.937	1,856.23		
41	.571	4.3	7	.23		
42	.564	3.8	7	.24		
43	.556	3.4	7	.24		
44	.548	2.9	7	.25		
57 45	61.541	992.4	30.938	1,856.25		
46	.533	2.0	8	.26		
47	.525	1.5	8	.26		
48	.518	1.1	8	.27		
49	.510	0.6	8	.27		
57 50	16.503	990.2	30.938	1,856.28		
51	.495	89.7	8	.28		
52	.487	9.2	8	.29		
53	.480	8.8	8	.29		
54	.472	8.3	8	.30		
57 55	16.465	987.9	30.938	1,856.30		
56	.457	7.4	8	.31		
57	.449	7.0	9	.31		
58	.442	6.5	9	.31		
59	.434	6.0	9	.32		
58 00	16.426	985.6	30.939	1,856.32		

Polyconic map projection table—Continued

Latitude	Arc of the parallel		Arc of the meridian		Interval of longitude from central meridian	Y-coordinate of curvature, lat. 58°
	1″	1′	1″	1′		
	Meters	*Meters*	*Meters*	*Meters*	° ′	*Meters*
58 00	16.426	985.6	30.939	1,856.32		
1	.419	5.1	9	.33	0 1	0.1
2	.411	4.7	9	.33	2	0.5
3	.403	4.2	9	.34	3	1.1
4	.396	3.8	9	.34	4	1.9
58 05	16.388	983.3	30.939	1,856.35	0 5	3.0
6	.381	2.8	9	.35	6	4.4
7	.373	2.4	9	.36	7	6.0
8	.365	1.9	9	.36	8	7.8
9	.358	1.5	39	.37	9	9.8
58 10	16.350	981.0	30.940	1,856.37	0 10	12.2
11	.342	0.5	0	.38	15	27.4
12	.335	80.1	0	.38	20	48.6
13	.327	79.6	0	.39	25	76.0
14	.319	9.2	0	.39	30	109.4
58 15	16.312	978.7	30.940	1,856.40	0 35	148.9
16	.304	8.2	0	.40	40	194.5
17	.296	7.8	0	.41	45	246.2
18	.289	7.3	0	.41	50	303.9
19	.281	6.9	0	.42	55	367.7
58 20	16.273	976.4	30.940	1,856.42	1 00	437.6
21	.266	5.9	0	.43	05	513.6
22	.258	5.5	1	.43	10	595.6
23	.250	5.0	1	.44	15	683.8
24	.243	4.6	1	.44	20	778.0
58 25	16.235	974.1	30.941	1,856.45	1 25	878.3
26	.227	3.6	1	.45	30	984.6
27	.220	3.2	1	.46	35	1,097.1
28	.212	2.7	1	.46	40	1,215.6
29	.204	2.3	1	.47	45	1,340.2
58 30	16.197	971.8	30.941	1,856.47	1 50	1,470.8
31	.189	1.3	1	.48	55	1,607.6
32	.181	0.9	1	.48	2 00	1,750
33	.174	0.4	1	.49	3 00	3,938
34	.166	70.0	2	.49	4 00	7,000
58 35	16.158	969.5	30.942	1,856.50		
36	.151	9.0	2	.50		
37	.143	8.6	2	.51		
38	.135	8.1	2	.51		
39	.128	7.7	2	.52		
58 40	16.120	967.2	30.942	1,856.52		
41	.112	6.7	2	.53		
42	.105	6.3	2	.53		
43	.097	5.8	2	.54		
44	.089	5.4	2	.54		
58 45	16.081	964.9	30.942	1,856.55		
46	.074	4.4	3	.55		
47	.066	4.0	3	.56		
48	.058	3.5	3	.56		
49	.051	3.0	3	.57		
58 50	16.043	962.6	30.943	1,856.57		
51	.035	2.1	3	.58		
52	.028	1.7	3	.58		
53	.020	1.2	3	.59		
54	.012	0.7	3	.59		
58 55	16.004	960.3	30.943	1,856.59		
56	5.997	59.8	3	.60		
57	.989	9.3	3	.60		
58	.981	8.9	3	.61		
59	.974	8.4	4	.61		
59 00	15.966	958.0	30.944	1,856.62		

Polyconic map projection table—Continued

Latitude	Arc of the parallel		Arc of the meridian		Interval of longitude from central meridian	Y-coordinate of curvature, lat. 59°
	1″	1′	1″	1′		
° ′	*Meters*	*Meters*	*Meters*	*Meters*	° ′	*Meters*
59 00	15.966	958.0	30.944	1,856.62		
1	.958	7.5	4	.62	0 1	0.1
2	.951	7.0	4	.63	2	0.5
3	.943	6.6	4	.63	3	1.1
4	.935	6.1	4	.64	4	1.9
59 05	15.927	955.6	30.944	1,856.64	0 5	3.0
6	.920	5.2	4	.65	6	4.3
7	.912	4.7	4	.65	7	5.9
8	.904	4.3	4	.66	8	7.6
9	.896	3.8	4	.66	9	9.7
59 10	15.889	953.3	30.944	1,856.67	0 10	11.9
11	.881	2.9	5	.67	15	26.9
12	.873	2.4	5	.68	20	47.8
13	.866	1.9	5	.68	25	74.6
14	.858	1.5	5	.69	30	107.5
59 15	15.850	951.0	30.945	1,856.69	0 35	146.3
16	.842	0.5	5	.70	40	191.1
17	.835	50.1	5	.70	45	241.8
18	.827	49.6	5	.71	50	298.6
19	.819	9.1	5	.71	55	361.2
59 20	15.811	948.7	30.945	1,856.72	1 00	429.9
21	.804	8.2	5	.72	05	504.5
22	.796	7.8	5	.73	10	585.2
23	.788	7.3	6	.73	15	671.7
24	.780	6.8	6	.74	20	764.3
59 25	15.773	946.4	30.946	1,856.74	1 25	862.8
26	.765	5.9	6	.75	30	967.3
27	.757	5.4	6	.75	35	1,077.8
28	.749	5.0	6	.75	40	1,194.2
29	.742	4.5	6	.76	45	1,316.6
59 30	15.734	944.0	30.946	1,856.76	1 50	1,445.0
31	.726	3.6	6	.77	55	1,579.3
32	.718	3.1	6	.77	2 00	1,720
33	.711	2.6	6	.78	3 00	3,869
34	.703	2.2	6	.78	4 00	6,877
59 35	15.695	941.7	30.946	1,856.79		
36	.687	1.2	7	.79		
37	.680	0.8	7	.80		
38	.672	40.3	7	.80		
39	.664	39.8	7	.81		
59 40	15.656	939.4	30.947	1,856.81		
41	.648	8.9	7	.82		
42	.641	8.4	7	.82		
43	.633	8.0	7	.83		
44	.625	7.5	7	.83		
59 45	15.617	937.0	30.947	1,856.84		
46	.610	6.6	7	.84		
47	.602	6.1	7	.85		
48	.594	5.6	8	.85		
49	.586	5.2	8	.86		
59 50	15.579	934.7	30.948	1,856.86		
51	.571	4.2	8	.87		
52	.563	3.8	8	.87		
53	.555	3.3	8	.88		
54	.547	2.8	8	.88		
59 55	15.540	932.4	30.948	1,856.88		
56	.532	1.9	8	.89		
57	.524	1.4	8	.89		
58	.516	1.0	8	.90		
59	.508	0.5	8	.90		
60 00	15.501	930.0	30.948	1,856.91		

Polyconic map projection table—Continued

Latitude	Arc of the parallel		Arc of the meridian		Interval of longitude from central meridian	Y-coordinate of curvature	
	1″	1′	1″	1′		lat. 60°	lat. 61°
° ′	*Meters*	*Meters*	*Meters*	*Meters*	° ′	*Meters*	*Meters*
60 00	15.501	930.0	30.948	1,856.91			
1	.493	29.6	9	.91	0 1	0.1	0.1
2	.485	9.1	9	.92	2	0.5	0.5
3	.477	8.6	9	.92	3	1.1	1.0
4	.469	8.2	9	.93	4	1.9	1.8
60 05	15.462	927.7	30.949	1,856.93	0 5	2.9	2.9
6	.454	7.2	9	.94	6	4.2	4.1
7	.446	6.8	9	.94	7	5.7	5.6
8	.438	6.3	9	.95	8	7.5	7.3
9	.430	5.8	9	.95	9	9.5	9.3
60 10	15.423	925.4	30.949	1,856.96	0 10	11.7	11.5
11	.415	4.9	9	.96	15	26.4	25.8
12	.407	4.4	49	.97	20	46.9	45.9
13	.399	3.9	50	.97	25	73.2	71.7
14	.391	3.5	0	.98	30	105.4	103.2
60 15	15.383	923.0	30.950	1,856.98	0 35	143.5	140.5
16	.376	2.5	0	.98	40	187.4	183.5
17	.368	2.1	0	.99	45	237.2	232.3
18	.360	1.6	0	6.99	50	292.8	286.8
19	.352	1.1	0	7.00	55	354.3	347.0
60 20	15.344	920.7	30.950	1,857.00	1 00	421.7	413.0
21	.337	0.2	0	.01	05	494.9	484.7
22	.329	19.7	0	.01	10	574.0	562.1
23	.321	9.3	0	.02	15	658.9	645.3
24	.313	8.8	0	.02	20	749.7	734.2
60 25	15.305	918.3	30.950	1,857.03	1 25	846.4	828.8
26	.297	7.8	1	.03	30	948.8	929.2
27	.290	7.4	1	.04	35	1,057.1	1,035.3
28	.282	6.9	1	.04	40	1,171.3	1,147.1
29	.274	6.4	1	.05	45	1,291.3	1,264.6
60 30	15.266	916.0	30.951	1,857.05	1 50	1,417.2	1,388.0
31	.258	5.5	1	.06	55	1,549.0	1,517.1
32	.250	5.0	1	.06	2 00	1,687	1,652
33	.243	4.6	1	.07	3 00	3,795	3,716
34	.235	4.1	1	.07	4 00	6,745	6,606
60 35	15.227	913.6	30.951	1,857.07			
36	.219	3.1	1	.08			
37	.211	2.7	1	.08			
38	.203	2.2	1	.09			
39	.196	1.7	2	.09			
60 40	15.188	911.3	30.952	1,857.10			
41	.180	0.8	2	.10			
42	.172	10.3	2	.11			
43	.164	09.8	2	.11			
44	.156	9.4	2	.12			
60 45	15.148	908.9	30.952	1,857.12			
46	.141	8.4	2	.13			
47	.133	8.0	2	.13			
48	.125	7.5	2	.14			
49	.117	7.0	2	.14			
60 50	15.109	906.5	30.952	1,857.15			
51	.101	6.1	3	.15			
52	.093	5.6	3	.15			
53	.086	5.1	3	.16			
54	.078	4.7	3	.16			
60 55	15.070	904.2	30.953	1,857.17			
56	.062	3.7	3	.17			
57	.054	3.2	3	.18			
58	.046	2.8	3	.18			
59	.038	2.3	3	.19			
61 00	15.030	901.8	30.953	1.857.19			

EXPLANATION OF TABLES OF GEOGRAPHIC POSITIONS

ARRANGEMENT OF TABULATED DATA

In the tables of positions the latitude and longitude of each point are given on the North American datum of 1927 (see p. 4); also the length and azimuth of each line observed over, whether in one way or both ways, to other points of the triangulation. No LENGTHS OR AZIMUTHS ARE REPEATED, AND FOR A GIVEN LINE THE LENGTH AND AZIMUTH WILL BE FOUND OPPOSITE THE POSITION OF ONE OR THE OTHER OF THE TWO STATIONS INVOLVED.

The distances between stations are given in meters and feet. To facilitate further the use of the tables, a column is given of the logarithms of the lengths in meters. It must be remembered that it is the logarithm of the length in meters which is derived first in the computations. The length in meters is then derived from the corresponding logarithm, and finally the length in feet is obtained from the length in meters by use of a conversion factor. Where further work of considerable extent is contemplated, an accumulation of error can be avoided by using the logarithm.

EXPLANATION OF LENGTHS

The lengths, as explained in the discussion of the adjustments (see pp. 96–111) depend upon the adjusted length of the line Chacon-Dundas in Dixon Entrance, as determined by the Geodetic Survey of Canada, and upon the measured lengths of the 10 bases listed on page 89. The lengths as given in the tables are all reduced to sea level. If the actual length of a line simply reduced to the horizontal is desired—that is, its length in its actual elevation on the surface of the earth—it may be obtained by adding to the sea-level length as given in meters the following correction:

$$\text{Cor} = \frac{S\,h_m}{6\ 370\ 000}$$

in which S is the length of the line in meters, and h_m is the mean elevation of the two ends of the line in meters.

The maximum value of this correction does not exceed $\frac{1}{4,800}$ of the length of any line of the triangulation here published. The error introduced by the use of the above approximate formula does not exceed $\frac{1}{1,270,000}$ of the length of any portion of this triangulation.

AZIMUTH AND BACK AZIMUTH

The azimuth of a line of triangulation is its true direction reckoned clockwise from true south. The cardinal points of the compass on this system are as follows: South is 0° (or 360°), west 90°, north 180°, and east 270°.

Because of the convergence of the meridians, the azimuth and back azimuth of a line do not differ by exactly 180°, the amount of the divergence varying with the latitude and the difference of longitude of the two points. To illustrate from the tables, page 20, the azimuth from Seal to Ken is 84° 47′ 56.″88, while the back azimuth, or the azimuth from Ken to Seal, is 264° 28′ 13.″41.

The azimuths of the triangulation lines offer a very convenient and accurate means of testing the error of the magnetic needle on a surveyor's transit. Even the azimuth over such short distances as those between a station mark and its reference mark may be used for this purpose with fair accuracy, provided the distance is greater than 100 feet.

ACCURACY OF DATA INDICATED IN TABLES

The rule followed in recent publications of this office has been to give latitudes and longitudes to thousandths of seconds for all points the positions of which are fixed by fully adjusted triangulation. Points, the positions of which are given to hundredths of seconds only, are usually marked by footnotes as being without check (observed from only two stations). The positions of a few mountain peaks which were determined from more than two stations are also given to hundredths of seconds only, because the lack of a definite mark on which to point the observing instrument made the resulting position slightly uncertain in each case.

In the columns giving azimuths, distances, and logarithms of distances, the accuracy is indicated to a certain extent by the number of decimal places given, it being understood that in each case two doubtful figures are given. In some cases there is very little doubt of the correctness of the second figure from the right, while in a few cases some doubt may be cast on the third figure from the right.

HOW TO FIND THE DATA DESIRED

Following the index at the back of this publication are seven maps. The first is an index map showing the boundaries of the areas represented on Figures 19 to 24. The rest are detailed maps showing the scheme of triangulation plotted by latitudes and longitudes.

Having found the names of the points desired, the tables may be conveniently consulted by using the index at the end of this publication. In the appropriately headed columns opposite the name of each station are given the pages on which may be found its geographic position, description, and the numbers of the sketches showing the scheme of observed lines from that station.

RELATED PUBLICATIONS

Engineers and others using the data given in this report for the control of maps and surveys will find it of help to have the following Special Publications of the United States Coast and Geodetic Survey. They may be obtained at a nominal cost from the Superintendent of Documents, Government Printing Office, Washington, D. C.

Special Publication No. 5 is entitled "Tables for a Polyconic Projection of Maps Based on Clarke's Reference Spheroid of 1866." A brief explanation of these tables and condensed tables for the latitude of southeast Alaska are given on pages 8 to 16.

Special Publication No. 8 is entitled "Formulas and Tables for the Computation of Geodetic Positions." As the title of this publication implies, the data contained in it will enable one to compute the spherical coordinates for triangulation where the distances and angles are known.

Special Publication No. 71 is entitled "Relation Between Plane Rectangular Coordinates and Geographic Positions." This book

contains tables which will facilitate the use by engineers of plane coordinates for local surveys.

Special Publication No. 28, entitled "Application of the Theory of Least Squares to the Adjustment of Triangulation." This is a theoretical and practical development of the use of least squares in triangulation adjustment, giving some theoretical material not included in Special Publication No. 138. (See below.) Price, 25 cents.

Special Publication No. 93, entitled "Reconnaissance and Signal Building." Part I of this publication covers the location of stations, the computation of strength of figure, intervisibility of stations, lengths of lines, selection of base sites, etc. In Part II are given general directions for the building of triangulation and hydrographic signals of many different sizes and types. Price, 30 cents.

Special Publication No. 120, entitled "Manual of First-Order Triangulation." This publication contains comprehensive directions for the field procedure in the execution of first-order triangulation. Price, 40 cents.

Special Publication No. 138, entitled "Manual of Triangulation Computation and Adjustment." This is a manual for making the least squares adjustment of triangulation. It follows closely the methods in present use in the reduction of triangulation observations at the office of the United States Coast and Geodetic Survey, Washington, D. C. Price, 50 cents.

Special Publication No. 145, entitled "Manual of Second and Third Order Triangulation and Traverse." This publication contains instructions for the execution of second and third order triangulation and traverse. Price, 60 cents.

GEOGRAPHIC POSITIONS

Dixon Entrance and Clarence Strait

Station	Latitude and longitude			Seconds in meters	Azimuth			Back azimuth			To station	Distance		
												Logarithm (meters)	Meters	Feet
Principal points	°	′	″		°	′	″	°	′	″				
Dundas (Geo. Sur. of Canada)	54	31	16.100	497.8										
	130	54	54.738	984.6										
Chacon (Geo. Sur. of Canada)	54	43	35.109	1,085.6	285	02	41.03	106	04	49.57	Dundas	4.9302824	85,169.18	279,425.9
	132	11	07.496	134.2										
Lazaro, 1907	54	53	02.181	67.4	324	09	39.53	144	31	40.00	Dundas	4.6963928	49,704.17	163,071.1
	131	21	52.622	938.1	71	57	29.53	251	17	14.80	Chacon	4.7452196	55,618.54	182,475.2
Ken, 1907	54	54	39.251	1,213.8	273	59	34.24	94	30	28.29	Lazaro	4.6074557	40,500.07	132,874.0
	131	59	38.841	692.0	30	59	26.48	210	50	03.62	Chacon	4.3790732	23,937.19	78,533.9
Seal, 1907	54	55	57.479	1,777.4	290	15	39.23	110	26	50.25	Lazaro	4.1927021	15,584.83	51,131.2
	131	35	32.708	582.4	59	10	46.80	238	41	41.73	Chacon	4.6482628	44,490.04	145,964.4
					84	47	56.88	264	28	13.41	Ken	4.4128116	25,870.90	84,878.1
Duncan, 1912	55	00	45.569	1,409.2	308	54	53.07	129	08	26.10	Lazaro	4.3570989	22,756.16	74,659.2
	131	38	25.785	458.2	63	34	35.40	243	17	13.06	Ken	4.4035801	25,326.79	83,093.0
Ingraham, 1912	54	59	46.808	1,447.5	265	21	22.40	85	39	07.48	Duncan	4.3651358	23,181.19	76,053.6
	132	00	05.935	105.5	284	58	15.99	105	18	22.26	Seal	4.4338448	27,154.69	89,090.0
					286	46	38.83	107	17	56.03	Lazaro	4.6304532	42,702.49	140,099.8
					357	05	40.26	177	06	02.44	Ken	3.9787697	9,522.91	31,243.1
Wedge, 1912	55	09	14.028	433.8	307	39	00.92	127	54	38.54	Duncan	4.4093457	25,665.26	84,203.4
	131	57	29.245	517.9	9	01	27.97	188	59	19.50	Ingraham	4.2494343	17,759.64	58,266.4
Head, 1924	55	08	19.058	589.3	45	07	46.66	224	55	34.18	Ingraham	4.3505014	22,413.07	73,533.5
	131	45	12.476	221.0	97	30	21.00	277	20	16.40	Wedge	4.1192540	13,159.94	43,175.6
Hid, 1924	55	02	06.187	191.3	79	22	49.95	259	05	24.70	Ingraham	4.3631665	23,076.32	75,709.6
	131	38	50.163	890.9	123	48	57.92	303	33	40.17	Wedge	4.3775356	23,852.59	78,256.4
					149	34	55.79	329	29	42.29	Head	4.1263611	13,377.07	43,887.9
McCartey, 1924	55	07	10.042	310.5	338	22	50.01	158	25	41.89	Hid	4.0045700	10,105.78	33,155.4
	131	42	19.797	350.9	124	54	56.89	304	52	35.22	Head	3.5717796	3,730.61	12,239.5
Burt, 1924	55	07	55.611	1,719.7	4	54	58.01	184	54	15.10	Hid	4.0352447	10,845.38	35,581.9
	131	37	57.835	1,024.7	73	08	38.82	253	05	03.91	McCartey	3.6858703	4,851.44	15,916.8
					95	25	43.11	275	19	46.49	Head	3.8884348	7,734.55	25,375.8
Metlakatla south base, 1924	55	06	04.515	139.6	17	10	04.93	197	08	19.83	Hid	3.8872302	7,713.12	25,305.5
	131	36	41.978	744.4	108	43	56.00	288	39	18.90	McCartey	3.8008800	6,322.37	20,742.6
					114	45	11.53	294	38	12.74	Head	3.9982020	9,958.69	32,672.8
					158	38	05.44	338	37	03.21	Burt	3.5669424	3,689.29	12,103.9
Metlakatla north base, 1924	55	07	43.058	1,331.5	18	53	56.51	198	53	08.25	Metlakatla south base	3.5079739	3,220.875	10,567.1[5]
	131	35	43.144	764.5	81	46	52.06	261	41	26.65	McCartey	3.8514540	7,103.20	23,304.4[5]
					99	15	13.38	279	13	22.87	Burt	3.3834483	2,417.96	7,932.9
Dall, 1912	55	10	33.296	1,029.6	331	38	48.43	151	46	20.77	Duncan	4.3147140	20,640.20	67,717.1
	131	47	37.361	661.3	33	40	38.93	213	30	25.09	Ingraham	4.3802125	24,000.07	78,740.2
					76	54	02.58	256	45	56.76	Wedge	4.0318730	10,761.50	35,306.7
Slide, 1912	55	13	47.230	1,460.6	342	00	09.21	162	01	39.60	Dall	3.7997150	6,305.44	20,687.1
	131	49	27.437	484.9	45	18	34.59	225	11	58.99	Wedge	4.0792415	12,001.67	39,375.5
South Chasina, 1912	55	15	30.942	956.9	286	44	46.77	106	53	00.27	Slide	4.0448155	11,087.04	36,374.7
	131	59	28.105	496.4	306	08	27.09	126	18	10.84	Dall	4.1924797	15,576.85	51,105.0
					349	45	47.89	169	47	25.50	Wedge	4.0734968	11,843.96	38,858.1
Gravina, 1912	55	18	40.276	1,245.5	343	24	15.15	163	26	20.72	Slide	3.9756839	9,455.49	31,021.9
	131	52	00.232	4.1	18	24	26.67	198	19	56.39	Wedge	4.2660276	18,451.33	60,535.7
					53	31	29.86	233	25	21.71	South Chasina	3.9928832	9,837.47	32,275.1
North Chasina, 1912	55	16	43.162	1,334.8	249	26	50.95	69	34	22.48	Gravina	4.0148023	10,346.71	33,945.8
	132	01	09.480	167.4	293	36	29.38	113	46	06.23	Slide	4.1316835	13,542.02	44,429.1
Skin, 1912	55	18	08.717	269.6	265	37	49.93	85	47	57.02	Gravina	4.1160067	13,061.91	42,853.9
	132	04	18.596	328.1	297	05	40.76	117	17	53.11	Slide	4.2478006	17,692.96	58,047.7
					308	23	00.43	128	25	35.89	North Chasina	3.6293108	4,259.03	13,973.2
South Vallenar, 1912	55	22	46.783	1,446.8	354	10	13.80	174	10	50.10	Gravina	3.8843915	7,662.87	25,140.6
	131	52	44.356	781.1	54	58	52.69	234	49	21.65	Skin	4.1748123	14,956.89	49,067.8
High Island, 1912	55	23	47.509	1,469.3	275	55	07.01	96	08	57.58	South Vallenar	4.2520118	17,865.36	58,613.3
	132	09	33.536	590.3	296	59	22.31	117	13	48.84	Gravina	4.3191037	20,849.89	68,405.0
					332	03	13.35	152	07	32.43	Skin	4.0739526	11,856.39	38,898.8
Guard Island, 1921	55	26	44.797	1,385.4	359	35	50.32	179	35	52.74	South Vallenar	3.8669329	7,360.93	24,150.0
	131	52	47.294	831.4	72	54	14.55	252	40	26.07	High Island	4.2678662	18,529.61	60,792.6
Caamano, 1912	55	29	55.124	1,704.8	312	17	00.15	132	22	03.24	Guard Island	3.9415892	8,741.57	28,679.6
	131	58	55.186	968.8	333	45	05.43	153	50	10.82	South Vallenar	4.1692164	14,764.42	48,439.6
					44	41	54.24	224	33	08.50	High Island	4.2034094	15,973.84	52,407.5
Approach, 1915	55	26	50.583	1,564.3	235	22	02.51	55	28	30.80	Caamano	4.0024221	10,055.93	32,991.8
	132	06	46.496	817.4	270	35	56.20	90	47	27.36	Guard Island	4.1688877	14,753.25	48,403.0
					296	52	27.80	117	04	01.11	South Vallenar	4.2207424	16,624.26	54,541.4
Hid, 1915	55	30	07.120	220.2	271	29	54.75	91	40	23.82	Caamano	4.1272678	13,405.03	43,979.7
	132	11	38.500	675.8	319	48	17.81	139	52	18.39	Approach	3.9005460	7,953.27	26,093.4
Pen, 1915	55	32	19.607	606.4	304	28	08.95	124	33	14.25	Caamano	3.8968885	7,886.58	25,874.6
	132	05	05.548	97.3	9	53	33.90	189	52	10.72	Approach	4.0140439	10,328.66	33,886.6
					59	19	23.91	239	13	59.99	Hid	3.9041910	8,020.31	26,313.3
Had, 1915	55	32	25.515	789.1	270	51	57.49	91	00	41.69	Pen	4.0473246	11,151.28	36,585.5
	132	15	41.319	724.6	315	06	13.82	135	09	33.98	Hid	3.7809652	6,039.00	19,813.0
Goat, 1915	55	34	52.923	1,636.7	321	44	23.34	141	47	19.12	Pen	3.7807877	6,036.53	19,804.8
	132	08	38.689	677.8	19	39	16.03	199	36	47.77	Hid	3.9724095	9,384.47	30,788.9
					58	26	24.20	238	20	35.65	Had	3.9894296	8,698.20	28,537.3
Pet, 1915	55	35	35.603	1,101.1	276	30	17.40	96	39	16.37	Goat	4.0614260	11,519.30	37,792.9
	132	19	31.995	560.3	325	27	29.83	145	30	40.09	Had	3.8533716	7,134.63	23,407.5
Ship, 1915	55	35	56.541	1,748.6	298	28	35.93	118	31	26.61	Goat	3.6152440	4,123.29	13,527.8
	132	12	05.577	97.7	30	06	30.04	210	03	32.09	Had	3.8775033	7,542.29	24,745.0
					85	18	58.21	265	12	49.88	Pet	3.8945691	7,844.57	25,736.7
Stoi, 1915	55	38	36.688	1,134.6	297	15	50.24	117	23	22.25	Ship	4.0329797	10,788.96	35,396.8
	132	21	13.255	231.8	342	25	40.79	162	27	04.36	Pet	3.7689423	5,874.11	19,272.0
Sly, 1915	55	40	30.051	929.4	352	34	13.97	172	35	05.96	Ship	3.9809623	8,530.26	27,986.4
	132	13	08.566	149.7	36	25	16.87	216	20	00.36	Pet	4.0534785	11,310.41	37,107.6
					67	34	48.23	247	28	08.02	Stoi	3.9624148	9,170.96	30,088.4
Tol, 1915	55	39	40.214	1,243.7	260	49	55.95	80	57	30.29	Sly	3.9885707	9,740.26	31,956.2
	132	22	18.763	328.0	302	44	29.39	122	52	55.51	Ship	4.1060445	12,765.70	41,882.1
					329	44	49.48	149	45	43.56	Stoi	3.3568376	2,274.25	7,461.4

Dixon Entrance and Clarence Strait—Continued

Station	Latitude and longitude			Seconds in meters	Azimuth			Back azimuth			To station	Distance		
												Logarithm (meters)	Meters	Feet
Principal points—Continued	°	′	″		°	′	″	°	′	″				
Mis, 1915	55	44	52.284	1,617.0	335	52	33.85	155	55	25.51	Sly	3.9486364	8,884.57	29,148.8
	132	16	36.337	633.9	31	49	19.41	211	44	36.52	Tol	4.0551462	11,353.93	37,250.4
Nar, 1915	55	47	28.750	889.2	291	12	38.08	111	22	26.89	Mis	4.1247068	13,326.21	43,721.1
	132	28	28.503	496.7	308	47	03.26	128	59	43.52	Sly	4.3144051	20,625.53	67,668.9
					335	57	04.17	156	02	09.71	Tol	4.2003758	15,862.65	52,042.7
Sal, 1915	55	48	54.401	1,682.5	298	20	21.08	118	31	17.28	Mis	4.1966824	15,728.32	51,602.0
	132	29	49.896	868.9	331	49	58.19	151	51	05.51	Nar	3.4777841	3,004.58	9,857.5
Ern, 1915	55	51	11.474	354.9	332	13	21.36	152	18	14.13	Mis	4.1222142	13,249.95	43,470.9
	132	22	30.312	527.4	42	11	53.94	222	06	57.61	Nar	3.9681178	9,292.18	30,486.1
					61	03	41.04	240	57	37.32	Sal	3.9418783	8,747.39	28,698.7
Ratz, 1915	55	54	33.622	1,039.9	292	30	12.68	112	42	07.81	Ern	4.2113056	16,266.93	53,369.1
	132	36	54.128	940.3	324	49	53.16	144	55	44.29	Sal	4.1081072	12,826.47	42,081.5
Double, 1915	55	56	41.613	1,287.0	333	47	11.20	153	51	10.41	Ern	4.0560610	11,377.87	37,328.9
	132	27	19.191	333.1	10	17	40.59	190	15	35.83	Sal	4.1668917	14,685.60	48,181.0
					68	26	14.67	248	18	18.44	Ratz	4.0309915	10,739.68	35,235.1
Luck (Luck Point south base), 1915	55	59	03.839	118.7	284	08	17.56	104	22	04.75	Double	4.2520395	17,866.50	58,617.0
	132	43	57.390	995.0	318	38	10.68	138	44	01.36	Ratz	4.0463780	11,127.00	36,505.8
Stanhope, 1915	56	00	42.292	1,308.0	308	17	27.73	128	24	57.34	Double	4.0790491	11,996.35	39,358.0
	132	36	21.671	375.5	2	49	51.54	182	49	24.64	Ratz	4.0575263	11,416.32	37,455.0
					68	58	14.82	248	51	57.02	Luck Point south base	3.9276526	8,465.50	27,773.9
Luck Point north base, 1924	56	00	59.904	1,852.8	272	22	31.02	92	32	37.92	Stanhope	4.1035546	12,692.72	41,642.7
	132	48	33.595	582.0	306	50	00.54	126	53	49.53	Luck Point south base	3.7769575	5,983.531	19,630.97
Lincoln, 1915	56	03	25.136	777.4	311	55	53.27	132	00	21.47	Stanhope	3.8768876	7,531.61	24,710.0
	132	41	45.051	779.7	15	51	07.46	195	49	17.71	Luck Point south base	3.9243031	8,400.46	27,560.5
					57	37	57.89	237	32	19.03	Luck Point north base	3.9232317	8,379.76	27,492.6
Coffman, 1915	56	02	10.956	338.9	255	54	06.64	76	01	26.36	Lincoln	3.9758500	9,459.10	31,033.7
	132	50	35.154	608.7	280	24	37.60	100	36	25.37	Stanhope	4.1771183	15,035.52	49,329.0
					309	58	26.62	130	03	56.42	Luck Point south base	3.9542287	8,990.71	29,526.5
Blash, 1915	56	06	52.942	1,637.4	304	19	17.45	124	26	48.17	Lincoln	4.0561792	11,380.97	37,339.1
	132	50	48.166	832.4	358	31	12.58	178	31	23.38	Coffman	3.9407397	8,724.48	28,623.6
Marsh, 1915	56	06	57.439	1,776.5	348	13	02.55	168	14	08.24	Lincoln	3.8265584	6,707.46	22,006.1
	132	43	04.192	72.4	41	24	42.30	221	18	28.11	Coffman	4.0720716	11,805.15	38,730.7
					89	03	34.91	268	57	09.74	Blash	3.9041101	8,018.81	26,308.4
Bluff, 1915	56	10	03.239	100.2	299	48	05.81	119	56	07.01	Marsh	4.0621796	11,539.30	37,858.5
	132	52	43.662	753.5	341	16	01.40	161	17	37.31	Blash	3.7934077	6,214.52	20,388.8
Harrington, 1915	56	10	11.099	343.3	355	26	54.46	175	27	17.37	Marsh	3.7787826	6,008.73	19,713.6
	132	43	31.787	548.5	50	55	39.80	230	49	37.42	Blash	3.9873644	9,713.25	31,867.6
					88	36	04.90	268	28	26.47	Bluff	3.9789329	9,526.49	31,254.8
West, 1915	56	13	59.441	1,838.5	310	54	20.85	131	00	52.98	Harrington	4.0323660	10,773.73	35,346.8
	132	51	23.662	407.6	10	42	04.58	190	40	58.10	Bluff	3.8712665	7,434.75	24,392.2
Stik, 1915	56	13	02.141	66.2	7	02	18.63	187	01	47.18	Harrington	3.7267581	5,330.38	17,488.1
	132	42	53.935	929.6	61	31	07.33	241	22	57.32	Bluff	4.0636381	11,578.12	37,985.9
					101	28	01.48	281	20	57.78	West	3.9523157	8,960.16	29,396.8
East, 1915	56	15	05.560	172.0	320	57	38.24	141	00	07.51	Stik	3.6913716	4,913.28	16,119.7
	132	45	53.495	921.1	344	58	11.63	165	00	09.40	Harrington	3.9744875	9,429.47	30,936.5
					37	08	30.90	217	02	50.02	Bluff	4.0690364	11,722.94	38,461.0
					70	15	30.16	250	10	55.66	West	3.7812615	6,043.12	19,826.5
Sheer, 1916	56	15	23.622	730.6	351	43	28.01	171	43	58.71	Stik	3.6456166	4,421.98	14,507.8
	132	43	30.865	531.4	77	12	03.25	257	10	04.65	East	3.4011528	2,518.56	8,263.0
Supplementary points														
Tad, 1921	55	07	53.704	1,660.7	101	25	47.2	281	16	13.9	Wedge	4.101111	12,621.5	41,409
	131	45	50.650	897.5	159	03	37.2	339	02	09.6	Dall	3.723021	5,284.7	17,338
					329	08	38.4	149	14	43.1	Duncan	4.187926	15,414.4	50,572
Dol, 1921	55	11	02.435	75.3	205	52	44.5	25	58	04.6	Gravina	4.197079	15,742.7	51,649
	131	58	29.782	527.0	241	57	18.6	62	04	44.0	Slide	4.035883	10,861.3	35,634
					274	23	17.5	94	32	13.1	Dall	4.063750	11,581.1	37,996
Hal, 1921	55	13	06.322	195.5	170	05	39.5	350	05	03.2	South Chasina	3.657061	4,540.1	14,895
	131	58	43.886	775.9	214	34	06.9	34	39	38.6	Gravina	4.098599	12,548.7	41,170
					262	36	29.5	82	44	06.6	Slide	3.996410	9,917.7	32,538
Meyer, 1921	55	11	13.793	426.5	66	29	58.7	246	23	24.7	Wedge	3.966973	9,267.7	30,406
	131	49	29.309	518.6	126	59	00.3	306	50	48.5	South Chasina	4.121882	13,239.8	43,438
					180	23	58.7	0	24	00.2	Slide	3.676246	4,745.1	15,568
Pug, 1921	55	16	32.651	1,009.7	342	02	45.8	162	04	02.9	Slide	3.730551	5,377.1	17,641
	131	51	01.214	21.4	78	01	21.3	257	54	24.7	South Chasina	3.961521	9,152.1	30,027
					91	48	00.1	271	39	50.1	North Chasina	4.031146	10,743.5	35,248
Clover,[1] 1921	55	18	38.42	1,188.1	167	19	51	347	18	11	High Island	3.991123	9,797.7	32,145
	132	07	31.45	554.7	243	44	06	63	56	15	South Vallenar	4.241018	17,418.8	57,148
Island Point 2, 1921	55	22	25.424	786.2	190	41	20.5	10	41	42.9	High Island	3.412187	2,583.4	8,476
	132	10	00.759	13.4	220	00	16.3	40	09	24.3	Caamano	4.259503	18,176.2	59,633
					246	04	43.5	66	18	54.3	Guard Island	4.298297	19,874.5	65,205
					267	48	31.8	88	02	44.6	South Vallenar	4.261568	18,262.8	59,917
Jay, 1922	55	30	55.732	1,723.6	37	43	33.8	217	38	59.0	Approach	3.981384	9,580.4	31,432
	132	01	13.012	228.3	82	16	25.9	262	07	50.4	Hid	4.044559	11,080.5	36,353
					122	28	40.2	302	25	28.5	Pen	3.684328	4,834.2	15,860
Bo, 1922	55	30	18.137	560.9	237	43	18.4	57	47	58.2	Pen	3.847694	7,042.0	23,104
	132	10	45.028	790.4	273	11	15.9	93	21	00.9	Caamano	4.096250	12,481.0	40,948
					326	50	16.0	146	53	32.5	Approach	3.884531	7,665.3	25,149
Clan, 1922	55	33	51.868	1,604.1	349	39	18.7	169	41	10.1	Approach	4.121998	13,243.4	43,449
	132	09	01.783	31.3	21	35	45.7	201	33	36.5	Hid	3.873579	7,474.4	24,522
					69	10	32.7	249	05	03.2	Had	3.874852	7,496.4	24,594
Jed, 1922	55	31	24.915	770.5	127	39	38.2	307	37	44.0	Had	3.486923	3,068.5	10,067
	132	13	22.804	400.1	189	08	42.1	9	09	45.7	Ship	3.929867	8,508.8	27,916
					258	58	07.8	79	04	57.7	Pen	3.948655	8,885.0	29,150
Set,[1] 1922	55	33	57.60	1,781.3	160	58	00	340	57	11	Pet	3.506004	3,206.3	10,519
	132	18	32.29	565.9	241	27	17	61	32	36	Ship	3.886988	7,708.8	25,291
Nep, 1922	55	36	54.347	1,680.8	25	24	05.5	205	21	00.0	Had	3.963876	9,201.9	30,190
	132	11	56.239	984.4	108	03	17.2	287	55	37.4	Stoi	4.010614	10,247.4	33,620
					169	16	14.7	349	15	15.0	Sly	3.831865	6,789.9	22,277

[1] No check on this position.

Dixon Entrance and Clarence Strait—Continued

Station	Latitude and longitude			Seconds in meters	Azimuth			Back azimuth			To station	Distance		
												Logarithm (meters)	Meters	Feet
Supplementary points—Continued	°	′	″		°	′	″	°	′	″				
Wind, 1922	55	36	57.003	1,762.9	229	39	50.7	49	45	57.6	Sly	4.008185	10,190.3	33,433
	132	20	33.013	577.8	281	49	40.8	101	56	39.5	Ship	3.958012	9,078.5	29,785
					336	59	52.1	157	00	42.4	Pet	3.436914	2,734.7	8,972
Pep, 1922	55	38	30.002	927.9	355	00	32.5	175	00	52.1	Ship	3.677981	4,764.1	15,630
	132	12	29.246	511.6	91	21	08.7	271	13	56.1	Stoi	3.962278	9,168.1	30,079
					169	30	49.2	349	30	16.7	Sly	3.577014	3,775.8	12,388
Ile, 1922	55	42	13.958	431.7	341	12	34.8	161	13	26.5	Sly	3.530753	3,394.3	11,136
	132	14	11.124	194.3	47	43	20.2	227	37	31.6	Stoi	3.999096	9,979.2	32,740
					60	53	36.6	240	46	53.9	Tol	3.989350	9,757.8	32,014
					152	38	57.6	332	36	57.6	Mis	3.741442	5,513.7	18,090
Lil, 1922	55	43	48.640	1,504.3	339	25	04.5	159	26	53.5	Sly	3.816898	6,559.9	21,522
	132	15	20.518	358.1	32	36	39.1	212	31	47.8	Stoi	4.058737	11,448.2	37,560
					43	36	23.0	223	30	37.5	Tol	4.025393	10,602.1	34,784
					146	06	12.1	326	05	09.4	Mis	3.375043	2,371.6	7,781
Meyers Chuck Lighthouse, 1922	55	44	35.029	1,083.3	26	53	17.2	206	48	51.8	Stoi	4.094182	12,421.7	40,754
	132	15	52.080	908.5	36	34	16.6	216	28	57.1	Tol	4.054861	11,346.5	37,226
					124	39	22.4	304	38	45.8	Mis	2.972463	938.6	3,079

Stikine and Dry Straits

Principal points														
Steam, 1916	56	13	24.032	743.3	15	21	36.16	195	21	27.19	Stik	2.8464270	702.15	2,303.6
	132	42	43.144	743.5	133	47	04.51	313	44	26.26	East	3.6570654	4,540.10	14,895.3
					167	28	36.48	347	27	56.81	Sheer	3.5785407	3,789.14	12,431.5
Ban, 1916	56	15	49.953	1,545.0	18	21	24.51	198	20	12.25	Steam	3.6771525	4,755.02	15,600.4
	132	41	16.240	279.5	70	39	15.00	250	37	23.05	Sheer	3.3903246	2,456.54	8,059.5
Point, 1916	56	14	21.906	677.6	42	52	49.79	222	51	29.61	Steam	3.3878138	2,442.38	8,013.0
	132	41	06.696	115.3	127	34	19.77	307	32	19.90	Sheer	3.4957819	3,131.71	10,274.6
					176	32	52.12	356	32	44.19	Ban	3.4358815	2,728.23	8,950.9
Round, 1916	56	16	15.366	475.3	14	42	07.73	194	41	23.28	Point	3.5596682	3,628.01	11,902.9
	132	40	13.240	227.9	54	04	09.94	234	03	17.55	Ban	3.1268750	1,339.29	4,394.0
Bear, 1916	56	15	10.432	322.7	75	32	49.44	255	28	09.09	Point	3.7779912	5,997.79	19,677.7
	132	35	29.507	508.1	101	36	45.72	281	31	57.40	Ban	3.7848513	6,093.28	19,991.0
					112	23	05.85	292	19	09.90	Round	3.7227287	5,281.15	17,326.6
Har, 1916	56	14	10.947	338.6	168	40	50.58	348	40	13.36	Round	3.5938058	3,924.69	12,876.3
	132	39	28.481	490.6	245	53	09.59	65	56	28.28	Bear	3.6540052	4,508.22	14,790.7
Granite, 1916	56	14	34.102	1,054.8	79	19	18.04	259	16	15.16	Har	3.5861470	3,856.09	12,651.2
	132	35	48.505	835.4	124	31	35.79	304	27	55.65	Round	3.7427500	5,530.32	18,144.1
					196	13	52.68	16	14	08.48	Bear	3.0683105	1,170.34	3,839.7
Cliff, 1916	56	17	47.827	1,479.3	331	08	34.70	151	11	14.10	Granite	3.8350557	6,839.99	22,440.9
	132	39	00.175	3.0	4	09	26.85	184	09	03.31	Har	3.8277433	6,725.79	22,066.2
Tole, 1916	56	17	12.036	372.3	13	47	19.69	193	46	21.80	Granite	3.7015407	5,029.68	16,501.5
	132	34	38.901	669.2	41	42	10.44	221	38	09.63	Har	3.8749566	7,498.19	24,600.3
					103	52	04.42	283	48	27.07	Cliff	3.6654454	4,628.55	15,185.5
Rem, 1916	56	23	24.305	751.8	346	55	28.76	166	57	38.14	Tole	4.0726191	11,820.04	38,779.6
	132	37	14.339	246.0	9	55	15.86	189	53	47.77	Cliff	4.0238697	10,565.00	34,662.0
Kof, 1916	56	22	23.261	719.5	5	48	58.73	185	48	11.29	Tole	3.9856965	9,676.01	31,745.4
	132	33	41.903	719.2	32	43	58.57	212	39	33.67	Cliff	4.0053249	10,123.37	33,213.1
					117	24	18.34	297	21	21.43	Rem	3.6133668	4,105.51	13,469.5
Zarembo Island south base, 1916	56	19	45.977	1,422.1	232	52	40.38	52	57	52.42	Kof	3.9068176	8,068.96	26,472.9
	132	39	56.732	974.9	311	01	44.20	131	06	08.65	Tole	3.8602229	7,248.08	23,779.7
Zarembo Island north base, 1916	56	21	25.722	795.6	255	07	37.35	75	13	03.39	Kof	3.8422637	6,954.46	22,816.4
	132	40	13.492	231.7	323	43	23.88	143	48	02.32	Tole	3.9880391	9,728.35	31,917.1
					354	40	00.13	174	40	14.08	Zarembo Island south base	3.4911581	3,098.55	10,165.8
High, 1916	56	23	09.861	305.0	1	04	50.68	181	04	49.36	Kof	3.1588536	1,441.63	4,729.7
	132	33	40.319	691.8	96	57	39.99	276	54	41.75	Rem	3.5681092	3,699.21	12,136.5
Duck, 1916	56	27	16.907	523.0	353	09	46.79	173	10	31.28	High	3.8862625	7,695.96	25,249.2
	132	34	33.712	577.4	354	24	28.60	174	25	11.77	Kof	3.9602822	9,126.04	29,941.0
					20	57	41.92	200	55	28.10	Rem	3.8866885	7,703.51	25,273.9
Wedge, 1916	56	25	15.432	477.3	56	57	13.70	236	52	57.43	Rem	3.7991506	6,297.24	20,660.2
	132	32	06.677	114.5	146	10	21.83	326	08	19.31	Duck	3.6555105	4,523.87	14,842.1
Mile, 1916	56	28	10.597	327.8	13	13	36.84	193	12	34.94	Wedge	3.7455011	5,565.46	18,259.3
	132	30	52.395	897.1	36	31	03.02	216	25	44.79	Rem	4.0418733	11,012.18	36,129.1
					66	21	48.53	246	18	44.06	Duck	3.6167723	4,137.83	13,575.5
Lee, 1916	56	30	13.571	419.8	23	27	46.21	203	26	25.82	Mile	3.6176535	4,146.23	13,603.1
	132	29	15.974	273.2	44	54	05.31	224	49	40.42	Duck	3.8870359	7,709.67	25,294.1
Grey, 1916	56	31	05.815	179.9	300	48	02.44	120	50	14.53	Lee	3.4988874	3,154.19	10,348.4
	132	31	54.359	929.5	348	55	27.32	168	56	18.99	Mile	3.7421312	5,522.44	18,118.2
					21	04	59.67	201	02	46.81	Duck	3.8800949	7,587.43	24,893.1
Kad, 1916	56	32	25.413	786.0	10	56	13.76	190	55	35.33	Lee	3.6184052	4,153.41	13,626.6
	132	28	29.906	511.1	54	51	38.30	234	48	47.75	Grey	3.6309486	4,275.12	14,026.0
Ryn, 1916	56	32	27.199	841.3	271	08	39.00	91	10	51.91	Kad	3.4350631	2,723.10	8,934.0
	132	31	09.219	157.5	334	53	11.91	154	54	46.36	Lee	3.6593759	4,564.32	14,974.8
					17	02	49.41	197	02	11.75	Grey	3.4204388	2,632.93	8,638.2
Large 2, 1922	56	26	21.862	676.2	105	56	18.93	285	51	28.14	Duck	3.7934733	6,215.46	20,391.9
	132	28	44.777	767.3	159	44	38.59	339	42	00.54	Grey	3.9714293	9,363.31	30,719.5
Field, 1922	56	29	18.922	585.3	45	32	31.12	225	27	59.80	Large 2	3.8928872	7,814.25	25,637.3
	132	23	19.268	329.7	71	58	40.59	251	49	18.37	Duck	4.0844975	12,147.80	39,854.9
					110	37	40.84	290	30	31.30	Grey	3.9736379	9,411.05	30,876.1
Roth, 1922	56	35	38.355	1,186.4	6	51	19.57	186	50	10.78	Field	4.0726433	11,820.70	38,781.7
	132	21	56.816	969.6	50	30	59.54	230	22	40.94	Grey	4.1218375	13,238.46	43,433.2
Farm, 1922	56	38	17.538	542.5	326	22	18.64	146	24	58.84	Roth	3.7717270	5,911.90	19,396.0
	132	25	08.670	147.8	353	35	17.79	173	36	49.09	Field	4.2243954	16,764.68	55,002.1
					27	27	38.50	207	21	59.90	Grey	4.1773392	15,043.16	49,354.1

Stikine and Dry Straits—Continued

Station	Latitude and longitude			Seconds in meters	Azimuth			Back azimuth			To station	Distance		
												Logarithm (meters)	Meters	Feet
Principal points—Continued	°	′	″		°	′	″	°	′	″				
Rynda, 1922	56	33	35.473	1,097.2	214	41	08.80	34	46	04.68	Farm	4.0259471	10,615.66	34,828.2
	132	31	03.086	52.7	247	45	48.18	67	53	24.11	Roth	4.0030808	10,071.19	33,041.9
Trouble, 1922	56	36	22.563	697.9	244	43	40.29	64	49	50.04	Farm	3.9214918	8,346.26	27,382.7
	132	32	31.458	536.7	343	43	06.41	163	44	20.17	Rynda	3.7311066	5,384.02	17,664.1
Dry Strait east base, 1922	56	36	47.203	1,460.1	174	59	44.89	354	59	32.90	Farm	3.4479244	2,804.95	9,202.6
	132	24	54.316	926.5	305	05	42.58	125	08	10.77	Roth	3.5684488	3,702.11	12,146.0
					46	44	51.31	226	39	43.49	Rynda	3.9369228	8,648.14	28,373.1
Dry Strait west base, 1922	56	37	04.176	129.2	249	12	15.67	69	17	08.97	Farm	3.8064220	6,403.57	21,009.0
	132	30	59.876	1,021.1	274	46	15.13	94	51	20.37	Dry Strait east base	3.7963576	6,256.877	20,527.77
					0	29	11.94	180	29	09.26	Rynda	3.8099476	6,455.76	21,180.3
					50	31	21.86	230	30	05.40	Trouble	3.3062350	2,024.11	6,640.8
Dry, 1922	56	38	51.974	1,607.7	278	58	07.37	99	03	36.42	Farm	3.8323951	6,798.22	22,303.8
	132	31	42.627	726.4	10	13	05.11	190	12	24.33	Trouble	3.6717251	4,695.97	15,406.7
Cosmos, 1922	56	40	08.444	261.2	292	52	23.50	112	56	57.94	Dry	3.7836093	6,075.88	19,933.9
	132	37	11.137	189.7	325	39	41.10	145	43	34.69	Trouble	3.9272874	8,458.38	27,750.5
Camp, 1922	56	44	17.432	539.2	321	15	29.01	141	22	46.55	Farm	4.1541364	14,260.55	46,786.5
	132	33	52.244	888.1	347	37	27.66	167	39	15.99	Dry	4.0130918	10,306.04	33,812.4
					23	44	41.28	203	41	55.04	Cosmos	3.9249271	8,412.54	27,600.1

Frederick Sound

Principal points														
Bluff 3, 1922	56	47	03.750	116.0	315	24	51.68	135	29	01.00	Camp	3.8584929	7,219.26	23,685.2
	132	38	50.344	854.8	352	30	25.17	172	31	48.11	Cosmos	4.1124945	12,956.70	42,508.8
Creek, 1922	56	45	22.451	694.5	246	26	26.41	66	32	21.13	Bluff 3	3.8951445	7,854.97	25,770.8
	132	45	54.403	924.4	279	13	19.01	99	23	22.92	Camp	4.0947352	12,437.56	40,805.6
					317	26	05.76	137	33	23.17	Cosmos	4.1197510	13,175.01	43,225.0
Fred, 1917	56	47	22.620	699.7	273	12	38.42	93	21	00.25	Bluff 3	4.0086209	10,200.49	33,466.1
	132	48	50.162	851.6	321	12	43.89	141	15	10.91	Creek	3.6782822	4,767.41	15,641.1
Island 2, 1917	56	50	42.974	1,329.3	301	36	57.36	121	45	59.17	Bluff 3	4.1108647	12,908.17	42,349.6
	132	49	37.742	639.8	339	03	05.71	159	06	12.59	Creek	4.0258993	10,614.49	34,824.4
					352	34	26.28	172	35	06.10	Fred	3.7958693	6,249.85	20,504.7
Cliff, 1917	56	50	46.331	1,433.2	13	56	50.47	193	55	33.32	Fred	3.8124098	6,492.47	21,300.7
	132	47	17.985	304.9	87	30	23.23	267	28	26.22	Island 2	3.3750011	2,371.38	7,780.1
Pete, 1917	56	52	29.973	927.2	287	56	14.82	108	04	22.26	Cliff	4.0158593	10,371.92	34,028.5
	132	57	00.108	1.8	293	46	20.80	113	52	31.21	Island 2	3.9135032	8,194.14	26,883.6
					318	47	35.61	138	54	25.73	Fred	4.1012635	12,626.08	41,424.1
Agassiz south base, 1917	56	54	08.601	266.1	332	26	44.08	152	29	25.33	Cliff	3.8485535	7,055.92	23,149.3
	132	50	30.536	516.9	351	59	27.38	172	00	11.58	Island 2	3.8077550	6,423.25	21,073.6
					65	13	27.31	245	08	00.99	Pete	3.8613948	7,267.66	23,844.0
Fox, 1917	56	53	36.589	1,131.8	257	13	15.10	77	16	51.68	Agassiz south base	3.6519700	4,487.14	14,721.6
	132	54	49.074	830.8	47	08	02.50	227	06	12.74	Pete	3.4811851	3,028.20	9,935.0
Agassiz north base, 1917	56	56	17.983	556.3	326	18	58.25	146	21	10.28	Agassiz south base	3.6820281	4,808.705	15,776.56
	132	53	08.102	137.0	18	54	10.02	198	52	45.42	Fox	3.7223608	5,276.68	17,311.9
New, 1917	56	55	16.731	517.5	251	06	08.94	71	10	43.77	Agassiz north base	3.7680185	5,861.63	19,231.0
	132	58	36.061	610.0	284	19	49.37	104	26	36.16	Agassiz south base	3.9284923	8,481.88	27,827.6
					308	51	21.18	128	54	31.35	Fox	3.6932726	4,934.83	16,190.4
					342	30	38.04	162	31	58.41	Pete	3.7330337	5,408.02	17,742.8
Noon, 1887	56	56	23.258	719.4	271	22	21.30	91	27	48.03	Agassiz north base	3.8191588	6,594.15	21,634.3
	132	59	37.953	641.7	316	29	40.54	136	33	42.58	Fox	3.8515170	7,104.23	23,307.8
Wave 2, 1917	56	58	41.108	1,271.6	324	34	43.55	144	37	19.61	Agassiz north base	3.7349160	5,431.45	17,819.7
	132	56	14.266	241.0	351	17	40.56	171	18	51.96	Fox	3.9790629	9,529.34	31,264.2
					38	56	12.97	218	53	22.23	Noon	3.7388007	5,480.25	17,979.8
Sand, 1917	56	59	28.831	891.9	279	53	11.67	100	00	09.71	Wave 2	3.9318748	8,548.20	28,045.2
	133	04	32.810	554.0	319	00	35.21	139	04	42.41	Noon	3.8808734	7,601.05	24,937.8
Square, 1917	57	01	10.477	324.1	320	46	30.06	140	49	37.26	Wave 2	3.7754168	5,962.34	19,561.4
	132	59	57.475	969.8	357	52	19.80	177	52	36.18	Noon	3.9489431	8,890.85	29,169.4
					55	57	04.40	235	53	13.47	Sand	3.7490557	5,611.20	18,409.4
Catch 2, 1917	57	03	30.047	929.5	335	51	02.74	155	52	38.99	Square	3.6749580	4,731.06	15,521.8
	133	01	52.188	879.6	19	58	38.81	199	56	24.06	Sand	3.8997419	7,938.56	26,045.1
South Grand, 1917	57	05	22.442	694.2	291	17	10.19	111	24	33.37	Catch 2	3.9800501	9,551.03	31,335.3
	133	10	40.177	676.6	305	39	25.90	125	48	25.25	Square	4.1253663	13,346.47	43,787.5
					330	25	55.42	150	31	03.66	Sand	4.0993725	12,571.08	41,243.6
Bridge, 1917	57	00	42.643	1,319.1	189	19	39.75	9	20	50.59	South Grand	3.9430759	8,771.54	28,778.0
	133	12	04.595	77.6	243	18	04.14	63	26	37.96	Catch 2	4.0627416	11,554.25	37,907.6
					265	54	04.45	86	04	14.38	Square	4.0899083	12,300.09	40,354.5
Portage, 1917	57	01	09.424	291.5	232	33	52.39	52	42	22.67	South Grand	4.1104824	12,896.81	42,312.3
	133	20	48.243	814.0	275	17	41.67	95	25	00.91	Bridge	3.9481772	8,875.18	29,118.0
Bay Point, 1917	57	06	24.700	764.1	283	12	22.34	103	19	09.78	South Grand	3.9240063	8,394.72	27,541.7
	133	18	45.458	765.2	327	23	36.53	147	29	12.94	Bridge	4.0987952	12,554.38	41,188.8
					11	59	36.89	191	57	53.84	Portage	3.9986908	9,969.90	32,709.6
Flat, 1917	57	03	30.013	928.4	252	28	56.65	72	43	16.09	Bay Point	4.2570084	18,072.09	59,291.5
	133	35	49.259	830.3	285	52	00.67	106	04	36.66	Portage	4.1987957	15,806.04	51,853.7
Highland, 1917	57	09	02.129	65.9	298	10	18.72	118	17	51.49	Bay Point	4.0125875	10,294.08	33,773.2
	133	27	44.542	748.9	334	19	58.80	154	25	48.27	Portage	4.2099704	16,217.00	53,205.3
					38	30	54.05	218	24	07.05	Flat	4.1179345	13,120.02	43,044.6
Fanshaw, 1917	57	11	08.514	263.4	300	24	28.66	120	30	01.13	Highland	3.8872633	7,713.71	25,307.4
	133	34	20.213	339.5	6	02	26.68	186	01	11.90	Flat	4.1541915	14,262.36	46,792.4
Top, 1917	57	07	45.280	1,400.7	255	18	15.78	75	38	28.38	Fanshaw	4.3990421	25,063.52	82,229.2
	133	58	23.499	395.3	265	23	24.50	85	49	09.23	Highland	4.4916340	31,049.44	101,769.6
					288	56	29.15	109	15	26.12	Flat	4.3826069	24,132.87	79,175.9
Southwest, 1917	57	16	23.075	713.8	332	48	50.28	152	53	00.39	Fanshaw	4.0388584	10,936.00	35,879.2
	133	39	17.663	296.0	50	21	15.90	230	05	12.73	Top	4.3985365	25,034.36	82,133.6
Round Rock, 1917	57	15	36.403	1,126.1	265	00	10.15	85	14	18.98	Southwest	4.2297971	16,974.50	55,690.5
	133	56	06.738	113.0	8	58	17,16	188	56	22.21	Top	4.1689074	14,753.92	48,405.2

92450°—30——3

Frederick Sound—Continued

Station	Latitude and longitude			Seconds in meters	Azimuth			Back azimuth			To station	Distance		
												Logarithm (meters)	Meters	Feet
Principal points—Continued	°	′	″		°	′	″	°	′	″				
Spruce, 1917	57	12	42.993	1,330.0	239	31	25.96	59	39	04.09	Round Rock	4.0251830	10,597.00	34,767.0
	134	05	11.538	193.7	255	10	40.35	75	32	27.12	Southwest	4.4303313	26,935.89	88,372.2
					323	17	00.31	143	22	43.18	Top	4.0600136	11,481.90	37,670.2
Pean, 1917	57	08	33.433	1,034.2	236	11	01.83	56	20	40.02	Spruce	4.1430401	13,900.81	45,606.2
	134	16	39.575	665.5	274	29	29.09	94	44	49.75	Top	4.2670842	18,496.27	60,683.2
Bendel, 1917	57	03	38.154	1,180.3	121	32	03.51	301	19	38.11	Pean	4.2434441	17,516.37	57,468.3
	134	01	51.809	873.2	168	45	02.33	348	42	14.56	Spruce	4.2351705	17,185.83	56,383.8
					204	37	23.99	24	40	18.88	Top	3.9248468	8,410.98	27,595.0
Bill Point, 1917	57	15	05.114	158.2	14	16	48.47	194	15	15.23	Fanshaw	3.8780683	7,552.11	24,777.2
	133	32	29.315	491.5	109	27	23.58	289	21	40.09	Southwest	3.8607882	7,257.52	23,810.7
Pybus, 1917	57	22	02.041	63.1	310	03	54.27	130	14	19.37	Southwest	4.2111746	16,262.02	53,353.0
	133	51	40.329	674.1	20	31	39.54	200	27	55.32	Round Rock	4.1050367	12,736.11	41,785.1
Twin, 1917	57	25	34.799	1,076.5	358	03	25.04	178	03	58.22	Bill Point	4.2898280	19,490.73	63,945.8
	133	33	08.727	145.6	19	55	02.28	199	49	51.64	Southwest	4.2588468	18,148.75	59,543.0
					70	36	35.67	250	20	59.23	Pybus	4.2944179	19,697.81	64,625.2
Gambier, 1920	57	26	11.863	367.0	273	42	15.45	93	56	41.73	Twin	4.2352763	17,190.02	56,397.6
	133	50	16.644	277.7	10	15	34.67	190	14	24.17	Pybus	3.8950783	7,853.77	25,766.9
Supplementary points														
Survey Mt., 1917	56	46	36.478	1,128.4	162	01	10.9	341	58	15.5	Pete	4.060609	11,497.6	37,722
	132	53	30.572	519.2	192	17	27.7	12	19	58.4	Agassiz south base	4.155783	14,314.7	46,964
					219	14	18.4	39	19	30.3	Cliff	3.999338	9,984.8	32,758
Take,[1] 1887	56	49	10.97	339.3	167	34	22	347	33	15	Pete	3.799598	6,303.7	20,681
	132	55	40.02	678.9	245	06	05	65	11	08	Island 2	3.830624	6,770.6	22,213
Island, 1887	56	50	43.140	1,334.4	39	53	26.2	219	53	26.0	Island 2	0.824126	6.67	21.9
	132	49	37.490	635.5	113	49	50.1	293	43	39.5	Pete	3.913601	8,196.0	26,890
					171	57	32.8	351	56	48.4	Agassiz south base	3.807453	6,418.8	21,059
Ag, 1917	56	55	24.281	751.1	27	59	22.8	207	57	55.2	Fox	3.576586	3,772.1	12,376
	132	53	04.508	76.3	105	22	38.9	285	17	09.2	Noon	3.838836	6,899.8	22,637
					177	54	16.4	357	54	13.4	Agassiz north base	3.220706	1,662.3	5,454
Sukoi Island Light, 1917	56	53	44.340	1,371.6	12	08	45.9	192	08	21.4	Pete	3.371633	2,353.1	7,720
	132	56	30.879	522.8	143	27	59.2	323	26	14.3	New	3.551142	3,557.5	11,672
					147	14	45.9	327	12	09.1	Noon	3.766912	5,846.7	19,182
Beacon, 1917	56	56	23.205	717.8	177	58	01.6	357	57	46.0	Square	3.948998	8,892.0	29,173
	132	59	38.782	655.8	218	59	32.5	39	02	24.0	Wave 2	3.739599	5,490.3	18,013
					271	21	18.8	91	26	46.2	Agassiz north base	3.820078	6,608.1	21,680
Horn,[1] 1917	56	50	50.58	1,564.6	106	17	33	286	08	51	Pete	4.041651	11,006.5	36,110
	132	46	36.40	617.0	147	06	22	327	06	06	Agassiz south base	3.863149	7,297.1	23,941
Horn Peak,[1] 1917	56	49	31.51	974.7	106	20	12	286	04	34	Pete	4.296213	19,779.4	64,893
	132	38	19.52	331.1	124	46	08	304	35	56	Agassiz south base	4.177893	15,062.4	49,417

Cape Strait Lighthouse, 1917	56	59	54.459	1,684.6	152	28	33.8	332	24	10.4	South Grand	4.058597	11,444.5	37,547
	133	05	26.143	441.4	208	23	48.8	28	26	48.3	Catch 2	3.879840	7,583.0	24,879
					246	59	20.1	67	03	55.8	Square	3.779957	6,025.0	19,767
Shore, 1887	57	02	04.425	136.9	112	02	14.1	291	56	47.8	Flat	3.849428	7,070.1	23,196
	133	29	20.444	344.8	187	06	47.4	7	08	07.9	Highland	4.114674	13,021.9	42,723
					281	04	47.2	101	11	56.9	Portage	3.944806	8,806.6	28,893
Mark,[1] 1887	57	03	29.32	907.0	107	12	21	287	12	18	Flat	1.859775	72.406	237.55
	133	35	45.15	761.1										
Slate 2, 1917	57	04	45.420	1,405.0	218	53	23.8	39	01	22.2	Fanshaw	4.182978	15,239.8	49,999
	133	43	49.811	839.1	243	50	12.5	64	03	43.0	Highland	4.257252	18,082.2	59,325
					286	00	49.7	106	07	33.0	Flat	3.925667	8,426.9	27,647
Turnabout Island Lighthouse, 1917	57	07	56.511	1,748.1	93	49	22.2	273	34	40.0	Pean	4.247929	17,698.2	58,065
	133	59	09.525	160.2	145	34	33.4	325	29	29.2	Spruce	4.031374	10,749.1	35,266
					192	09	14.6	12	11	48.2	Round Rock	4.162963	14,554.0	47,749
Semicircular Knob, 1917	57	02	41.516	1,284.3	183	45	03.6	3	46	22.4	Round Rock	4.380619	24,022.5	78,814
	133	57	40.486	682.7	215	58	46.3	36	14	12.9	Southwest	4.497721	31,457.3	103,206
					227	40	12.2	48	01	21.7	Bill Point	4.534980	34,275.2	112,451
Pt. Gambier Lighthouse,[1] 1917	57	26	08.91	275.6	328	28	32	148	37	50	Southwest	4.327218	21,243.1	69,695
	133	50	20.47	341.5	9	54	55	189	53	48	Pybus	3.889445	7,752.6	25,435
Five Finger Lighthouse, 1917	57	16	14.630	452.6	99	51	43.2	279	50	27.7	Southwest	3.183797	1,526.9	5,009
	133	37	47.897	802.7	195	02	45.0	15	06	40.0	Twin	4.253991	17,947.0	58,881
					291	53	46.1	111	58	14.0	Bill Point	3.760214	5,757.2	18,888
Peak 2, 1917	57	15	21.045	651.0	244	31	15.4	65	05	06.6	Twin	4.649309	44,597.3	146,316
	134	13	21.229	355.9	266	33	17.6	87	01	56.6	Southwest	4.535390	34,307.6	112,558
					268	18	35.6	88	33	05.8	Round Rock	4.239286	17,349.5	56,921
Peak 3, 1917	57	17	41.521	1,284.5	249	43	13.8	70	17	00.2	Twin	4.631556	42,811.1	140,456
	134	13	15.083	252.6	273	49	42.8	94	18	17.0	Southwest	4.534267	34,219.0	112,267
					282	32	23.3	102	46	48.5	Round Rock	4.245997	17,619.6	57,807
Mid Hump, West Bay,[1] 1917	57	00	04.31	133.3	180	28	20	0	28	27	Highland	4.221090	16,637.6	54,585
	133	27	52.70	889.6	254	14	44	74	20	40	Portage	3.871653	7,441.4	24,414
Distant Peak, 1917	56	59	44.723	1,383.5	207	21	37.5	27	30	45.0	Fanshaw	4.377183	23,833.2	78,193
	133	45	12.295	207.6	225	33	05.9	45	47	45.3	Highland	4.392291	24,676.9	80,961
					244	59	39.5	65	21	51.1	Bay Point	4.469445	29,474.4	96,701
Peak Point Highland,[1] 1917	57	08	57.16	1,768.2	59	17	32	239	03	27	Flat	4.295559	19,749.6	64,795
	133	19	01.84	30.9	87	04	16	266	31	13	Top	4.599688	39,782.1	130,518
Heavy Snow Peak,[1] 1917	57	48	23.55	728.6	6	48	23	186	41	29	Fanshaw	4.842772	69,626.1	228,432
	133	26	08.98	148.3	12	32	46	192	21	40	Southwest	4.784220	60,844.3	199,620
Sawtooth Peak, 1917	57	14	55.70	1,723.1	265	00	28	85	27	34	Southwest	4.512250	32,527.4	106,717
	134	11	31.34	525.5	269	18	06	89	50	56	Bill Point	4.594093	39,272.9	128,848
					280	22	10	100	53	26	Fanshaw	4.580918	38,099.4	124,998
High Peak irregular,[1] 1917	57	18	44.40	1,373.5	276	42	36	97	12	35	Southwest	4.557256	36,079.1	118,370
	134	14	55.90	935.8	288	45	52	109	20	01	Fanshaw	4.635581	43,209.7	141,764
Knife Peak,[1] 1917	57	35	49.20	1,522.1	321	17	36	141	41	45	Southwest	4.663695	46,099.4	151,244
	134	07	57.90	961.7	323	25	06	143	53	26	Fanshaw	4.754877	56,869.2	186,578
Hump Point Pybus, 1917	57	24	05.70	176.3	307	16	51	127	35	11	Bill Point	4.439532	27,512.6	90,264
	133	54	14.86	248.1	313	31	57	133	44	33	Southwest	4.316782	20,738.7	68,040
					6	47	18	186	45	44	Round Rock	4.200475	15,866.3	52,055
Triplet C,[1] 1917	57	21	36.92	1,142.2	62	01	08	241	21	13	Top	4.734322	54,240.3	177,953
	133	10	56.20	939.6	71	22	27	250	58	35	Southwest	4.478402	30,088.6	98,716

[1] No check on this position.

Stephens Passage

Station	Latitude and longitude			Seconds in meters	Azimuth			Back azimuth			To station	Distance		
												Logarithm (meters)	Meters	Feet
Principal points	°	′	″		°	′	″	°	′	″				
Sunset, 1920	57	29	59.888	1,852.7	346	05	23.26	166	07	05.86	Twin	3.9267574	8,448.07	27,716.7
	133	35	10.425	173.6	48	17	12.22	228	03	17.96	Pybus	4.3456826	22,165.76	72,722.2
					65	04	27.82	244	51	43.79	Gambier	4.2219835	16,671.84	54,697.5
Hugh, 1920	57	35	04.730	146.3	306	19	25.34	126	30	13.83	Sunset	4.2010428	15,887.03	52,122.7
	133	47	58.970	979.8	7	55	56.72	187	54	00.59	Gambier	4.2212463	16,643.56	54,604.7
Cliff, 1921	57	37	42.869	1,326.2	340	09	29.45	160	13	51.31	Sunset	4.1825165	15,223.57	49,946.0
	133	40	20.682	343.3	24	57	21.84	204	48	59.03	Gambier	4.3722752	23,565.42	77,314.2
					57	19	08.37	237	12	41.40	Hugh	3.9565178	9,047.27	29,682.6
Mid, 1920	57	36	20.827	644.3	251	40	41.45	71	47	12.59	Cliff	3.9083398	8,097.29	26,565.9
	133	48	03.850	63.9	358	01	38.49	178	01	42.61	Hugh	3.3720997	2,355.59	7,728.3
Lookout, 1921	57	39	03.609	111.7	357	09	43.60	177	09	49.90	Cliff	3.3980990	2,500.92	8,205.1
	133	40	28.142	466.8	45	24	54.46	225	18	33.74	Hugh	4.0219326	10,517.99	34,507.8
					56	23	42.33	236	17	17.44	Mid	3.9583860	9,086.28	29,810.6
Lite, 1920	57	37	39.916	1,234.9	251	50	32.99	71	57	16.26	Lookout	3.9208214	8,333.38	27,340.4
	133	48	25.560	424.2	351	37	03.81	171	37	22.14	Mid	3.3932573	2,473.19	8,114.1
Tip, 1921	57	40	45.754	1,415.5	11	43	23.35	191	42	49.94	Lookout	3.5088457	3,227.35	10,588.4
	133	39	48.606	805.5	45	07	39.52	225	00	41.17	Mid	4.0646476	11,605.07	38,074.3
					56	12	56.02	236	05	39.28	Lite	4.0137969	10,322.79	33,867.4
Midway, 1920	57	44	00.147	4.5	295	33	04.58	115	43	44.14	Tip	4.1429578	13,898.18	45,597.6
	133	52	25.196	416.9	341	19	00.65	161	22	23.16	Lite	4.0939659	12,415.55	40,733.4
Astley Laplace, 1923	57	42	59.817	1,850.6	10	54	57.06	190	54	16.27	Tip	3.6257129	4,223.89	13,857.9
	133	39	00.343	5.7	43	29	51.36	223	21	53.75	Lite	4.1344393	13,628.23	44,712.0
					98	04	11.31	277	52	50.81	Midway	4.1287920	13,452.16	44,134.3
Glass, 1920	57	48	26.428	817.6	304	11	29.69	124	24	07.50	Astley Laplace	4.2536376	17,932.37	58,833.1
	133	53	56.274	929.4	349	37	54.76	169	39	11.80	Midway	3.9229631	8,374.58	27,475.6
Coke, 1920	57	49	34.811	1,077.0	336	05	01.49	156	09	38.31	Astley Laplace	4.1259358	13,363.98	43,845.0
	133	44	27.582	455.3	37	22	39.51	217	15	55.44	Midway	4.1145953	13,019.53	42,714.9
					77	22	07.77	257	14	06.46	Glass	3.9833834	9,624.62	31,576.8
Tracy, 1921	57	47	48.293	1,494.1	337	52	02.73	157	55	08.13	Astley Laplace	3.9837577	9,632.91	31,604.0
	133	42	39.551	653.3	53	58	44.49	233	50	29.11	Midway	4.0785461	11,982.46	39,312.5
					96	06	18.01	275	56	45.36	Glass	4.0507469	11,239.50	36,874.9
Holk, 1925	57	43	01.051	32.5	97	42	35.57	277	30	56.84	Midway	4.1398926	13,800.43	45,276.9
	133	38	38.787	642.2	123	40	24.30	303	27	28.25	Glass	4.2602323	18,206.74	59,733.3
					155	53	35.73	335	50	12.09	Tracy	3.9884608	9,737.80	31,948.1
Harbor, 1921	57	45	24.884	769.9	10	04	11.10	190	03	30.74	Holk	3.6550793	4,519.38	14,827.3
	133	37	51.057	844.4	79	49	38.05	259	37	18.80	Midway	4.1672153	14,696.55	48,216.9
					132	58	13.70	312	54	09.64	Tracy	3.8137948	6,513.21	21,368.8
Holkham Bay north base, 1925	57	44	10.809	334.4	61	29	11.30	241	25	48.60	Holk	3.6548313	4,516.80	14,818.9
	133	34	39.057	646.3	125	50	04.84	305	47	22.46	Harbor	3.5929103	3,916.61	12,849.7
Holkham Bay south base, 1925	57	42	59.871	1,852.2	90	31	48.85	270	28	15.49	Holk	3.6210006	4,178.31	13,708.3
	133	34	26.421	437.4	142	58	49.05	322	55	56.00	Harbor	3.7497945	5,620.75	18,440.7
					174	33	28.23	354	33	17.55	Holkham Bay north base	3.3433237	2,204.569	7,232.82
Twin Point, 1920	57	54	45.076	1,394.6	302	49	07.51	123	01	48.96	Coke	4.2469992	17,660.35	57,940.7
	133	59	26.753	440.5	335	00	46.02	155	05	25.85	Glass	4.1112702	12,920.23	42,389.1
Anmer, 1920	57	56	05.168	159.9	332	09	38.96	152	15	06.09	Coke	4.1351933	13,651.91	44,789.6
	133	50	53.828	885.8	11	59	11.89	191	56	37.39	Glass	4.1615993	14,507.73	47,597.4
					73	42	17.81	253	35	03.19	Twin Point	3.9444596	8,799.53	28,869.8
South, 1921	57	58	17.701	547.7	288	48	26.03	108	58	43.45	Anmer	4.1025440	12,663.22	41,545.9
	134	03	02.251	37.0	331	39	02.89	151	42	05.53	Twin Point	3.8734913	7,472.94	24,517.5
Style, 1920	57	59	07.762	240.1	321	07	40.92	141	11	35.39	Anmer	3.8605011	7,252.72	23,795.0
	133	55	30.421	499.9	25	35	31.35	205	32	11.05	Twin Point	3.9546799	9,009.07	29,557.3
					78	16	21.56	258	09	58.48	South	3.8800231	7,586.18	24,889.0
Stone, 1920	58	01	06.625	205.0	289	41	25.45	109	50	13.88	Style	4.0364478	10,875.46	35,680.6
	134	05	53.527	878.8	331	40	54.03	151	43	19.27	South	3.7734680	5,935.65	19,473.9
Limestone, 1921	58	01	03.470	107.4	319	35	52.13	139	38	29.31	Style	3.6720456	4,699.43	15,418.0
	133	58	35.774	587.4	40	30	57.43	220	27	11.45	South	3.8288590	6,743.09	22,123.0
					90	49	47.27	270	43	35.96	Stone	3.8565930	7,187.75	23,581.8
Rock, 1917	58	02	23.772	735.5	285	34	41.63	105	42	20.24	Limestone	3.9644744	9,214.56	30,231.4
	134	07	36.393	597.1	324	42	50.94	144	44	18.20	Stone	3.4659202	2,923.61	9,591.9
Grave, 1917	58	03	45.057	1,394.0	319	18	33.86	139	22	15.89	Limestone	3.8189044	6,590.29	21,621.6
	134	02	57.475	942.5	30	31	55.41	210	29	26.04	Stone	3.7550782	5,689.55	18,666.5
					61	14	08.70	241	10	12.03	Rock	3.7177300	5,220.72	17,128.3
Whale, 1917	58	05	18.272	565.3	300	46	37.72	120	50	48.10	Grave	3.7505356	5,630.35	18,472.2
	134	07	52.478	859.9	357	12	04.39	177	12	18.04	Rock	3.7328195	5,405.30	17,733.9
Doty, 1917	58	05	49.623	1,535.3	287	50	46.63	107	53	22.53	Whale	3.4998710	3,161.34	10,371.8
	134	10	56.125	919.4	296	06	24.34	116	13	10.61	Grave	3.9415384	8,740.54	28,676.3
					332	45	57.28	152	48	46.79	Rock	3.8549958	7,161.36	23,495.2
Cove, 1917	58	07	42.658	1,319.8	346	43	19.91	166	45	20.34	Rock	4.0058809	10,136.33	33,255.6
	134	09	58.276	953.8	15	09	44.73	195	08	55.61	Doty	3.5590964	3,623.23	11,887.2
Circle, 1917	58	07	27.374	846.9	63	15	00.04	243	09	49.52	Doty	3.8266744	6,709.26	22,012.0
	134	04	50.403	825.0	95	23	49.36	275	19	27.91	Cove	3.7042838	5,061.55	16,606.1
Grand, 1917	58	06	21.521	665.8	147	35	30.68	327	34	07.99	Cove	3.4733151	2,973.82	9,756.6
	134	08	20.899	342.3	239	23	08.64	59	26	07.37	Circle	3.6024702	4,003.78	13,135.7
Slocum, 1917	58	10	19.210	594.4	357	28	43.62	177	28	55.77	Circle	3.7260469	5,321.66	17,459.5
	134	05	04.704	76.9	23	36	22.65	203	33	36.02	Grand	3.9043985	8,024.14	26,325.9
					44	47	17.01	224	43	07.64	Cove	3.8338250	6,820.64	22,377.4
Arden, 1917	58	09	30.822	953.6	254	13	39.08	74	18	15.19	Slocum	3.7420013	5,520.79	18,112.8
	134	10	29.702	485.7	304	29	16.72	124	34	04.91	Circle	3.8285603	6,738.45	22,107.7
					340	11	25.61	160	13	15.01	Grand	3.7941158	6,224.66	20,422.1
Bishop, 1917	58	12	04.240	131.2	311	05	00.11	131	08	13.76	Slocum	3.6939284	4,942.29	16,214.8
	134	08	52.583	858.9	18	30	05.25	198	28	42.73	Arden	3.6994100	5,005.07	16,420.8
Salisbury, 1917	58	12	17.488	541.1	275	53	54.56	95	57	20.00	Bishop	3.5987361	3,969.50	13,023.3
	134	12	54.315	887.1	295	26	28.48	115	33	07.54	Slocum	3.9294907	8,501.40	27,891.7
					335	21	34.27	155	23	37.14	Arden	3.7537680	5,672.42	18,610.3
Corner, 1917	58	10	00.507	15.7	173	18	00.44	353	17	34.54	Salisbury	3.6301543	4,267.31	14,000.3
	134	12	23.832	389.7	222	01	07.16	42	04	06.66	Bishop	3.7122234	5,154.94	16,912.5
Tantallon, 1917	58	11	33.230	1,028.1	244	09	35.92	64	12	03.16	Salisbury	3.4974769	3,143.96	10,314.8
	134	15	47.565	777.1	261	53	44.91	81	59	37.58	Bishop	3.8354852	6,846.76	22,463.1
					310	43	21.42	130	46	14.53	Corner	3.6429796	4,395.21	14,420.0

Stephens Passage—Continued

Station	Latitude and longitude			Seconds in meters	Azimuth			Back azimuth			To station	Distance		
												Logarithm (meters)	Meters	Feet
Principal points—Continued	°	′	″		°	′	″	°	′	″				
New, 1925	58	09	28.224	873.2	180	39	30.97	0	39	33.29	Tantallon	3.5874756	3,867.90	12,689.9
	134	15	50.286	822.4	208	45	11.68	28	47	41.21	Salisbury	3.7763151	5,974.69	19,602.0
					253	29	38.32	73	32	33.71	Corner	3.5466172	3,520.60	11,550.5
Ton, 1925	58	11	45.599	1,410.8	248	25	48.94	68	27	58.92	Salisbury	3.4290801	2,685.84	8,811.8
	134	15	27.246	445.1	317	18	19.02	137	20	54.87	Corner	3.6456613	4,422.43	14,509.3
					5	03	58.00	185	03	38.43	New	3.6301223	4,267.00	13,999.3
Gastineau Channel south base, 1925	58	12	51.051	1,579.5	341	52	07.83	161	53	37.63	Corner	3.7444403	5,551.88	18,214.8
	134	14	09.502	155.1	14	43	01.27	194	41	35.63	New	3.8121058	6,487.93	21,285.8
					32	05	50.66	212	04	44.58	Ton	3.3784377	2,390.22	7,841.9
Marks, 1925	58	12	22.847	706.9	243	11	31.08	63	13	01.01	Gastineau Channel south base	3.2868376	1,935.70	6,350.7
	134	15	55.310	903.3	273	11	21.57	93	13	55.41	Salisbury	3.4713935	2,960.69	9,713.5
					321	51	14.80	141	54	14.51	Corner	3.7480289	5,597.95	18,365.9
					338	18	20.26	158	18	44.11	Ton	3.0935135	1,240.26	4,069.1
Gastineau Channel north base, 1925	58	13	45.419	1,405.3	316	37	17.35	136	38	40.09	Gastineau Channel south base	3.3643435	2,313.894	7,591.50
	134	15	46.832	764.3	355	04	01.59	175	04	18.24	Ton	3.5706561	3,720.97	12,207.9
					3	06	08.60	183	06	01.40	Marks	3.4079867	2,558.51	8,394.0
Oliver, 1917	58	09	10.775	333.4	206	05	36.11	26	07	28.38	Tantallon	3.6909378	4,908.38	16,103.6
	134	17	59.702	976.5	254	18	37.80	74	23	23.13	Corner	3.7561786	5,703.99	18,713.8
Rain, 1917	58	10	09.098	281.5	253	44	39.62	73	52	25.72	Tantallon	3.9701240	9,335.21	30,627.3
	134	24	56.098	917.1	271	08	57.39	91	19	36.51	Corner	4.0899751	12,301.98	40,360.7
					284	47	37.15	104	53	30.89	Oliver	3.8478316	7,044.20	23,110.8
Donough, 1917	58	12	03.911	121.0	330	42	28.28	150	45	04.36	Oliver	3.7882259	6,140.81	20,147.0
	134	21	03.391	55.4	46	58	41.93	226	55	24.19	Rain	3.7163231	5,203.83	17,072.9
Jumbo, 1917	58	13	11.556	357.5	296	27	18.28	116	30	56.92	Donough	3.6714458	4,692.95	15,396.8
	134	25	20.613	336.5	315	54	17.53	136	00	32.21	Oliver	4.0155190	10,363.80	34,001.9
					355	56	20.37	175	56	41.21	Rain	3.7527683	5,659.37	18,567.4
Bight, 1917	58	10	25.729	796.1	204	22	08.51	24	24	09.51	Jumbo	3.7507565	5,633.22	18,481.7
	134	27	42.987	702.7	245	00	13.45	65	05	53.02	Donough	3.8574301	7,201.62	23,627.3
Young, 1917	58	11	42.736	1,322.3	250	45	13.08	70	52	04.03	Jumbo	3.9222405	8,360.66	27,429.9
	134	33	24.111	393.9	266	48	48.07	86	59	17.59	Donough	4.0834237	12,117.80	39,756.5
					293	06	05.96	113	10	55.83	Bight	3.7826450	6,062.41	19,889.8
Hilda, 1917	58	13	05.615	173.7	328	57	42.04	148	00	22.95	Bight	3.7659837	5,834.23	19,141.1
	134	30	52.320	854.2	44	02	57.43	224	00	48.42	Young	3.5522578	3,566.63	11,701.5
Target, 1917	58	13	42.250	1,307.2	288	15	30.67	108	18	29.33	Hilda	3.5578822	3,613.12	11,854.0
	134	34	22.484	367.0	312	55	49.77	133	01	29.31	Bight	3.9503262	8,919.21	29,262.4
					345	32	18.13	165	33	07.75	Young	3.5819080	3,818.63	12,528.3
Scull 2, 1917	58	12	18.067	559.0	237	59	45.93	58	03	23.16	Target	3.6918534	4,918.73	16,137.5
	134	38	38.042	621.3	258	59	48.41	79	06	24.27	Hilda	3.8890742	7,745.94	25,413.1
					281	59	47.88	102	04	14.69	Young	3.7195950	5,243.18	17,202.0
Deer, 1917	58	14	54.832	1,696.5	325	15	19.14	145	18	53.57	Young	3.8591676	7,230.49	23,722.0
	134	37	36.349	593.0	11	44	09.23	191	43	16.78	Scull 2	3.6949318	4,953.72	16,252.3
Grouse, 1917	58	13	42.651	1,319.6	244	51	55.46	64	56	03.88	Deer	3.7213685	5,264.64	17,272.4
	134	42	28.528	465.6	304	47	20.22	124	50	36.14	Scull 2	3.6612147	4,583.68	15,038.3
Hawk, 1917	58	11	12.337	381.7	174	29	20.15	354	28	56.78	Grouse	3.6695314	4,672.31	15,329.1
	134	42	01.036	16.9	212	05	15.01	32	09	00.01	Deer	3.9099809	8,127.95	26,666.4
					238	27	27.53	58	30	20.04	Scull 2	3.5899641	3,890.13	12,762.9
					263	35	05.58	83	42	24.87	Young	3.9293254	8,498.17	27,881.1
Young Bay east base, 1917	58	09	39.214	1,213.3	140	39	46.75	320	37	43.94	Hawk	3.5712551	3,726.11	12,224.7
	134	39	36.496	596.8	190	59	32.26	11	00	21.92	Scull 2	3.6995610	5,006.81	16,426.5
Young Bay west base, 1917	58	09	31.544	976.0	169	22	10.48	349	21	40.04	Hawk	3.5014686	3,172.99	10,410.1
	134	41	25.216	412.4	207	55	00.33	27	57	22.37	Scull 2	3.7657972	5,831.73	19,132.9
					262	23	04.30	82	24	36.66	Young Bay east base	3.2537462	1,793.685	5,884.78
Horse, 1917	58	15	34.793	1,076.5	281	46	01.58	101	51	09.89	Deer	3.7811102	6,041.02	19,819.6
	134	43	38.899	634.3	321	04	20.56	141	08	36.34	Scull 2	3.8932172	7,820.19	25,656.7
Eagle, 1917	58	16	48.979	1,515.4	325	27	35.65	145	29	42.36	Deer	3.6321081	4,286.55	14,063.5
	134	40	05.340	87.0	350	20	45.70	170	21	59.92	Scull 2	3.9295288	8,502.15	27,894.1
					56	37	45.41	236	34	43.77	Horse	3.6201471	4,170.11	13,681.4
Clearing, 1917	58	16	37.981	1,175.1	266	17	56.82	86	22	34.27	Eagle	3.7264828	5,327.00	17,477.0
	134	45	31.511	513.6	316	47	09.89	136	48	45.67	Horse	3.4284527	2,681.96	8,799.1
Outer, 1917	58	18	00.170	5.3	333	26	12.32	153	27	09.80	Eagle	3.3913649	2,462.44	8,078.9
	134	41	12.905	210.2	27	53	45.56	207	51	41.37	Horse	3.7065946	5,088.56	16,694.7
					58	55	12.69	238	51	32.69	Clearing	3.6921054	4,921.59	16,146.9
Cabin, 1917	58	19	18.323	566.9	289	29	47.16	109	35	43.08	Outer	3.8589964	7,227.64	23,712.7
	134	48	11.182	182.0	332	18	52.88	152	21	08.73	Clearing	3.7483009	5,601.46	18,377.5
Cow 2, 1917	58	20	47.578	1,472.1	324	28	45.43	144	31	58.55	Outer	3.8035827	6,361.84	20,872.1
	134	44	59.822	973.2	3	49	34.91	183	49	07.95	Clearing	3.8887305	7,739.81	25,393.0
					48	27	19.13	228	24	36.26	Cabin	3.6193165	4,162.14	13,655.3
Symonds, 1917	58	20	29.311	906.9	263	26	09.10	83	30	27.51	Cow 2	3.6964490	4,971.06	16,309.2
	134	50	03.403	55.4	320	14	34.96	140	16	10.47	Cabin	3.4558349	2,856.50	9,371.7
Lena, 1917	58	23	42.533	1,316.0	344	13	32.11	164	14	52.14	Cow 2	3.7501036	5,624.75	18,453.9
	134	46	33.819	549.4	10	58	22.36	190	56	59.47	Cabin	3.9204736	8,326.71	27,318.5
					29	42	18.07	209	39	19.62	Symonds	3.8376636	6,881.19	22,576.0
Dairy, 1917	58	22	32.676	1,011.0	219	20	19.60	39	21	52.49	Lena	3.4464112	2,795.19	9,170.6
	134	48	22.891	372.1	314	32	11.74	134	35	04.63	Cow 2	3.6659935	4,634.40	15,204.7
Cliff, 1917	58	23	36.484	1,128.9	265	56	37.64	85	58	56.69	Lena	3.4246927	2,658.84	8,723.2
	134	49	17.080	277.5	321	18	03.47	141	21	42.51	Cow 2	3.8256480	6,693.42	21,960.0
					335	57	20.11	155	58	06.25	Dairy	3.3348009	2,161.73	7,092.3
Ledge, 1917	58	25	23.206	718.0	308	09	02.39	128	12	30.18	Lena	3.7023643	5,039.23	16,532.9
	134	50	37.758	612.9	338	20	57.45	158	22	06.17	Cliff	3.5505310	3,552.47	11,655.1
Tee, 1917	58	26	39.160	1,211.6	2	30	49.36	182	30	36.78	Lena	3.7380055	5,470.23	17,946.9
	134	46	19.051	309.0	27	06	12.40	207	03	40.73	Cliff	3.8026516	6,348.21	20,827.4
					60	47	26.91	240	43	46.48	Ledge	3.6822491	4,811.15	15,784.6
Slate, 1917	58	26	25.253	781.4	265	10	09.30	85	14	38.82	Tee	3.7117562	5,149.40	16,894.3
	134	51	35.347	573.5	334	02	10.41	154	02	59.47	Ledge	3.3294353	2,135.18	7,005.2
Islet, 1917	58	28	20.668	639.5	345	12	22.49	165	13	06.06	Tee	3.5116648	3,248.36	10,657.3
	134	47	10.180	165.0	31	32	31.10	211	29	34.20	Ledge	3.8089552	6,441.03	21,131.9
					50	19	25.03	230	15	39.04	Slate	3.7473837	5,589.64	18,338.7

Stephens Passage—Continued

Station	Latitude and longitude	Seconds in meters	Azimuth	Back azimuth	To station	Distance		
						Logarithm (meters)	Meters	Feet
Supplementary points	° ′ ″		° ′ ″	° ′ ″				
Grave Point Lighthouse,[1] 1917	58 03 45.15	1,396.9	120 51 53	300 47 43	Whale	3.749888	5,622.0	18,445
	134 02 57.97	950.6	288 55 24	108 55 24	Grave	0.933487	8.58	28.1
Arden Point Lighthouse, 1917	58 09 34.515	1,067.9	199 46 58.9	19 48 25.6	Bishop	3.692262	4,923.4	16,153
	134 10 34.599	565.8	255 34 55.1	75 39 35.4	Slocum	3.745728	5,568.4	18,269
			324 58 08.3	144 58 12.4	Arden	2.144699	139.5	458
Cove, 1917	58 10 25.956	803.1	70 42 23.5	250 38 14.0	Young Bay west base	3.706409	5,086.4	16,688
	134 36 31.659	517.5	104 57 54.3	284 53 14.4	Hawk	3.745952	5,571.2	18,278
			149 14 51.7	329 13 04.3	Scull 2	3.606041	4,036.8	13,244
Deer Lighthouse, 1917	58 14 54.832	1,696.5	89 58 40.4	269 58 39.8	Deer	1.108968	12.85	42.2
	134 37 35.561	580.1	101 49 40.5	281 44 31.5	Horse	3.782013	6,053.6	19,861
			145 21 14.1	325 19 06.7	Eagle	3.632846	4,293.8	14,087
Peak back of Young,[1] 1917	58 08 58.65	1,814.6	125 24 14	305 13 29	Grouse	4.181858	15,200.5	49,870
	134 29 49.43	803.6	145 22 02	325 15 25	Deer	4.127175	13,402.2	43,970
Lone Mountain, 1917	58 18 09.232	285.6	271 51 06.7	91 58 25.1	Outer	3.924317	8,400.7	27,561
	134 49 48.373	787.9	284 34 48.8	104 43 04.7	Eagle	3.992040	9,818.4	32,213
			308 23 24.5	128 28 38.8	Horse	3.885762	7,687.1	25,220
Eagle Peak, 1917	58 06 52.129	1,612.9	146 47 44.2	326 34 34.2	Cabin	4.441333	27,627.0	90,640
	134 32 41.797	684.4	158 04 09.1	337 56 54.7	Outer	4.348127	22,290.9	73,133
			158 37 43.2	338 31 26.2	Eagle	4.297478	19,837.1	65,082
Shelter Island Peak, 1917	58 24 07.58	234.5	320 51 43	140 59 46	Outer	4.165614	14,642.5	48,040
	134 50 40.30	654.6	336 34 24	156 40 22	Horse	4.237672	17,285.1	56,710
			344 49 24	164 51 31	Cabin	3.967195	9,272.5	30,422
Louisa Point tripod (Lu), 1917	58 22 21.536	666.3	344 45 01.6	164 46 56.8	Outer	3.923310	8,381.3	27,498
	134 43 28.241	459.1	27 08 08.9	207 06 51.0	Cow 2	3.514063	3,266.4	10,717
			61 39 48.7	241 34 12.4	Symonds	3.863586	7,304.4	23,965
Bib, 1890	58 16 31.271	967.5	96 30 00.9	276 28 25.5	Clearing	3.264274	1,837.7	6,029
	134 43 39.488	643.7	170 38 33.2	350 37 24.8	Cow 2	3.905115	8,037.4	26,369
			220 57 10.3	40 59 15.0	Outer	3.561443	3,642.9	11,952
Coghlan Rock (Man), 1917	58 21 10.08	311.9	9 40 50	189 39 33	Bib	3.942044	8,750.7	28,710
	134 42 09.21	149.8	75 56 15	255 53 50	Cow 2	3.456532	2,861.1	9,387
			112 51 26	292 46 08	Dairy	3.818973	6,591.3	21,625
Shelter Island gable cupola (Tow), 1917	58 22 27.026	836.2	343 29 16.6	163 32 03.6	Clearing	4.051644	11,262.7	36,951
	134 48 47.904	778.6	354 09 14.2	174 09 45.4	Cabin	3.768566	5,869.0	19,255
			18 38 16.8	198 37 12.5	Symonds	3.584730	3,843.5	12,610
Fritz Cove cannery front gable (Can), 1917	58 22 50.524	1,563.3	22 37 35.5	202 33 20.2	Bib	4.104126	12,709.4	41,697
	134 38 39.515	642.2	30 14 12.4	210 08 21.7	Clearing	4.124996	13,335.1	43,750
			58 26 46.2	238 21 22.5	Cow 2	3.860937	7,260.0	23,819
Camelback Peak, 1917	58 27 50.509	1,562.8	267 27 18.8	87 46 58.7	Islet	4.351463	22,462.8	73,697
	135 10 14.597	236.7	275 14 48.4	95 35 11.8	Tee	4.368956	23,386.0	76,726
			288 14 11.9	108 34 22.4	Lena	4.385626	24,301.1	79,728
Tee Harbor Lighthouse (Bar), 1917	58 25 41.334	1,278.9	40 27 57.6	220 25 04.9	Cliff	3.705501	5,075.8	16,653
	134 45 54.312	881.5	83 04 56.7	263 00 55.2	Ledge	3.666022	4,634.7	15,206
			103 50 11.4	283 45 20.7	Slate	3.755753	5,698.4	18,696
Shelter Island Dairy Lighthouse, 1917	58 22 32.806	1,015.1	156 01 18.8	336 00 32.8	Cliff	3.333734	2,156.4	7,075
	134 48 23.137	376.1	219 27 16.4	39 28 49.5	Lena	3.446323	2,794.6	9,169
			315 11 06.4	135 11 06.6	Dairy	0.754184	5.68	18.6
Dog, 1917	58 26 08.138	251.8	331 05 22.6	151 07 33.1	Lena	3.711436	5,145.6	16,882
	134 49 06.948	112.7	2 00 32.4	182 00 23.8	Cliff	3.671653	4,695.2	15,404
			46 40 53.1	226 39 35.8	Ledge	3.306644	2,026.0	6,647
Kit,[1] 1917	58 24 58.06	1,796.4	231 14 22	51 17 47	Tee	3.698948	4,999.7	16,403
	134 50 19.37	314.5	338 08 58	158 09 52	Cliff	3.434432	2,719.1	8,921
Volcanic Peak,[1] 1917	58 35 08.76	271.1	290 28 33	110 57 52	Islet	4.552529	35,688.6	117,088
	135 21 32.80	529.9	294 29 15	114 59 18	Tee	4.576101	37,679.1	123,619
Rat, 1917	58 26 29.563	914.7	30 13 25.5	210 12 22.7	Ledge	3.375838	2,376.0	7,795
	134 49 24.077	390.6	86 25 56.0	266 24 04.1	Slate	3.329172	2,133.9	7,001
			212 15 43.2	32 17 37.3	Islet	3.609171	4,066.0	13,340
Teen, 1917	58 26 38.490	1,190.9	85 28 25.0	265 23 55.5	Slate	3.711574	5,147.2	16,887
	134 46 19.081	309.5	165 19 09.3	345 18 25.8	Islet	3.514322	3,268.3	10,723
			181 20 19.7	1 20 19.7	Tee	1.316675	20.7	68
Bird,[1] 1917	58 29 21.02	650.4	297 04 55	117 08 07	Islet	3.612548	4,097.8	13,444
	134 50 55.26	895.3	6 49 10	186 48 36	Slate	3.738545	5,477.0	17,969

Lynn Canal

Station	Latitude and longitude	Seconds in meters	Azimuth	Back azimuth	To station	Logarithm (meters)	Meters	Feet
Principal points								
Indian, 1917	58 28 49.491	1,531.3	277 25 23.47	97 31 21.05	Islet	3.8361442	6,857.16	22,497.2
	134 54 09.668	156.7	330 42 09.21	150 44 20.73	Slate	3.7089759	5,116.53	16,786.5
Pearl, 1917	58 30 25.010	773.8	336 29 33.73	156 31 01.73	Islet	3.6227419	4,195.10	13,763.4
	134 48 53.409	864.9	19 30 16.44	199 27 58.39	Slate	3.8959223	7,869.05	25,817.0
			60 03 29.31	239 58 59.67	Indian	3.7719297	5,914.66	19,405.0
Gull, 1917	58 30 17.230	533.1	265 29 28.54	85 32 10.10	Pearl	3.4882202	3,077.66	10,097.3
	134 52 02.874	46.5	37 07 39.52	217 05 51.42	Indian	3.5320248	3,404.28	11,168.9
Sentinel, 1917	58 32 45.662	1,412.8	305 03 39.65	125 09 05.89	Pearl	3.8789448	7,567.37	24,827.3
	134 55 15.917	257.5	325 44 58.36	145 47 43.00	Gull	3.7446622	5,554.72	18,224.1
			351 38 29.67	171 39 26.17	Indian	3.8683943	7,385.74	24,231.4
Eagle River south base, 1925	58 30 50.525	1,563.3	68 22 34.28	248 20 17.55	Gull	3.4461045	2,793.22	9,164.1
	134 49 22.534	364.8	121 57 45.33	301 52 43.92	Sentinel	3.8285089	6,737.66	22,105.1
Eagle River north base, 1925	58 32 25.066	775.6	333 10 47.01	153 12 04.92	Eagle River south base	3.5155487	3,277.545	10,753.08
	134 50 53.873	871.6	15 46 33.67	195 45 34.83	Gull	3.6138522	4,110.10	13,484.6
			98 34 49.09	278 31 05.56	Sentinel	3.6321236	4,286.70	14,063.9
Lincoln, 1917	58 30 05.131	158.8	208 56 12.03	28 58 36.85	Sentinel	3.7540971	5,676.72	18,624.4
	134 58 05.718	92.6	266 18 43.38	86 23 52.77	Gull	3.7699909	5,888.31	19,318.6

[1] No check on this position.

Lynn Canal—Continued

Station	Latitude and longitude			Seconds in meters	Azimuth			Back azimuth			To station	Distance		
												Logarithm (meters)	Meters	Feet
Principal points—Continued	°	′	″		°	′	″	°	′	″				
Little, 1917	58	32	26.039	805.7	265	08	52.53	85	15	13.88	Sentinel	3.8607750	7,257.30	23,810.0
	135	02	42.966	695.1	290	57	52.83	111	06	58.73	Gull	4.0453582	11,100.90	36,420.2
					314	08	18.51	134	12	14.95	Lincoln	3.7963623	6,256.94	20,528.0
Whid, 1921	58	37	02.984	92.3	302	06	48.23	122	17	55.78	Sentinel	4.1743193	14,938.92	49,012.1
	135	08	18.159	293.1	327	39	42.41	147	44	28.45	Little	4.0059377	10,137.66	33,260.0
Bridget, 1921	58	39	58.797	1,819.3	345	32	25.37	165	35	27.72	Sentinel	4.1410978	13,838.78	45,402.7
	134	58	49.541	798.6	15	05	17.72	195	01	58.47	Little	4.1615900	14,507.41	47,596.4
					59	23	47.73	239	15	42.17	Whid	4.0279378	10,664.43	34,988.2
Will, 1921	58	39	31.005	959.4	265	20	54.18	85	30	23.84	Bridget	4.0329023	10,787.04	35,390.5
	135	09	56.503	911.1	340	52	53.04	160	54	17.01	Whid	3.6354792	4,847.07	15,902.4
Bern, 1921	58	45	52.765	1,632.7	335	52	13.82	155	56	33.84	Bridget	4.0791023	11,997.82	39,362.8
	135	03	53.801	864.9	14	35	37.75	194	31	51.89	Whid	4.2288283	16,936.68	55,566.4
					26	20	50.60	206	15	40.65	Will	4.1198156	13,176.97	43,231.4
River, 1921	58	45	57.415	1,776.5	270	45	06.69	90	53	57.74	Bern	3.9993302	9,984.59	32,757.8
	135	14	14.882	239.2	340	47	11.55	160	50	52.35	Will	4.1024101	12,659.31	41,533.1
Chan, 1921	58	49	49.448	1,530.1	330	59	52.00	151	03	27.97	Bern	3.9227892	8,371.23	27,464.6
	135	08	06.292	100.9	5	18	19.71	185	16	45.50	Will	4.2837099	19,218.08	63,051.3
					39	32	50.98	219	27	35.71	River	3.9687256	9,305.20	30,528.8
Cot, 1921	58	47	49.790	1,540.7	242	08	28.44	62	14	42.59	Chan	3.8996576	7,937.02	26,040.0
	135	15	23.649	379.8	342	21	50.61	162	22	49.42	River	3.5621146	3,648.50	11,970.1
Half, 1922	58	50	22.097	683.7	336	36	51.73	156	37	15.02	Chan	3.0416387	1,100.62	3,611.0
	135	08	33.520	537.7	33	50	01.87	213	45	09.87	River	3.9936555	9,854.98	32,332.5
					54	26	52.75	234	21	01.87	Cot	3.9082555	8,095.72	26,560.7
Sher, 1922	58	51	12.618	390.4	344	30	49.53	164	31	12.64	Half	3.2100840	1,622.12	5,321.9
	135	09	00.522	8.4	44	27	17.31	224	21	49.51	Cot	3.9437694	8,785.56	28,824.0
Van, 1921	58	55	25.254	781.4	312	38	00.94	132	45	33.82	Sher	4.0617560	11,528.05	37,821.6
	135	17	49.481	791.7	316	25	03.40	136	32	59.36	Half	4.1117855	12,935.57	42,439.4
					350	33	51.78	170	35	56.60	Cot	4.1549098	14,285.97	46,869.9
Met, 1921	58	56	17.318	535.9	351	51	44.91	171	52	56.90	Sher	3.9788206	9,524.03	31,246.8
	135	10	24.602	393.5	17	00	26.67	196	56	10.69	Cot	4.2153602	16,419.51	53,869.7
					77	17	54.82	257	11	33.76	Van	3.8631565	7,297.20	23,940.9
Island, 1921	58	57	33.797	1,045.8	288	33	20.96	108	39	37.55	Met	3.8701942	7,416.42	24,332.0
	135	17	44.180	706.2	1	13	18.09	181	13	13.55	Van	3.5997144	3,978.45	13,052.6
Eld, 1922	58	58	16.082	497.6	324	24	51.72	144	27	12.54	Met	3.6549264	4,517.79	14,822.1
	135	13	08.969	143.3	40	20	59.61	220	16	59.29	Van	3.8408972	6,932.62	22,744.8
					73	27	57.85	253	24	02.03	Island	3.6617107	4,588.92	15,055.5
Slide, 1921	59	01	47.425	1,467.5	350	53	24.93	170	54	52.68	Met	4.0147229	10,344.82	33,939.6
	135	12	07.002	111.7	8	36	36.17	188	35	43.05	Eld	3.8204722	6,614.12	21,699.8
					34	29	31.67	214	24	42.66	Island	3.9785238	9,517.52	31,225.4
Sed, 1921	59	00	21.651	670.0	224	23	00.19	44	25	19.84	Slide	3.5699610	3,715.02	12,188.4
	135	14	49.895	796.5	337	27	25.17	157	28	51.66	Eld	3.6239352	4,206.64	13,801.3
Kabe, 1907	59	01	05.401	167.1	260	43	24.81	80	50	35.46	Slide	3.9094912	8,118.79	26,636.4
	135	20	29.293	467.4	283	59	29.09	104	04	20.05	Sed	3.7469080	5,583.52	18,318.6
					306	38	20.77	126	44	38.17	Eld	3.9429338	8,768.67	28,768.5
Chil, 1921	59	03	53.651	1,660.2	308	46	29.52	128	50	50.71	Slide	3.7946276	6,232.00	20,446.2
	135	17	11.572	184.4	31	13	23.16	211	10	33.61	Kabe	3.7843768	6,086.63	19,969.2
Glacier Point south base, 1925	59	03	21.945	679.1	260	51	34.83	80	57	04.67	Chil	3.7928876	6,207.08	20,364.4
	135	23	36.129	575.9	284	49	20.49	104	59	11.46	Slide	4.0558159	11,371.45	37,307.8
					324	47	03.74	144	49	43.96	Kabe	3.7135123	5,170.26	16,962.8
Glacier Point north base, 1925	59	05	18.880	584.2	296	41	53.76	116	46	35.68	Chil	3.7680439	5,861.97	19,232.1
	135	22	40.201	640.2	13	50	27.86	193	49	39.89	Glacier Point south base	3.5713052	3,726.535	12,226.14
Duck, 1922	59	05	14.675	454.1	323	52	44.56	143	54	23.04	Chil	3.4918253	3,103.31	10,181.4
	135	19	06.368	101.4	50	58	08.59	230	54	17.19	Glacier Point south base	3.7431553	5,535.48	18,161.0
					92	12	48.52	272	09	45.06	Glacier Point north base	3.5324769	3,407.82	11,180.5
Kal, 1925	59	07	18.744	580.0	322	07	52.05	142	15	00.42	Slide	4.1131654	12,976.73	42,574.5
	135	20	26.361	419.4	0	13	55.17	180	13	52.66	Kabe	4.0626872	11,552.80	37,902.8
Twin, 1925	59	09	51.679	1,599.2	353	19	02.23	173	20	36.66	Slide	4.1786002	15,086.91	49,497.6
	135	13	57.061	906.7	21	01	47.43	200	56	10.90	Kabe	4.2415913	17,441.80	57,223.6
					52	38	46.05	232	33	11.85	Kal	3.8916271	7,791.61	25,563.0
Riley, 1894	59	11	16.513	511.0	286	59	18.90	107	07	01.58	Twin	3.9519122	8,951.84	29,369.5
	135	22	55.847	886.8	342	05	08.22	162	07	16.56	Kal	3.8882776	7,731.75	25,366.6
Vil, 1925	59	16	30.511	944.2	332	45	58.32	152	51	41.61	Twin	4.1422175	13,874.50	45,519.9
	135	20	36.643	580.4	12	49	00.51	192	47	00.90	Riley	3.9984432	9,964.22	32,690.9
Ripinski, 1925	59	15	44.777	1,385.6	261	36	47.92	81	45	33.44	Vil	3.9906839	9,787.77	32,112.0
	135	30	48.012	760.7	304	08	26.84	124	22	55.33	Twin	4.2879955	19,408.66	63,676.6
					317	53	15.28	138	00	00.96	Riley	4.0484582	11,180.42	36,681.1
					327	42	08.86	147	51	02.79	Kal	4.2674052	18,509.95	60,728.1
Hal, 1925	59	22	05.833	180.5	336	56	42.04	157	00	41.80	Vil	4.0520991	11,274.55	36,989.9
	135	25	15.413	243.4	24	05	11.73	204	00	25.70	Ripinski	4.1110100	12,912.49	42,363.7
Top, 1925	59	20	53.527	1,656.4	4	30	48.77	184	30	13.89	Vil	3.9119206	8,164.33	26,785.8
	135	19	56.078	886.3	47	16	27.98	227	07	07.38	Ripinski	4.1480188	14,061.08	46,132.1
					113	57	15.86	293	52	41.11	Hal	3.7418865	5,519.33	18,108.0
Tai, 1925	59	26	45.110	1,396.0	344	26	42.89	164	29	27.80	Top	4.0527830	11,292.32	37,048.2
	135	23	07.678	121.0	13	08	28.85	193	06	38.89	Hal	3.9481321	8,874.26	29,115.0
Skag, 1925	59	25	19.465	602.4	16	15	22.67	196	13	12.01	Top	3.9330588	8,571.54	28,121.8
	135	17	24.256	382.5	51	11	39.38	231	04	53.85	Hal	3.9799985	9,549.89	31,331.6
					116	07	29.16	296	02	33.46	Tai	3.7801611	6,027.83	19,776.3
Supplementary points														
Poundstone Buoy, 1917	58	31	43.54	1,347.2	36	50	42	216	48	42	Lincoln	3.580224	3,803.9	12,480
	134	55	44.88	726.3	193	41	52	13	42	16	Sentinel	3.296359	1,978.6	6,491
					306	35	08	126	38	18	Gull	3.651042	4,477.6	14,690
Sentinel island Lighthouse, 1917	58	32	46.86	1,449.9	325	57	57	146	00	42	Gull	3.747033	5,585.1	18,324
	134	55	15.90	257.2	28	48	00	208	45	36	Lincoln	3.756578	5,709.2	18,731
					84	57	48	264	51	27	Little	3.860983	7,260.8	23,821
Herb, 1917	58	32	36.084	1,116.5	9	04	50.9	189	04	14.7	Gull	3.638569	4,350.8	14,274
	134	51	20.473	331.2	88	28	06.5	268	18	24.3	Little	4.043182	11,045.4	36,238
					94	28	39.0	274	25	18.2	Sentinel	3.582077	3,820.1	12,533
Little Island Lighthouse, 1917	58	32	26.02	805.1	265	08	52	85	15	14	Sentinel	3.861210	7,264.6	23,834
	135	02	43.41	702.3	290	56	54	111	06	00	Gull	4.045615	11,107.5	36,442
					314	05	17	134	09	14	Lincoln	3.796694	6,261.7	20,544

Lynn Canal—Continued

Station	Latitude and longitude	Seconds in meters	Azimuth	Back azimuth	To station	Distance		
						Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″		° ′ ″	° ′ ″				
Lar,[1 2] 1917	58 37 02.99	92.5	302 06 49	122 17 57	Sentinel	4.174327	14,939.2	49,013
	135 08 18.17	293.3	327 39 41	147 44 28	Little	4.005950	10,137.9	33,261
Con,[1] 1917	58 28 44.23	1,368.5	148 59 39	328 58 20	Lincoln	3.465523	2,920.9	9,583
	134 56 32.82	531.9	189 27 12	9 28 18	Sentinel	3.879290	7,573.4	24,847
Po,[1 2] 1917	58 40 32.62	1,009.3	345 02 41	165 06 05	Sentinel	4.174728	14,953.0	49,058
	134 59 14.48	233.4	12 37 44	192 34 46	Little	4.188292	15,427.4	50,615
Bug,[1 2] 1917	58 39 41.60	1,287.2	345 54 28	165 57 19	Sentinel	4.122795	13,267.7	43,529
	134 58 35.63	574.5	16 32 22	196 28 50	Little	4.147875	14,056.4	46,117
Vanderbilt Reef Buoy,[1] 1917	58 35 23.48	726.5	311 16 36	131 21 29	Sentinel	3.869017	7,396.3	24,266
	135 00 59.56	962.2	16 56 50	196 55 22	Little	3.758860	5,739.3	18,830
Lak,[1] 1917	58 29 51.96	1,607.7	342 39 34	162 40 21	Islet	3.471173	2,959.2	9,709
	134 48 04.59	74.3	28 08 07	208 05 08	Slate	3.860410	7,251.2	23,790
End, 1921	58 47 49.349	1,527.0	287 58 04.9	108 07 54.1	Bern	4.066050	11,642.6	38,197
	135 15 22.755	365.4	312 13 06.4	132 27 15.2	Bridget	4.334833	21,618.9	70,928
			341 09 33.5	161 14 12.3	Will	4.211898	16,289.1	53,442
Pole,[1] 1921	58 47 14.89	460.7	10 01 15	189 58 18	Whid	4.283880	19,225.6	63,076
	135 04 50.92	818.0	18 56 58	198 52 36	Will	4.181067	15,172.8	49,779
Man, 1921	58 49 49.790	1,540.7	330 59 52.5	151 03 28.8	Bern	3.923415	8,383.3	27,504
	135 08 06.655	106.8	333 49 52.2	153 57 48.4	Bridget	4.308856	20,363.7	66,810
			5 17 06.8	185 15 32.9	Will	4.283936	19,228.1	63,084
Mary,[1] 1921	58 39 47.57	1,471.9	164 06 46	344 03 55	Bern	4.070044	11,750.2	38,550
	135 00 33.70	543.3	258 17 53	78 19 22	Bridget	3.234200	1,714.7	5,626
Lost,[1] 1921	58 47 53.63	1,659.5	310 17 31	130 32 48	Bridget	4.355265	22,660.3	74,345
	135 16 41.76	670.6	337 12 12	157 17 58	Will	4.226966	16,864.2	55,329

[1] No check on this position.

[2] A more accurate position for this point became available while this publication was in press

DESCRIPTIONS OF TRIANGULATION STATIONS

This list of descriptions of stations may be conveniently consulted by reference to the illustrations at the end of this publication or to the index. All azimuths given in the descriptions are reckoned continuously from true south around by west to 360°, south being 0°, west 90°, north 180°, and east 270°. Where magnetic azimuths are given they are indicated as such.

In general, except where the contrary is specifically stated, the surface and underground mark are not in contact, so that a disturbance of the surface mark will not necessarily affect the underground mark. The underground mark should be resorted to only in cases where there is evidence that the surface mark has been disturbed.

The name and dates given in each description immediately after the county refer to the chief of party by whom the station was established, the date of the establishment of the station, and the date when the station was last recovered.

Any person who finds that one of the stations herein described has been disturbed or that the description no longer fits the facts is requested to send such information to the Director, United States Coast and Geodetic Survey, Washington, D. C.

MARKING OF STATIONS

The standard disk station and reference marks referred to in the following descriptions and notes consist of a disk and shank of brass cast in one piece, as shown in Figure 2. The disk of the station mark is 90 mm. in diameter, with a hole at the center surrounded by a 20-mm. equilateral triangle, and has the following inscribed legend: "U. S. Coast and Geodetic Survey Triangulation Station. For information write to the Superintendent, Washington, D. C. $250 fine or imprisonment for disturbing this mark." On the new marks made since March, 1921, the word "Director" replaces the word "Superintendent" in the inscription. The shank is 25 mm. in diameter and 80 mm. long, with a slit at the lower end into which a wedge is inserted, so that when it is driven into a drill hole in the rock it will bulge at the bottom and hold the mark firmly in place. The marks used during the past 10 years have grooves cut around the shank instead of the slit.

The standard disk reference mark, shown in Figure 2, is the same size and shape as the station mark, with an arrow on the top in place of the triangle, which, when properly set, points to the station. The legend is the same, except the words "reference mark" take the place of the words "triangulation station."

The following notes on the marking of stations are made as general as possible in order that it may not be necessary in the field to describe small and unimportant variations:

STANDARD NOTES ON THE MARKING OF STATIONS

SURFACE MARKS

Note 1.—A standard bronze tablet set in the top of (*a*) a square block or post of concrete, (*b*) a concrete cylinder, (*c*) an irregular mass of concrete.

Note 2.—A standard bronze tablet wedged in a drill hole in outcropping bedrock, (*a*) and surrounded by a triangle chiseled in the rock, (*b*) and surrounded by a circle chiseled in the rock, (*c*) at the intersection of two lines chiseled in the rock.

Note 3.—A standard bronze tablet set in concrete in a depression in outcropping bedrock.

Note 4.—A standard bronze tablet wedged in a drill hole in a bowlder.

Note 5.—A standard bronze tablet set in concrete in a depression in a bowlder.

Note 6.—A standard bronze tablet set in concrete at the center of the top of a tile (*a*) which is embedded in the ground, (*b*) which is surrounded by a mass of concrete, (*c*) which is fastened by means of concrete to the upper end of a long wooden pile driven into the marsh, (*d*) which is set in a block of concrete and projects from 12 to 20 inches above the block.

UNDERGROUND MARKS

Note 7.—A block of concrete 3 feet below the ground containing at the center of its upper surface (*a*) a standard bronze tablet, (*b*) a copper bolt projecting slightly above the concrete, (*c*) an iron nail with the point projecting above the concrete, (*d*) a glass bottle with the neck projecting a little above the concrete, (*e*) an earthenware jug with the mouth projecting a little above the concrete.

Note 8.—In bedrock, (*a*) a standard bronze tablet wedged in a drill hole, (*b*) a standard bronze tablet set in concrete in a depression, (*c*) a copper bolt set in cement in a drill hole or depression, (*d*) an iron spike set point up in cement in a drill hole or depression.

Note 9.—In a bowlder 3 feet below the ground, (*a*) a standard bronze tablet wedged in a drill hole, (*b*) a standard bronze tablet set in concrete in a depression, (*c*) a copper bolt set with cement in a drill hole or depression, (*d*) an iron spike set with cement in a drill hole or depression.

Note 10.—Embedded in earth 3 feet below the surface of the ground, (*a*) a bottle in an upright position, (*b*) an earthenware jug in an upright position, (*c*) a brick in horizontal position with a drill hole in its upper surface.

REFERENCE MARKS

Note 11.—A standard bronze tablet with the arrow pointing toward the station set at the center of the top of (*a*) a square block or post of concrete, (*b*) a concrete cylinder, (*c*) an irregular mass of concrete.

Note 12.—A standard bronze tablet with the arrow pointing toward the station, (*a*) wedged in a drill hole in outcropping bedrock, (*b*) set in concrete in a depression in outcropping bedrock, (*c*) wedged in a drill hole in a bowlder, (*d*) set in concrete in a depression in a bowlder.

Note 13.—A standard bronze tablet with the arrow pointing toward the station set in concrete at the center of the top of a tile, (*a*) which is embedded in the ground (*b*) which is surrounded by a mass of concrete, (*c*) which is fastened by means of concrete to the upper end of a long wooden pile driven into the marsh, (*d*) which is set in a block of concrete and projects from 12 to 20 inches above the block.

WITNESS MARKS

Note 14.—A conical mound of earth surrounded by a circular trench.

Note 15.—A tree marked with (*a*) a triangular blaze with a nail at the center and each apex of the triangle, (*b*) a square blaze with a nail at the center and each corner of the square, (*c*) a blaze with a standard disk reference mark set at its center into the tree.

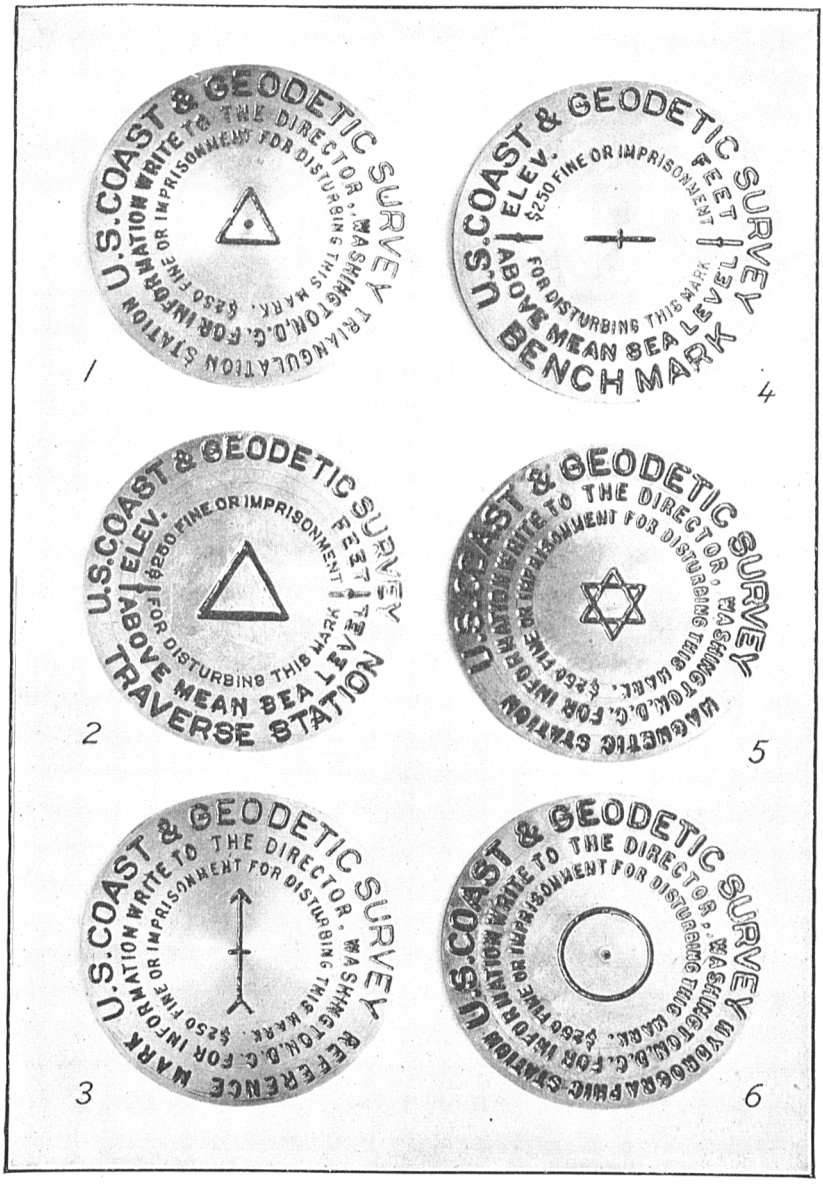

FIGURE 2.—STANDARD MARKS OF THE U. S. COAST AND GEODETIC SURVEY

1. Triangulation station mark.
2. Traverse station mark.
3. Reference mark.
4. Bench mark.
5. Magnetic station mark.
6. Hydrographic station mark.

DIXON ENTRANCE AND CLARENCE STRAIT

Principal points

Dundas (Geodetic Survey of Canada, 1914; 1915).—On the southern end of North Dundas Island, on the highest point of Mount Henry, at an elevation of 1,520 feet. The station is easily located, as the pier described below stands out against the sky line and can be seen for 10 miles To reach the station a landing must be made in the small bay immediately west of Gore Langton Point Islands. This bay is just opposite Nares Islands in Hudson Bay Pass and affords shelter to small boats. A small creek enters the bay from the west near the head, and the trail leading to the station crosses this creek at its mouth. The station is marked by a copper bolt 4 by ¾ inches set in the rock with a concrete pier 18 by 18 by 42 inches built over it; a nail was set in the top of the pier to mark the point vertically over the bolt.

Chacon (Geodetic Survey of Canada; 1924).—On Prince of Wales Island, on the highest point of Mount Nichols. The mountain is fairly easy of access. To reach the station land in the third bight on the west side of Nichols Bay. There is a huge blaze on a tree at the beach between the two small creeks emptying into the bight. From this tree a well-defined and blazed trail leads to the station. A cleared camp site is located on the trail at an elevation of about 1,350 feet. The station mark is a concrete post or monument about 18 inches square and about 42 inches above the surface of the ground. In the center of the top of the post is a cuplike depression about 2 inches in diameter and 3 inches deep. The exact location of the station is marked by the head of a nail flush with the bottom of the depression and is the fraction of an inch north and west of the center of the cuplike depression. A removable wooden plug is fitted into the depression. Two reference marks, as described in note 12a, are 17.23 meters (56.5 feet) from the station in azimuth 7° 15′, and 4.455 meters (14.62 feet) from the station in azimuth 54° 33′.

Lazaro (W. C. Dibrell, 1907; 1924).—In Dixon Entrance, on the highest point of Duke Island, and on the northwestern end of Mount Lazaro. The mountain is difficult to climb except at a few places. The most practical route is as follows: Land on the left-hand shore of the head of the bight north of the west end of Kelp Island, proceed across the burned flat to the foot of the ridge sloping to the eastward from the main mountain, mount the nose of this ridge on the south side, keeping to the green timber and avoiding the dense second growth in burned areas, follow this ridge to the top of the main ridge and thence along the main ridge northwestward to the station. West from the station a gulch runs toward the shore, and west of the gulch is a ridge with its top about 10 feet lower than the station. Near the top of the gulch a little to the south of where it forms a small saddle between the two ridges some bare rocks are found and a ledge projects about 3 feet above the ground. On the southeast face of this ledge a large triangle is formed by crevices in the rock and 1 meter west of the apex of the triangle a ½-inch iron rod is cemented into a crevice in the rock. This crevice forms with another one a very distinct cross and the rod is 0.05 meter (0.2 foot) west of the center of the cross. Due south of and about 15 feet below the station a square rock about 2 feet high with sharp edges and flat top projects above bare rock. On the top of this rock a large cross was roughly hammered ½ inch deep. The station is marked by a bronze tablet, as described in note 2. Two reference marks were set, as described in note 12a, No. 1 being near the natural triangle mentioned above 15.87 meters (52.1 feet) from the station in azimuth 69° 10′, No. 2 being in the center of the natural cross 22.50 meters (73.8 feet) from the station in azimuth 8° 56′. Witness mark No. 1, the apex of the above-mentioned triangle, is 16.75 meters (55.0 feet) from the station in azimuth 63° 50′; witness mark No. 2, the iron rod mentioned above, is 17.62 meters (57.8 feet) from the station in azimuth 65° 32′. Witness marks Nos. 3 and 4, triangular blazes on scrub hemlock trees painted white with black borders, are 5.10 meters (16.7 feet) from the station in azimuth 229° 26′ and 3.68 meters (12.1 feet) from the station in azimuth 175° 26′. This station was originally established in 1907 as a third-order station, but was reoccupied in 1921 as a first-order one.

Ken (W. C. Dibrell 1907; 1921).—On Prince of Wales Island, on one of the knolls forming the top of the prominent wooded ridge just north of Kendrick Bay, at an elevation of about 1,200 feet. There are two other large knolls about 150 feet higher, one inland from the station and the other to the northward. The side of the ridge near the station is very steep and difficult for heavy packing. To reach the station land in the small bight just north of Kendrick Bay and

For notes in regard to marking of stations see p. 40.

near exposed rock cliff, and ascend by slight ridge on right-hand side of cliff or by ravine on left-hand side of cliff. The station is marked as described in notes 1c and 8a. Reference mark No. 1, set as described in note 12a, is 43.79 meters (143.7 feet) from the station in azimuth 79° 23′. Reference mark No. 2, a reference disk cemented into a drill hole in bedrock about 16 inches below the surface of the tundra, the hole in the tundra being filled with loose rock and a mound of loose rock built over it, is 4.75 meters (15.6 feet) from the station in azimuth 142° 50′. Witness marks Nos. 1, 3, and 4, described in note 15a, are respectively, on a dead scrub jack pine 8.68 meters (28.5 feet) from the station in azimuth 317° 02′, on a small scrub cedar 10.16 meters (33.3 feet) from the station in azimuth 92° 18′, and on a small scrub jack pine 4.45 meters (14.6 feet) from the station in azimuth 209° 24′. Witness mark No. 2, on a dead jack-pine stump, is 8.99 meters (29.5 feet) from the station in azimuth 38° 17′. Three other witness marks are placed as follows: Blaze on tree toward Mount Nichols 8.73 meters (28.6 feet), blaze on tree southward 8.42 meters (27.6 feet), and blaze on tree northeastward 4.15 meters (13.6 feet) from the station. This station was established in 1907 as a third-order station, but was reoccupied in 1921 as a first-order one.

Seal (W. C. Dibrell, 1907; 1923).—On the southwest end of the larger of the Percy Islands on a base point of rocks about 15 feet above high water. Difficulty in landing at this station will be experienced except in northerly or smooth weather. In 1921 a trail was blazed across the island from the old cabins on the north side to the station to enable the light keeper to get to the station in any weather. The station is marked as described in note 2. Reference mark No. 1, as described in note 8c, is 0.568 meter (1.86 feet) from the station in azimuth 46° 16′. Reference mark No. 2, as described in note 12a, is 4.70 meters (15.4 feet) from the station in azimuth 334° 28′. Witness marks No. 1 and No. 2, as described in note 15a, are, respectively, 37.72 meters (123.8 feet) from the station in azimuth 204° 13′, and 36.25 meters (118.9 feet) from the station in azimuth 224° 25′. This station was established in 1907 as a third-order station, but was reoccupied in 1921 as a first-order one.

Duncan (Ferdinand Westdahl, 1912; 1921).—On the southwest part of Annette Island, off the first point north of Point Davisson, on about the center and the highest part of rocky high-water islet, and just outside two stunted spruce trees. The station is marked as described in note 2. Reference marks No. 1 and No. 2, as described in note 12a, are set, respectively, 11.23 meters (36.8 feet) from the station in azimuth 78° 47′ and 11.12 meters (36.5 feet) from the station in azimuth 150° 18′. Witness mark No. 1, a small pinnacle outcrop of white quartz, the only white quartz solid with the rock, is 30.20 meters (99.1 feet) from the station in azimuth 48° 49′. Witness mark No. 2, as described in note 15a, is on a hemlock tree on the next islet inshore, 52.41 meters (171.9 feet) from the station in azimuth 277° 45′ 18″. The station was first established in 1912 as a third-order station, but was reoccupied in 1921 as a first-order one.

Ingraham (Ferdinand Westdahl, 1912; 1924).—On the west side of Clarence Strait, on Prince of Wales Island, on the most prominent shoulder on the east end of the high ridge north of Ingraham Bay, at an elevation of about 1,550 feet. To reach the station land at the creek south of the outer end of Polk Island and follow the slight ridge at left of creek. The station is marked as described in note 1b. The underground mark is a bottle filled with cement and cemented to bedrock about 1½ feet below the surface of the ground. Reference marks No. 1 and No. 2, as described in note 12, are in the tops of hemlock stumps 8.74 meters (28.7 feet) from the station in azimuth 163° 30′, and 2.765 meters (9.07 feet) from the station in azimuth 317° 11′. Witness mark No. 1, as described in note 15a, is on a hemlock tree 7.26 meters (23.8 feet) from the station in azimuth 45° 58′, and witness mark No. 2, as described in note 15b, is on a hemlock tree 5.69 meters (18.7 feet) from the station in azimuth 98° 07′. The station was first established in 1912 as a third-order station, but reoccupied in 1921 as a first-order one.

Wedge (Ferdinand Westdahl, 1912; 1924).—On the west side of Clarence Strait, off the east coast of Prince of Wales Island, on the northeast point of the wooded islet northeastward of the largest of the Wedge Islands, and about 15 feet above high water. The point is very rough and rocky. The station is marked as described in note 1c. Reference mark No. 1, a copper bolt cemented in solid rock, is 5.93 meters (19.5 feet) from the station in azimuth 358° 34′. Reference mark No. 2, as described in note 12a, is 3.31 meters (10.9 feet) from the station in azimuth 83° 44′. Witness marks No. 1 and No. 3, as described

For notes in regard to marking of stations see p. 40.

in note 15, are, respectively, 13.08 meters (42.9 feet) from the station in azimuth 65° 44′ and 31.92 meters (104.7 feet) from the station in azimuth 29° 26′. Witness mark No. 2, as described in note 15a, is 22.64 meters (74.3 feet) from the station in azimuth 36° 19′. Two other blazed trees are about 30 and 50 feet southward of witness mark No. 1. This station was first occupied in 1912 as a third-order station, but was reoccupied in 1921 as a first-order one.

Head (J. Senior, 1924).—In Clarence Strait, on the southern extremity of Gravina Island, on a small knoll immediately back of Dall Head. The knoll is the highest ground in an area of burnt-over timber, is about 300 feet high, lies approximately ½ mile back of the extreme outer point of Dall Head, and is fairly prominent from seaward, consisting of base, white granite rock, with only a few dead trees thereon. To reach the station land in the small cove on the east side of point, between small islets (not Dall Bay). After penetrating the heavy underbrush near shore, the knoll is soon visible and easily accessible. The station is marked as described in note 5. Reference marks No. 1 and No. 2, as described in note 12d, are, respectively, 5.31 meters (17.4 feet) from the station in azimuth 282° 05′, and 4.41 meters (14.5 feet) from the station in azimuth 118° 41′.

Hid (J. Senior, 1924).—In Clarence Strait, about ½ mile north of Duncan Point, on the extreme western end of Annette Island, near the southern part of a projecting point, on a prominent knoll sparsely covered with grass, and approximately 10 feet above higher high water. Some scrubby trees are directly back of the station on lower ground. The station is marked as described in note 3. Reference marks No. 1 and No. 2 are set as described in note 12b, No. 1 is on a prominent knoll to seaward, at about the same elevation as the station, in azimuth 61° 22′ 50″; No. 2 is about 4 feet lower than the station in azimuth 263° 38′ 50″. No distances to the reference marks were recorded.

McCartey (J. Senior, 1924).—On the northeasternmost islet of the Point McCartey group of islets, on a grass-covered knoll about 15 feet above higher high water. The islet is connected at low water with the small wooded island to the eastward (not the one on which the light is located). McCartey Light is not visible from the station. The station is marked as described in note 3. Reference marks No. 1 and No. 2, as described in note 12b, are, respectively, 5.08 meters (16.7 feet) from the station in azimuth 139° 25′ 54″ and 22.38 meters (73.4 feet) from the station in azimuth 286° 30′ 17″.

Burt (J. Senior, 1924).—In Clarence Strait, on the southwestern extremity of Warburton Island, about 100 meters (328 feet) west of the light, about 30 meters (98 feet) from the tree line, and approximately 20 feet above higher high water. Bedrock in the vicinity of the station is rugged and deeply creviced, and will become covered with grass and moss in time. The station is marked as described in note 2. Reference marks No. 1 and No. 2, as described in note 12b, are set in crevices of bedrock at approximately the same elevation as the station; No. 1 is on a high prominent knoll of bare rock on the extreme southwestern point of the island, 2.97 meters (9.7 feet) from the station in azimuth 207° 06′ 31″, and No. 2 is 10.99 meters (36.1 feet) from the station in azimuth 239° 18′ 34″.

Metlakatla south base (J. Senior, 1924).—In Clarence Strait, on Annette Island, on the extreme outermost part of Cedar Point, on a flat part of bedrock which is 75 meters (246 feet) outside the high-water line and is covered about 2 feet at high water. The entire point is covered at high water. The station is marked as described in note 5. Reference marks No. 1 and No. 2 are set as described in note 12b; No. 1 is on top of a cone-shaped rock on the offshore side of and 16.09 meters (52.8 feet) from the station in azimuth 31° 14′ 08″; No. 2 is on top of a table-shaped rock on the inshore side of and 31.09 meters (102.0 feet) from the station in azimuth 276° 07′ 08″.

Metlakatla north base (J. Senior, 1924).—In Clarence Strait, on Annette Island, on the most northeasterly point of an extensive reef covered at half tide, which projects from the south entrance point to Port Chester (Metlakatla). The reef is joined to the mainland at low water by a long, crescent-shaped sand bar, which bares at about mid-tide. Station is on top of a small irregular-shaped knoll and about 10 meters (33 feet) west of the highest part of the reef. The station, marked as described in note 3, will be covered over with sand and barnacles in time, but should remain intact for many years. No reference marks were set since permanency in marking could not be obtained, nor would reference marks be of assistance in locating the station.

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Dall (Ferdinand Westdahl, 1912; 1921).—On the east side of Clarence Strait, on the west shore of Gravina Island, on the highest rocky butte on the south shore of the second of the two little bays north of Dall Head, and about 400 feet in elevation. To reach the station, land in the northern arm of the southern of the two bays. From the head of this arm a valley leads between rocky buttes to the foot of the highest butte. Access is difficult from any other landing on account of the dense small growth which fringes the adjacent shores except at this point. The station is marked as described in note 1c. Reference marks No. 1 and No. 2 are set as described in note 12a, 17.77 meters (58.3 feet) horizontal from the station in azimuth 147° 19′, and 2.96 meters (9.7 feet) horizontal from the station in azimuth 69° 41′. Witness mark No. 1, as described in note 15a, is on a small dead yellow cedar tree, 12.62 meters (41.4 feet) inclined from the station in azimuth 179° 17′. Witness mark No. 2, as described in note 15b, is on a small yellow cedar stump, 19.45 meters (63.8 feet) inclined from the station in azimuth 333° 45′. This station was first established in 1912 as a third-order station, but was reoccupied in 1921 as a first-order one.

Slide (Ferdinand Westdahl, 1912; 1921).—On the east side of Clarence Strait, Gravina Island, on the shoulder of the high ridge running northwesterly from the highest peak on Dall Head, on the most southerly of three knolls about 3 feet northwest of a small rocky wall running northeast and southwest, at an elevation of about 1,550 feet. The station is marked as described in note 1b. The underground mark is a copper bolt cemented into a drill hole in bedrock and is in contact with the surface mark. Reference marks No. 1 and No. 2, as described in note 12a, are 1.355 meters (4.45 feet) horizontal from the station in azimuth 338° 30′, and 9.46 meters (31.0 feet) horizontal from the station in azimuth 23° 25′. Witness mark No. 1, as described in note 15a, is on a scrub hemlock tree 5.15 meters (16.9 feet) inclined from the station in azimuth 302° 11′. Witness mark No. 2, as described in note 15, is on a small jack-pine stump 10.80 meters (35.4 feet) inclined from the station in azimuth 17° 08′. Witness mark No. 3, as described in note 15a, is on a scrub jack-pine tree, 10.95 meters (35.9 feet) horizontal from the station in azimuth 174° 35′. The station was first established in 1912 as a third-order station, but was reoccupied in 1921 as a first-order one.

South Chasina (Ferdinand Westdahl, 1912; 1921).—On the west side of Clarence Strait, on Prince of Wales Island, on the most northern outlying point on the Chasina Peninsula which sees the outer tangent of Wedge Islands. The point is low and is an islet at extreme high water. The station is marked by a ½-inch copper rod cemented into solid rock, which is low and flat with bowlders to the north and east, and is about 20 meters (66 feet) west of the high-water line. Reference marks No. 1 and No. 2, as described in note 12c, are respectively, 9.86 meters (32.3 feet) from the station in azimuth 60° 36′ and 5.10 meters (16.7 feet) from the station in azimuth 313° 36′. Witness mark No. 1, a painted white triangle with black border on pinnacle rock and with shallow drill holes at triangle corners, is 3.70 meters (12.1 feet) from the station in azimuth 148° 06′. Witness mark No. 2, similar to No. 1, is on a rock having a flat vertical face toward the station and is 8.775 meters (28.79 feet) from the station in azimuth 178° 59′. The station was first established as a third-order station, but was reoccupied in 1921 as a first-order one.

Gravina (Ferdinand Westdahl, 1912; 1921).—On the east side of Clarence Strait, on the west side of Gravina Island, on the first prominent point south of South Vallenar. A rocky flat makes out just to the southward which is bare at low water. The station is marked as described in note 1c and is about 4 feet above high water and about 45 feet out from the timber line. The underground station mark is a ½-inch copper rod cemented into a drill hole in the rock. Reference marks No. 1 and No. 2 as described in note 12a, are respectively, 0.61 meter (2.0 feet) horizontal from the station in azimuth 98° 58′, and 13.66 meters (44.8 feet) horizontal from the station in azimuth 192° 37′. Witness marks No. 1 and No. 2 (No. 2 being the smaller), as described in note 15a, are in fir trees, respectively, 19.51 meters (64.0 feet) inclined from the station in azimuth 282° 53′ and 14.75 meters (48.4 feet) horizontal from the station in azimuth 241° 28′. The station was first occupied in 1912 as a third-order station, but was reoccupied in 1921 as a first-order one.

North Chasina (Ferdinand Westdahl, 1912; 1921).—On Prince of Wales Island, Clarence Strait, on the outer point of a small wooded high-water islet just offshore east of Chasina Point, about 12 feet above high water. The station is marked as described in note 1b. The underground station mark is a glass bottle

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set in an irregular mass of concrete sunk about 30 inches below the surface of the earth. There are about 6 inches of earth between the surface and underground marks. Reference marks No. 1 and No. 2, as described in note 12a, are, respectively, 10.35 meters (34.0 feet) from the station in azimuth 157° 49′, and 9.33 meters (30.6 feet) from the station in azimuth 230° 50′. Witness mark No. 1, as described in note 15a, is in a large cedar tree 5.175 meters (16.98 feet) from the station in azimuth 20° 01′, and witness mark No. 2, as described in note 15b, is in a spruce stump 5.545 meters (18.19 feet) from the station in azimuth 309° 55′. The station was first established as a third-order station in 1912, but was reoccupied in 1921 as a first-order one.

Skin (Ferdinand Westdahl, 1912; 1921).—On the west side of Clarence Strait near the entrance to Cholmondeley Sound, on the northeast end of Skin Island, about 70 meters (230 feet) northward from Skin Island Light, on the middle of three small projections, on the granite ledge just outside the tree line, and about 10 feet above high water. Three fallen trees lie on the rocks close to the station. The station is marked as described in note 1c. The underground station mark is a ½-inch copper rod cemented in solid rock, and is in contact with the surface mark. Reference marks No. 1 and No. 2, as described in note 12a, are, respectively, 4.515 meters (14.81 feet) from the station in azimuth 261° 13′ and 10.795 meters (35.42 feet) from the station in azimuth 126° 38′. Witness marks, No. 1 and No. 2, as described in note 15a, are in spruce trees, respectively, 3.23 meters (10.6 feet) from the station in azimuth 55° 59′ and 5.43 meters (17.8 feet) from the station in azimuth 3° 10′. The station was first occupied in 1912 as a third-order station, but was reoccupied in 1921 as a first-order one.

South Vallenar (Ferdinand Westdahl, 1912; 1929).—On the east side of Clarence Strait, on the northwest part of Gravina Island, on South Vallenar Point which forms the southwest entrance to Vallenar Bay. The point is a rocky ledge, and the station is about 50 meters (164 feet) south of the point, only a few feet above high water. A large fallen tree lies a few feet southeast of the station. The station is marked as described in note 2a. The underground station mark is a ½-inch copper bolt cemented into a drill hole in the rock, and is in contact with the surface mark. Reference marks No. 1 and No. 2, as described in note 12a, are, respectively, 2.88 meters (9.4 feet) from the station in azimuth 86° 36′ and 18.84 meters (61.8 feet) from the station in azimuth 355° 05′. Witness marks No. 1 and No. 2, as described in note 15a, are in hemlock trees, respectively, 17.00 meters (55.8 feet) from the station in azimuth 211° 59′ and 51.90 meters (170.3 feet) from the station in azimuth 344° 37′. The station was first established in 1912 as a third-order station, but was reoccupied in 1921 as a first-order station.

High Island (Ferdinand Westdahl, 1912; 1929).—Off the east coast of Prince of Wales Island, on the east shore of a small islet just to the southeast of High Island, in the entrance to Kasaan Bay, on a flat rock about 35 feet above high water. The station is marked as described in note 1c. The underground mark is a ½-inch copper bolt cemented into a drill hole in rock and is in contact with the surface mark. Reference marks No. 1 and No. 2, as described in note 12a, are, respectively, 10.98 meters (36.0 feet) from the station in azimuth 19° 44′, and 10.95 meters (35.9 feet) from the station in azimuth 162° 05′. Witness mark No. 1, as described in note 15a, is on a spruce tree 27.00 meters (88.6 feet) from the station in azimuth 61° 27′. Witness mark No. 2, as described in note 15b, is on a spruce tree, 15.33 meters (50.3 feet) from the station in azimuth 92° 07′. The station was first established in 1912 as a third-order station, but was reoccupied in 1921 as a first-order one.

Guard Island (J. H. Hawley, 1921; 1929).—On the east side of Clarence Strait, on the west end of Tongass Narrows, on the most westerly point of the larger of the Guard Islands, 2.1 meters (7 feet) east of edge of vertical cliff, and about 35 feet above high water. The highest part of the island is about 3 feet higher than the station. The island is partly wooded and the station does not see to eastward. There are a few scrub spruce trees about 15 feet tall a few meters southeast of the station. The Guard Island Lighthouse is on this island. The station is marked as described in note 2a. Reference marks No. 1 and No. 2, as described in note 12a, are, respectively, 6.45 meters (21.2 feet) from the station in azimuth 325° 20′, and 13.46 meters (44.2 feet) from the station in azimuth 193° 56′. Witness mark No. 1 is the head of a spike driven into the top of a hemlock stump 3.85 meters (12.6 feet) from the station in azimuth 150° 01′. The Guard Island temporary lighthouse is in azimuth 211° 32′.

Caamano (Ferdinand Westdahl, 1912; 1922).—On Cleveland Peninsula, on the most westerly projection of the several projections which form Caamano Point.

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A bare rock lies off the station to the southeast. The station sees up the east side of Clarence Strait, is about 3 feet east of the perpendicular side of a deep gully running into the point, and about 15 feet above high water. Caamano Point is rough and rocky, tidal currents run swiftly past the point, and there are usually strong tide rips off the point. Landing is difficult or impossible with southeast or southwest winds prevailing. The station is marked as described in note 1c. The underground station mark is a ½-inch copper bolt cemented into a drill hole in the rock and is in contact with the surface mark. Reference marks No. 1, No. 2, and No. 3, as described in note 12a, are, respectively, 0.82 meter (2.7 feet) from the station in azimuth 13°, 19.23 meters (63.1 feet) from the station in azimuth 157° 37′, and 11.03 meters (36.2 feet) from the station in azimuth 314° 41′. No. 3 is not stamped. Witness mark No. 1, as described in note 15a, is on a spruce tree, 31.76 meters (104.2 feet) from the station in azimuth 186° 41′. Witness mark No. 2, as described in note 15b, is on a spruce tree, 28.20 meters (92.5 feet) from the station in azimuth 197° 25′. The station was first established in 1912 as a third-order station, but was reoccupied in 1921 as a first-order one.

Approach (Grindall 2) (J. A. Daniels, 1915; 1924).—On the west side of Clarence Strait, on the northeast point of Grindall Island, about 4 feet above high water. A small cove with shoal sandy bottom and gravel beach lies just west of the point. The station is marked as described in note 2. There is no underground mark. Reference marks No. 1, No. 2, and No. 3, as described in note 12a, are, respectively 4.14 meters (13.6 feet) from the station in azimuth 93° 15′. 11.81 meters (38.7 feet) from the station in azimuth 171° 19′, and 12.60 meters (41.3 feet) from the station in azimuth 238° 28′. Reference mark No. 4, a ½-inch brass rod cemented in the vertical face of rock and pointing toward the station, is 20.26 meters (66.5 feet) from the station in azimuth 321° 12′. Witness marks No. 1 and No. 2, as described in note 15, are on spruce trees, respectively 33.33 meters (109.4 feet) from the station in azimuth 354° 59′, and 76.15 meters (249.8 feet) from the station in azimuth 20° 21′. The station was first established in 1915 as a third-order station, but was reoccupied in 1921 as a first-order one.

Hid (J. A. Daniels, 1915; 1922).—On the western side of Clarence Strait, on Prince of Wales Island, about 3 miles north of Streets Island and about ¾ mile inshore, on a hill which is not very prominent but whose point of entry or foot is marked by a small creek and a gravel beach. Just north of this creek and not very far inshore is a partially bare knoll. To reach the station leave the creek on the right hand and follow the ridge, passing through a meadow to a tall cliff. From here follow a gully uphill just south of the cliff. The station can also be reached from the beach by following about 100 meters (328 feet) to the north and west of the small stream referred to above, thence across the meadow, and to the left up the gully. From the station Lemesurier Point is on range with the very sharp peak to the north. The station is marked by a ½-inch brass bolt cemented in a granite rock, the greater part of which is covered with moss. About 50 meters (164 feet) east of the station on a granite knob, about 18 feet across and 15 feet high, is cemented a ½-inch brass bolt lying flat and pointing toward the station. Just west of the station is a larger granite knob. The station was first established in 1915 as a third-order station, but was reoccupied in 1921 as a first-order one.

Pen (J. A. Daniels, 1915; 1922).—On the east shore of Clarence Strait, on Cleveland Peninsula, on the second prominent point north of Caamano Point. Lyman Point is on range with highest peak on west side of Clarence Strait, and Niblack Point is on range with the first saddle west of Tolstoi Point. The station is marked as described in note 2. Reference mark No. 1, as described in note 12a, is 26.23 meters (86.1 feet) from the station in azimuth 304° 50′ 17″. Witness mark No. 1, a plain blaze in a 14-inch spruce tree, is 11.47 meters (37.6 feet) from the station in azimuth 198° 25′. Witness mark No. 2, nails driven into a triangular blaze and covered with patch of neat cement resting on the bottom of blaze, is 23.51 meters (77.1 feet) from the station in azimuth 242° 23′. The station was first established in 1915 as a third-order station, but was reoccupied in 1921 as a first-order one.

Had (J. A. Daniels, 1915; 1922).—On the west shore of Clarence Strait, on Prince of Wales Island, on the easternmost part of Lyman Point which marks the entrance to Hadley Harbor. Caamano Point is open a little to the north of a line to a nearly vertical cliff and mountain on Revillagigedo Island. The station is marked as described in note 2. Reference mark No. 1, as described in note 12a, is in a 1-meter square pink granite rock 14.325 meters (47.00 feet) from the station in azimuth 173° 56′ 48″. Witness mark No. 1, as described in note

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15a, is in an 8-inch spruce tree, 11.48 meters (37.7 feet) from the station in azimuth 46° 55′. Witness mark No. 2 is a plain blaze in a 24-inch spruce tree, 7.93 meters (26.0 feet) from the station in azimuth 108° 29′. The station was first established in 1915 as a third-order station, but was reoccupied in 1921 as a first-order one.

Goat (J. A. Daniels, 1915; 1922).—On the east shore of Clarence Strait, on Cleveland Peninsula, on a shoulder about two-thirds of the way to the top of the highest peak, somewhat below the timber line, and about 2,000 feet high. A point on shore abreast of the station is about 1½ miles southeast from Ship Island Light. The station sees Ship Island to the northwest, and the small rocky peninsula about 5 miles northwest of Caamano Point upon which triangulation station Pen is located. The station is best reached by way of a prominent landslide which is at a point on the mountain side near the elevation of the station and from ¼ to ½ mile northwest from it. The slide is easily seen from the shore and from a point abreast in Clarence Strait. A good stream (melted snow) passes about 50 meters (164 feet) east of the station and affords a good camp site. The station was marked as described in note 2. In 1922 a reference mark was set in a drill hole in a rocky ledge 12.480 meters (40.94 feet) from the station in azimuth 223° 45′ 48″. The station was first established in 1915 as a third-order station, but was reoccupied in 1922 as a first-order one.

Pet (J. A. Daniels, 1915; 1922).—On the west shore of Clarence Strait, on Prince of Wales Island, about 3¾ miles north of *Had*, on the first point south of Windfall Harbor that sees *Had*, and about 6 meters (20 feet) above high water. The station is marked as described in note 3. Reference mark No. 1, as described in note 12b, is 17.65 meters (57.9 feet) from the station in azimuth 339° 18′ 27″. Witness mark No. 1, as described in note 15a, is 7.9 meters (26 feet) from the station in azimuth 71° 27′. The station was first established in 1915 as a third-order station, but was reoccupied in 1922 as a first-order one.

Ship (J. A. Daniels, 1915; 1923).—On the east shore of Clarence Strait, on the west end of Ship Island, 6 meters (20 feet) back from high water. The station was marked as described in note 2. Reference mark No. 1, as described in note 12a, is 17.67 meters (58.0 feet) from the station in azimuth 323° 18′. Ship Island blinker is 29.41 meters (96.5 feet)from the station in azimuth 206° 06′ 11″. The station was first established in 1915 as a third-order station, but was reoccupied in 1922 as a first-order one.

Stoi (J. A. Daniels, 1915; 1922).—On the west shore of Clarence Strait, on Prince of Wales Island, about 2 miles south of Tolstoi Point, on a bare rocky island 40 meters (131 feet) long. The station is marked as described in note 2. A reference mark set in 1915, on the highest point of rock but stamped "Stoi 1922," and described in note 12b, is 17.68 meters (58.0 feet) from the station in azimuth 134° 04′ 14″. The station was first established in 1915 as a third-order station, but was reoccupied in 1922 as a first-order station. In 1922 a drill hole was found which answered closely to the original description and which seemed to be the logical place for the station. The station mark and cement had been washed away but it is reasonably certain that the old location was recovered.

Sly (J. A. Daniels, 1915; 1923).—On the east shore of Clarence Strait, on Cleveland Peninsula, about 4½ miles north of Ship Island, on the north end of a point composed of broken slate and shale, about 12 meters (39 feet) from high water. Inshore from the station is shale rock 1.2 meters (3.9 feet) square on top with a ⅛-inch covering of quartz. The station is marked as described in note 1c. Reference mark No. 1, as described in note 12b, is 35.30 meters (115.8 feet) from the station in azimuth 216° 13′ 46″. Reference mark No. 2, as described in note 12a, is on line with edge of cliff to southward and 29.89 meters (98.1 feet) from the station in azimuth 329° 10′ 57″. Witness marks No. 1 and No. 2 are, respectively, 6.7 meters (22.0 feet) from the station in azimuth 224° 24′, and 37.35 meters (122.5 feet) from the station in azimuth 308° 26′. The station was first established in 1915 as a third-order station, but was reoccupied in 1923 as a first-order one.

Tol (J. A. Daniels, 1915; 1922).—On Prince of Wales Island, about ⅝ mile south of Tolstoi Point, on a rock which is an island at high water, adjoining a steep shore. The rock is grayish in color. The station is marked by a ½-inch brass bolt set in a drill hole. Reference mark No. 1, as described in note 12a, is 19.77 meters (64.9 feet) from the station. The station was first established in 1915 as a third-order station, but was reoccupied in 1922 as a first-order one.

Mis (J. A. Daniels, 1915; 1922).—On the east shore of Clarence Strait, on Misery Island, on south extremity of steep rocky shore. When approaching from

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the south, the station is on the first ledge which sees Onslow Island. Trees have grown to the edge of the steep cliff. The station is marked as described in note 2. Reference mark No. 1, a ½-inch bolt set horizontally in cliff inshore, is 4.18 meters (13.7 feet) from the station in azimuth 239° 49′ 04″. The station was first established in 1915 as a third-order station, but was reoccupied in 1922 as a first-order one.

Nar (J. A. Daniels, 1915; 1922).—On the west shore of Clarence Strait, on Prince of Wales Island, on the highest point of rocky cliff at Narrow Point, 12.2 meters (40 feet) above high water, adjoining east side of house to be used for a blinker light. The station is marked as described in note 2. Reference mark No. 1, as described in note 15a, is 7.63 meters (25.0 feet) from the station in azimuth 35° 39′ 26″. The center of house is 1.635 meters (5.36 feet) from the station in azimuth 77° 45′. The station was first established in 1915 as a third-order station, but was reoccupied in 1922 as a first-order one.

Sal (J. A. Daniels, 1915; 1922).—On the west shore of Clarence Strait, on Prince of Wales Island, on first prominent rocky point about 1¾ miles north of Narrow Point. On a flat top rock 4.3 meters (14.1 feet) across, 6.1 meters (20.0 feet) above high water, about 9 meters (30 feet) back from east side and 15 meters (49 feet) back from north side of point. The first small wooded island south of Onslow Point is on range with the highest peak on the east shore of Ernest Sound. Inshore and 300 meters (984 feet) north is a moss-covered rocky point. The station is marked as described in note 2. Reference mark No. 1, as described in note 12a, is 20.95 meters (68.7 feet) from the station in azimuth 323° 43′ 51″. Witness mark No. 1, as described in note 15a, is 29.20 meters (95.8 feet) from the station in azimuth 55° 21′. The station was first established in 1915 as a third-order station, but was reoccupied in 1922 as a first-order one.

Ern (J. A. Daniels, 1915; 1922.)—On the east shore of Clarence Strait, on Onslow Island, on offshore end of bare rocky island 200 meters (656 feet) north of Ernest Point. This island is readily identified from the bright sandstone on the main shore. The inshore end of the island had to be eccentrically occupied in order to see past a bare island ¼ mile north to triangulation station *Double*. The station is marked as described in note 2. Reference mark No. 1, as described in note 12b, is 7.58 meters (24.9 feet) from the station in azimuth 144° 54′ 27″. Reference mark No. 2, as described in note 12a, is 33.475 meters (109.83 feet) from the station in azimuth 241° 42′ 14″. Bright sandstone is 165 meters (541 feet) from the station in azimuth 225° 12′. The station was first established in 1915 as a third-order station, but was reoccupied in 1922 as a first-order one.

Ratz (J. A. Daniels, 1915; 1922).—On the west side of Clarence Strait, on Prince of Wales Island, on a very sharp point which appears as an island from the south. There is a deep cut north of the station. The station is marked as described in note 2. Reference mark No. 1, as described in note 12a, is 20.985 meters (68.85 feet) from the station in azimuth 167° 45′ 28″. Witness mark No. 1, as described in note 15a, is 17.73 meters (58.2 feet) from the station in azimuth 64° 15′ 34″. The station was first established in 1915 as a third-order station, but was reoccupied in 1922 as a first-order one.

Double (J. A. Daniels, 1915; 1922).—On the east shore of Clarence Strait, on Double Island, on a very rugged point at the south end of the middle and largest of three islands, on a sloping granite face. High water fills the cut between the station and reference marks. The station is marked as described in note 2. Reference mark No. 1, as described in note 12a, is 21.418 meters (70.27 feet) from the station in azimuth 299° 25′ 00″. Witness mark No. 1, as described in note 15a, is in a 24-inch spruce tree 13.31 meters (43.7 feet) from the station in azimuth 188° 27′. The station was first established in 1915 as a third-order station, but was reoccupied in 1922 as a first-order one.

Luck (Luck Point south base) (J. A. Daniels, 1915; 1924).—On the west shore of Clarence Strait, on Prince of Wales Island, in a steep ledge of conglomerate, close to high water, and 12 meters (39 feet) from the tree line. The station is marked as described in note 2. Two trees, one to the west, the other to the southwest of the station, were blazed but no distances are given. The station was first established in 1915 as a third-order station, but was reoccupied in 1922 as a first-order one.

Stanhope (J. A. Daniels, 1915; 1924).—On the east shore of Clarence Strait, on a small island just off the south extremity of Stanhope Island, 8 meters (26 feet) back from high water, but covered at extreme high water. The station is marked as described in note 2. Reference mark No. 1, as described in note 12a, is 12.27 meters (40.3 feet) from the station in azimuth 234° 55′ 40″. Witness

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mark No. 1, as described in note 15a, is 13.2 meters (43.3 feet) from the station in azimuth 208° 11′. A rock is 31.5 meters (103 feet) from the station in azimuth 281° 10′.

Luck Point north base (J. Senior, 1924).—In Clarence Strait, on Prince of Wales Island, on the northern part of a projecting rocky point about 4 miles northwest of Luck Point, about 5½ miles south-southwest of Lincoln Rock Lighthouse, on a slightly elevated knoll of black bedrock, approximately on the high high-water line, and about 50 meters (164 feet) from the tree line. North of the point is an indentation in the shore line, forming a shallow bay. The station is marked as described in note 3. Reference mark No. 1, as described in note 12b, is on a small knoll of black rock at about the high high-water line, about 40 meters (131 feet) from the tree line and 34.12 meters (111.9 feet) from the station in azimuth 344° 25′ 06″. Reference mark No. 2, as described in note 12b, is on a large outcrop of bedrock about 2 feet higher than the station, about 50 meters (164 feet) from the tree line, and 23.29 meters (76.4 feet) from the station in azimuth 114° 34′ 07″.

Lincoln (J. A. Daniels, 1915; 1924).—On the east shore of Clarence Strait, off Etolin Island on Lincoln Rock, in the heavy concrete foundation of the Lincoln Rock Light. The station is marked as described in note 1c. No reference marks were set. The station was first established in 1915 as a third-order station, but was reoccupied in 1922 as a first-order one.

Coffman (J. A. Daniels, 1915; 1922).—On the west shore of Clarence Strait, on the northeast end of Coffman Island, 1.5 meters (5 feet) above high water. The station is marked as described in note 2. Reference mark No. 1, as described in note 12a, is 6.038 meters (19.81 feet) from the station in aximuth 313° 38′ 30″. Witness mark No. 1, as described in note 15a, is 69.2 meters (227 feet) from the station in azimuth 353° 04′ 30″. The station was first established in 1915 as a third-order station, but was reoccupied in 1922 as a first-order one.

Blash (J. A. Daniels, 1915; 1922).—On the west shore of Clarence Strait, on the east side of the small island just southeast of Blashke Island, on the southern of two high dark-colored cliffs, 7.6 meters (24.9 feet) above high water. Bluff Island shows just clear of some dead branches on the cliff about 50 meters (164 feet) to the north. The station is marked as described in note 2. Reference mark No. 1, as described in note 12a, is 6.90 meters (22.6 feet) from the station in azimuth 351° 31′ 35″. Witness mark No. 1, as described in note 15a, is in a 10-inch spruce tree, 7.59 meters (24.9 feet) from the station in aximuth 118° 41′ 32″. The station was first established in 1915 as a third-order station, but was reoccupied in 1922 as a first-order one.

Marsh (J. A. Daniels, 1915; 1922).—On the east shore of Clarence Strait, on a rocky point on the west side of Marsh Island. The station is marked as described in note 2. Reference mark No. 1, as described in note 12a, is 18.035 meters (59.17 feet) from the station in azimuth 169° 38′ 28″. Witness mark No. 1, as described in note 15a, is in a 30-inch cedar tree, 19.0 meters (62 feet) from the station in azimuth 276° 54′ 06″. The station was first established in 1915 as a third-order station, but was reoccupied in 1922 as a first-order one.

Bluff (J. A. Daniels, 1915; 1922).—On the west shore of Clarence Strait, on a rock off the east shore of Bluff Island, which is an island at half tide. Snow Pass Light is on range with tangent of Shrubby Island. The station is marked as described in note 2. Reference mark No. 1, as described in note 12a, is 13.285 meters (43.59 feet) from the station in azimuth 104° 53′. Witness mark No. 1 is a plain blaze on the main shore of Bluff Island about 40 meters (131 feet) from the station in azimuth 64° 08′. The station was first established in 1915 as a third-order station, but was reoccupied in 1922 as a first-order one.

Harrington (J. A. Daniels, 1915; 1922).—On the east shore of Clarence Strait, on the westernmost point of Observation Island, the only point which sees triangulation station *Marsh*. Another point, 1½ miles south is in range with *Marsh*. The station is marked as described in note 2. Reference mark No. 1, as described in note 12a, is 22.29 meters (73.1 feet) from the station in azimuth 198° 11′ 26″. Reference mark No. 2 is a drill hole in the larger of two granite bowlders in a hollow of the rocks, 7.78 meters (25.5 feet) from the station in azimuth 305° 15′ 04″. This bowlder has a very noticeable quartz ridge on its top and sides. The station was first established in 1915 as a third-order station, but was reoccupied in 1922 as a first-order one.

West (J. A. Daniels, 1915; 1922).—On the south end of Zarembo Island, on a ragged point ¾ mile east of Nesbitt Point, well back from the end of the point, 6 meters (20 feet) from the tree line, in a cavity 0.5 meter (2 feet) wide and 0.3

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meter (1 foot) deep. To the southward and eastward about 200 meters (656 feet) are two rocks that are bare at half tide. The station is marked as described in note 2. Reference Mark No. 1, as described in note 12a, is on a prominent rock on range with triangulation station *East*, 27.58 meters (90.5 feet) from the station in azimuth 250° 06′ 58″. Witness mark No. 1, as described in note 15a, is in a 14-inch spruce tree 6.27 meters (20.6 feet) from the station in azimuth 169° 14′ 56″. The station was first established in 1915 as a third-order station, but was reoccupied in 1922 as a first-order one.

Stik (J. A. Daniels, 1915; 1922).—On the east shore of Clarence Strait, on Etolin Island, on Steamer Point, on a rocky cliff on the last point toward Stikine Strait which sees Point Harrington, 8.53 meters (28.0 feet) above mean low water. The station sees up Stikine Strait inside the island on which Steamer Point Light is located. The station is marked as described in note 2. Reference mark No. 1, as described in note 12a, is on a rocky shoulder to the south 11.94 meters (39.2 feet) from the station in azimuth 14° 13′ 41″. The station was first established in 1915 as a third-order station, but was reoccupied in 1922 as a first-order one.

East (J. A. Daniels, 1915; 1922).—On the south side of Zarembo Island, on a low point composed of shale and quartz, streaks at east end of a long gravel beach, 2.1 meters (7 feet) above high water. There is a cut in the rocks 3 meters (10 feet) deep and 2.4 meters (8 feet) wide running north and south about 1.5 meters (5 feet) west of the station. A narrow cut runs close by on the east side. The station is marked as described in note 2. Reference Mark No. 1, as described in note 12a, is 19.98 meters (65.6 feet) from the station in azimuth 40° 12′ 44″. Witness mark No. 1, as described in note 15a, is in azimuth 106° 23′. The station was first established in 1915 as a third-order station, but was reoccupied in 1922 as a first-order one.

Sheer (J. A. Daniels, 1916; 1922).—In the southern end of Stikine Strait, on Zarembo Island, about 2.1 nautical miles northwest, magnetic, from Stikine Lighthouse, on a large irregular rock point which sees triangulation station *East* by clearing edge of small island off shore about ¼ mile southwest of station. It is about 8 meters (26 feet) above high-water mark. An irregular fissure in rock, 3 meters (10 feet) deep, is 2 meters (7 feet) west of station. The station is marked as described in note 2. The reference mark, as described in note 12d, is 6.982 meters (22.91 feet) from the station in azimuth 95° 22′ 18″. The witness mark, as described in note 15a, is 2.20 meters (7.2 feet) from the station in azimuth 156°. Stikine Lighthouse is in azimuth 347° 26′ 31″ and the tangent to Point Harrington is in azimuth 351° 59′ 18″.

Supplementary points

Tad (J. H. Hawley, 1921).—In Clarence Strait, on the west coast of Gravina Island, on the southwest corner of the largest island at the north end of the group of islands ½ mile northwest of Dall Head. The station is marked as described in note 3, and is 5 meters (16 feet) from high-water mark and about 25 feet above high water. Reference mark No. 1, as described in note 12b, is inshore, 2 feet higher, and bears about east (true) 5 meters (16 feet) from the station.

Dol (J. H. Hawley, 1921).—On the west coast of Clarence Strait, on the rounded point about 2 miles north of Wedge Island, on an abrupt, black, rocky shore line, about 40 feet high, and nearly at the north end of a group of rocks ¼ mile off shore. There is one rock farther to the northward. The station is marked as described in note 2. Reference mark No. 1, as described in note 12, is 7.02 meters (23.0 feet) from the station. Witness mark No. 1, as described in note 15, is 9.98 meters (32.7 feet) from the station.

Hal (J. H. Hawley, 1921).—On the west coast of Clarence Strait, between Wedge Islands and Chasina Point, on an island separated from the shore at high water only, just north of Windy Point, the local name for the most prominent point. To the northward the island slopes off in a ledge for about 150 meters (492 feet). To the northward is a large bay, and to the southward the island joins the mainland at low water and is about 30 meters (98 feet) distant. The station is marked as described in note 2. It is on a high rock about 20 meters from the trees and among a bunch of logs. Reference mark No. 1, as described in note 12, is 19.90 meters (65.3 feet) from the station in azimuth 41° 19′. Witness mark No. 1, as described in note 15, is 21.88 meters (71.8 feet) from the station in azimuth 90° 37′.

Meyer (J. H. Hawley, 1921).—On the west coast of Gravina Island, midway between Camp Bay and Nelsons Cove, about 110 meters (361 feet) from shore,

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in the middle and highest part of the island. There is a point about 150 meters (492 feet) to the northward. The station is marked as described in note 3. Reference mark No. 1, as described in note 12b, is about 2 feet lower than the station, and is 10.35 meters (34.0 feet) about south (true) from the station. Reference mark No. 2, as described in note 12b, is about 2 feet lower than the station, and is 4.68 meters (15.4 feet) east by south (true) directly inshore from the station.

Pug (J. H. Hawley, 1921).—On the west coast of Gravina Island, on the south end of a small point about 4½ miles north of Nelsons Cove, on the southern end of a rounded point, about 2½ miles south of triangulation station *Gravina*. To the southward of the point are several large rocks connected with the shore at high water, and immediately to the southward is a small bight. The station is marked as described in note 3, and is about 2 meters (7 feet) from high-water line and 15 feet above high water. To the north of the station the view is obstructed by a higher rock but the station sees well to the southward. Reference mark No. 1, as described in note 12b, is about 1 foot higher, and is 19.12 meters (62.7 feet) about north (true) from the station. Witness mark No. 1, as described in note 15, is 24.55 meters (80.5 feet) in a northerly direction from the station. Witness mark No. 2, as described in note 15, is in the edge of the woods, 19.80 meters (65.0 feet) about east (true) from the station and about 2 feet above the ground.

Clover (J. H. Hawley, 1921).—On the east coast of Prince of Wales Island, west side of Clarence Strait, on Clover Point, just north of the entrance to Clover Bay, about 4 feet above high water. On the next little point about 60 meters (197 feet) to the southward is a small cabin. The station is marked as described in note 2. Reference mark No. 1, as described in note 12a, is 17.66 meters (57.9 feet) from the station in azimuth 42° 59′. Witness mark No. 1, as described in note 15, is on a hemlock tree 42.25 meters (138.6 feet) from the station in azimuth 138° 29′.

Island Point 2 (J. H. Hawley, 1921; 1924).—On the east coast of Prince of Wales Island, close to Island Point, just north of the peninsula on the south side of the entrance to Kasaan Bay, on the northeast shore line of the islet, and about 10 feet above high water. The station mark is a standard disk reference mark stamped "Island Pt. 1921." and is a reference mark to *Island Point*, the original station. *Island Point* is 16.29 meters (53.4 feet) from the station in azimuth 63° 06′. Witness mark No. 1 is a nail in the center of an irregular blaze on a hemlock tree, 18.88 meters (61.9 feet) from the reference mark and 21.97 meters (72.1 feet) from the station in azimuth 346° 12′. There is a large cedar snag about 4 feet south of triangulation station *Island Point*.

Jay (A. M. Sobieralski, 1922).—On the east side of Clarence Strait, on Cleveland Peninsula, 2 miles north of Caamano Point, on a prominent rocky point, the north one of a double point, and so situated as to see somewhat back into the large bight to the northward. The station is well above high water and is marked as described in note 2.

Bo (A. M. Sobieralski, 1922).—On the west side of Clarence Strait, on Prince of Wales Island, on a prominent rounded point of land which is the last point which sees Street Island to the southward. The station is marked as described in note 2.

Clan (A. M. Sobieralski, 1922).—On the east side of Clarence Strait, on Cleveland Peninsula, about 1½ miles north of Niblack Point, on a prominent rocky point, on the top of the rocky bluff ledge on the last point which sees Ship Island. The station is marked as described in note 2.

Jed (A. M. Sobieralski, 1922).—On the west side of Clarence Strait, on Prince of Wales Island, about 2 miles south of station *Had*, on a little rocky island a short distance off the beach, on the last point which sees station *Had* to the northward. The station is marked as described in note 2.

Set (A. M. Sobieralski, 1922).—On the west side of Clarence Strait, on Prince of Wales Island, about 2 miles north of station *Had*, on the south side of a rocky point of land a little above high water. The station is marked as described in note 2.

Nep (A. M. Sobieralski, 1922).—In Clarence Strait, on the first prominent point of land about 1 mile north of Ship Island, on a sharp rock standing just off the tree line. The station is marked as described in note 2.

Wind (A. M. Sobieralski, 1922).—In Clarence Strait, off Prince of Wales Island, about 1 mile north of Windfell Harbor, on the southern end of a small island, in bedrock. The station is marked as described in note 2.

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Pep (A. M. Sobieralski, 1922).—In Clarence Strait, about 2½ miles north of Ship Island, on the highest point of a small rock about 500 meters (1,640 feet) offshore. The station is marked as described in note 2.

Ile (A. M. Sobieralski, 1922).—On the east shore of Clarence Strait, on Cleveland Peninsula, about 4 miles south of Meyers Chuck Lighthouse, on the outermost of three small islands off a small bay, and about 400 meters (1,312 feet) offshore. The station is marked as described in note 2.

Lil (A. M. Sobieralski, 1922).—About 50 meters (164 feet) off the east shore of Clarence Strait, on Cleveland Peninsula, about 1 mile south of Meyers Chuck Lighthouse, on the southwest side of a small island, about ¼ mile south of the high-water channel leading into Meyers Chuck, on the top edge of the rocky ledge which slopes at about 45° toward the water of the strait. The station is marked as described in note 2.

Meyers Chuck Lighthouse (A. M. Sobieralski, 1922).—On the east side of Clarence Strait, 2 miles south of Lemesurier Point, on the north side of the narrow entrance to Meyers Chuck. The station is the established light and no mark was placed.

STIKINE AND DRY STRAITS

Principal points

Steam (J. A. Daniels, 1916; 1922).—In Stikine Strait, on Steamer Point, about 5 meters (16 feet) north of Stikine Lighthouse, in a granite ledge about 4 meters (13 feet) above high water. The ledge faces toward Snow Passage. The station is marked as described in note 2. The reference mark, as described in note 12d, is 25.090 meters (82.32 feet) from the station in azimuth 224° 58′ 42″. The witness mark is a drill hole in face of rock 7.100 meters (23.29 feet) from the station in azimuth 344°. Stikine Lighthouse is 4.63 meters (15.2 feet) from the station in azimuth 329° 00′. The east tangent to Zarembo Island is in azimuth 209° 53′.

Ban (J. A. Daniels, 1916).—In Stikine Strait, on a sharp rocky point on the south side of Zarembo Island, about 2.5 nautical miles north by west by ⅛ west, magnetic, from Stikine Lighthouse, about 4 meters (13 feet) above high water, just clear of the tree line, and about 8 meters (26 feet) east of a deep fissure in rock extending back among the trees. The fissure is about 8 meters (26 feet) wide and 5 meters (16 feet) deep. The station is marked as described in note 2. The reference mark, as described in note 12d, is 15.251 meters (50.04 feet) from the station in azimuth 78° 07′ 41″. The witness mark, as described in note 15a, is 10.00 meters (32.8 feet) from the station in azimuth 183° 58′. The tangent to Steamer Point and the tangent to Zarembo Island are in azimuths 18° 21′ 50″ and 70° 39′ 10″, respectively.

Point (J. A. Daniels, 1916).—On the south side of Stikine Strait, on Etolin Island, about 1.3 nautical miles north by east, magnetic, from Stikine Lighthouse, on a sharp rocky point just east of a small narrow island in the strait, on the most westerly rocky ledge, about 1 meter (3 feet) above high water, and about 8 meters (26 feet) from the tree line. The station sees Stikine Lighthouse. It is marked as described in note 3. The reference mark, as described in note 12a, is 15.773 meters (51.75 feet) from the station in azimuth 262° 07′ 22″. The witness mark, as described in note 15a, is 10.9 meters (35.8 feet) from the station in azimuth 297°. Stikine Lighthouse and the southeast tangent to Zarembo Island are in azimuths 42° 46′ 23″ and 203° 27′, respectively.

Round (J. A. Daniels, 1916).—In Stikine Strait, on the south side of Zarembo Island, about 3.2 nautical miles north ½ west, magnetic, from Stikine Lighthouse, on the first definite point to the westward of Round Point, about 2 meters (7 feet) above high water, and 3 meters (10 feet) back from the water line. The rock is mostly slate and is confused and irregular with strata on edge. The station is marked as described in note 3. The reference mark, as described in note 12b, is 15.470 meters (50.75 feet) from the station in azimuth 233° 07′ 30″. The witness mark, as described in note 15a, is 10.5 meters (34 feet) from the station in azimuth 178° 31′. Stikine Lighthouse and the tangent to Round Point are in azimuths 25° 59′ 30″ and 232° 09′, respectively.

Bear (J. A. Daniels, 1916).—In Stikine Strait, on the western shore of Etolin Island, about 2.5 miles northeast ¾ north, magnetic, from Quiet Harbor, across the prominent bay visible in that direction from the harbor, in a bowlder, some 3 meters (10 feet) inshore from high-water mark, flat topped, and projecting about a foot above the surrounding stony beach, about 3 feet above ordinary high water, and just inshore from a slate reef which has a north and south trend.

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The station is marked as described in note 4. The reference mark, as described in note 12b, is 20.268 meters (66.50 feet) from the station in azimuth 194° 32′ 11″. Witness mark No. 1, as described in note 15a, is 11.35 meters (37.2 feet) from the station in azimuth 266°. Witness mark No. 2 is an arrow cut in a bowlder at about high-water mark 7.78 meters (25.5 feet) from the station in azimuth 136°. The tangent to Etolin Island is in azimuth 76° 20′.

Har (J. A. Daniels, 1916; 1923).—In Stikine Strait, on Etolin Island, about 100 meters (328 feet) east of the point at the east side of the entrance to Quiet Harbor, in limestone outcrop about 2 meters (7 feet) above high water, and 5 meters inshore from the water line. There is a fissure in the rock 10 meters (33 feet) wide and 5 meters (16 feet) deep about 20 meters (66 feet) east of station, extending back to tree line. The rock is jagged and irregular. The station is marked as described in note 2. Reference mark, as described in note 12a, is 7.335 meters (24.06 feet) from the station in azimuth 327° 11′ 43″. Witness mark, as described in note 15a, is 14.50 meters (47.6 feet) from the station in azimuth 342° 22′. The east tangent to Zarembo Island is in azimuth 184° 10′ 33″.

Granite (J. A. Daniels, 1916).—In Stikine Strait, on Etolin Island, on a granite ledge on the small point just north of a small creek about 300 meters (984 feet) north of the inside of a big bight and about 2.3 nautical miles northeast ½ east, magnetic, from the entrance to Quiet Harbor. A small round island to east of station is in range with a point of Etolin Island just east of Quiet Harbor. The station is about 3 meters (10 feet) above high water and 2 meters (7 feet) inside water line. It is marked as described in note 2. Reference mark, as described in note 12d, is 23.592 meters (77.40 feet) from the station in azimuth 207° 24′ 15″. Witness mark, as described in note 15a, is 6.00 meters (19.7 feet) from the station in azimuth 264° 10′. The small round island and the east tangent to Zarembo Island are in azimuth 86° 00′ and 174° 53′, respectively.

Cliff (J. A. Daniels, 1916; 1923).—In Stikine Strait, on Zarembo Island, about 4 nautical miles from the entrance to Quiet Harbor, in slate or shale ledge about 1 meter (3 feet) above high water, and nearly on the high-water line. The point is the second one north of bight in shore line north of Round Point. From the station the small island at the east end of Chicagof Pass shows just to left of Etolin Island. The station is marked as described in note 3. Reference mark, as described in note 12b, is 13.570 meters (44.52 feet) from the station in azimuth 11° 13′ 00″. Witness mark, as described in note 15a, is 13.03 meters (42.7 feet) from the station in azimuth 66° 30′. The northwest and southeast tangents to Woronkofski Island are in azimuths 206° 10′ and 236° 08′, respectively.

Tole (J. A. Daniels, 1916).—In Stikine Strait, on Etolin Island, about 4.5 nautical miles north ¾ east, magnetic, from entrance to Quiet Harbor, on a sheer limestone point which is not well defined but which is the first one to the southward of a small creek at the north side of a small bight and the last point to the north that sees into the bight in Etolin Island to the south. The station is about 2 meters (7 feet) above high water. It is marked as described in note 3. Reference mark, as described in note 12b, is 13.552 meters (44.46 feet) from the station in azimuth 6° 16′. Witness mark No. 1, as described in note 15a, is 4.30 meters (14.1 feet) from the station in azimuth 248° 06′. Witness mark No. 2 is a cross cut in vertical face of rock 5.80 meters (19.0 feet) from the station in azimuth 12°.

Rem (J. A. Daniels, 1916).—On Zarembo Island, on South Craig Point, in top of granite bedrock which is rounded on top and has no regular angle of inclination, about 2 meters (7 feet) above and 1 meter inside higher high water, and 3 meters (10 feet) from tree line. The point of land is regular with no indentations of size near the station. The rock rises from water at an angle of 45°. The station sees Round Point directly under little rounded knob in sky line of low mountains of Etolin Island near Steamer Point, sees left tangent of Five-Mile Island almost in range with (but outside of) right tangent Liesnoi Island, and sees Point Highfield a little to left of Woronkofski Point. The station is marked as described in note 2. Reference mark, as described in note 12d, in top of rounded knob of rock in range with highest point of Vank Island, is 23.765 meters (77.97 feet) from the station in azimuth 181° 48′ 37″. Witness mark, as described in note 15a, on hemlock tree 2 feet in diameter on tree line of point directly back of station, is 4.80 meters (15.7 feet) from the station in azimuth 101° 56′. Round Point and Woronkofski Point are in azimuths 9° 51′ and 234°, respectively.

Kof (J. A. Daniels, 1916).—In Stikine Strait, on Woronkofski Island, on first point sticking out into Stikine Strait north of Reef Point, in shale rock inclined about 15° to vertical and sloping toward water, about 1 meter (3 feet) above high water

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and slightly below extreme high water, about 10 meters (33 feet) inside high-water line where flat rock formation extends back from water a distance of 30 meters (98 feet) to tree line. Station sees north tangent of Zarembo Island exactly under highest rounded peak in rear, and sees Round Point almost at the water line of Etolin Island at Steamer Point. The station is marked as described in note 2. Reference mark as described in note 12d, is 3 meters (10 feet) from tree line across small bight in shore line, 3 meters (10 feet) above high water, 1 meter (3 feet) inside high-water line, and 27.350 meters (89.73 feet) from the station in azimuth 335° 27′ 28″. Witness mark, as described in note 15a, is on fir tree at tree line, 3 meters (10 feet) above and 10 meters (33 feet) inside of high water and 19.90 meters (65.3 feet) from the station in azimuth 220° 23′ 38″. Round Point and the north tangent of Zarembo Island are in azimuths 28° 46′ 38″ and 141° 52′, respectively.

Zarembo Island south base (J. A. Daniels, 1916; 1922).—At the northern end of Zimovia Strait, on the east side of Zarembo Island, on the south side of point of land opposite Chicagof Passage, about 350 meters (1,148 feet) to southward of point at which shore line breaks sharply to westward forming large shoal bight, about 2 meters (7 feet) above higher high water, about 5 meters (16 feet) inside higher high water, and 7 meters (23 feet) outside tree line. The large, high, rounded peak on Etolin Island is visible past the tree line to the southward. The reference mark, witness mark, *Zarembo Island north base* triangulation station and the station fall almost in range with the highest point of Zarembo Island to the northward. The station is marked as described in note 8b. The reference mark, as described in note 12d, is 22.380 meters (73.43 feet) from the station in azimuth 179° 09′ 52″, and about 5 meters (16 feet) inside high water. The witness mark, a spruce stump about 3 feet in diameter, projecting 3 feet out of the ground, is 7.76 meters (25.5 feet) from the station in azimuth 172° 53′. The south tangent of Woronkofski Island and the highest peak on Etolin Island are in azimuths 225° 48′ and 303° 10′, respectively.

Zarembo Island north base (J. A. Daniels, 1916; 1922).—In Zimovia Strait, on the east side of Zarembo Island, on the north side of a large bight in the shore line, in the midst of shore line covered with loose, rough, hard rocks of yellow color. Station is overlooked by perpendicular cliff the base of which is about 8 meters (26 feet) back of the station. The station is on a rock with a flat top 5 feet by 3 feet, at elevation of higher high water and about 4 meters (13 feet) inside low-water line. Immediately north of the station is another bowlder flat on top and sloping somewhat toward the shore line, the flat face being 6 by 10 feet. Station sees east tangent of first large point to southward of large shoal bight in range with lowest point of sky line of Etolin Island, and also sees Woronkofski Point in range with outside edge of outcropping bedrock about 125 meters (410 feet) north of station which is the last point of the shore line of Zarembo Island visible to the northward. The station is marked as described in note 2. Reference mark, as described in note 12d, in face of perpendicular cliff directly inshore from station and about 10 feet higher in elevation, is 10.572 meters (34.68 feet) from the station in azimuth 184° 54′ 20″. Witness mark, a maltese cross 6 inches by 6 inches cut in flat face of a large bowlder projecting 2 meters (7 feet) above higher high water in range with middle of Woronkofski Island, is 11.92 meters (39.1 feet) from the station in azimuth 251° 46′. The west tangent to Woronkofski Island is in azimuth 228° 55′.

High (J. A. Daniels, 1916).—In Stikine Strait, on the west side of Woronkofski Island, on the first point out from the main contour of the island south of High Point, on a cliff 3 meters (10 feet) above higher high water and 2 meters (7 feet) from high-water line. The rock is granite of main bed strata with rounded tops bare of vegetation. The station sees High Point up Dry Strait and the right tangent to Vank Island just to left of highest point of Sokolof Island. The station is marked as described in note 2. Reference mark, as described in note 12, is in nook in shore line to south of station, about 3 meters (10 feet) in elevation, and about on high-water line, 30.424 meters (99.82 feet) from the station in azimuth 336° 00′ 44″. The witness mark, as described in note 15a, is on nearest large tree in tree line back from shore line, 19.62 meters (64.4 feet) from the station in azimuth 307° 25′ Round Point and the north tangent to Zarembo Island are in azimuths 25° 54′ and 133° 41′, respectively.

Duck (J. A. Daniels, 1916; 1922).—In Stikine Strait, on the east side of Vank Island, on the first point of island reached in going from Woronkofski Island up Dry Strait, in top of bedrock apparently of lava formation, about 1 meter (3 feet) above high water and 2 feet below extreme higher high water, just off water line of

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point. The point is rocky, the tree line is 30 meters (98 feet) from the station, and there are many little indentations in the shore line at the point. The station is on island at extreme high water. It sees west tangent of Woronkofski Island a little to left of highest point of Etolin Island, and also sees Five-Mile Island a little to the left of Point Highfield. The station is marked as described in note 2. The reference mark, as described in note 12d, is in the top of a rounded rock 3 meters (10 feet) above higher high-water line, and 5 meters (16 feet) back from ordinary high-water line, 15.365 meters (50.41 feet) from the station in azimuth 47° 17′ 15″. The witness mark, as described in note 15a, is on a hemlock tree 2 feet in diameter on tree line, 33.06 meters (108.5 feet) from the station in azimuth 54° 48′. Point Highfield and South Craig Point on Zarembo Island are in azimuths 251° 27′ and 20° 53′, respectively.

Wedge (J. A. Daniels, 1916).—On Woronkofski Island, on Wedge Point, in ledge of rock with cleavage about 45° to horizontal and about 1 meter (3 feet) above ordinary high water. The station sees a point about ¼ mile to the northeast, and the east tangent of Kadin Island is just to right of the range with high mountain having three peaks. The station is marked as described in note 3. The reference mark, as described in note 12b, is 16.089 meters (52.79 feet) from the station in azimuth 2° 36′ 20″. The witness mark, a cross cut in vertical face of bedrock, is 5.85 meters (19.2 feet) from the station in azimuth 315°. The west and east tangents of Vank Island are in azimuths 127° 41′ and 152° 19′, respectively.

Mile (J. A. Daniels, 1916).—In Dry Strait, on the west side of Five-Mile Island, on edge of steep cliff composed of granite rock in layers set vertically on edge, about on higher high-water line, and 1 meter (3 feet) from edge of cliff overlooking water. The south tangent of Vank Island is nearly in range with the lowest point of steep indentation in mountains on Zarembo Island. The station is marked as described in note 2. The reference mark, as described in note 12d, is 14.642 meters (48.04 feet) from the station in azimuth 359° 58′ 47″. The witness mark, as described in note 15a, is in tree overlooking the station on tree line, 4.33 meters (14.2 feet) from the station in azimuth 258° 54′. The west tangent of Woronkofski Island and the south tangent of Vank Island are in azimuths 19° 05′ and 63° 21′, respectively.

Lee (J. A. Daniels, 1916).—In Dry Strait, on the west side of Liesnoi Island, about half way up the island (north and south) and so situated as to see both Five-Mile Island and the left tangent of Kadin Island. The station is in top of rounded bed-granite rock, about 1 meter (3 feet) above ordinary high water, and 1 meter (3 feet) inside high-water line. The surrounding rock is all granite rounded on top, having no particular slant but sloping into the water abruptly. Tree line is 8 meters (26 feet) from high water at the station. South of the station a small bight in the shore line has on the north side a flat smooth face sloping about 30° to horizontal, extending from the station to tree line. Station sees the right tangent of Five-Mile Island at lowest point in sky line between Zarembo Island and Etolin Island, and also sees the left tangent of Sokolof Island just to right of most northwesterly peak of Vank Island. The station is marked as described in note 2. The reference mark, as described in note 12d, is about 1 meter (3 feet) higher than the station, 2 meters (7 feet) inside high water, and 3 meters (10 feet) outside tree line, 12.202 meters (40.03 feet) from the station in azimuth 210° 11′ 59″. The witness mark, as described in note 15a, is on trunk of pine tree growing in top of rock in a horizontal position away from the water, on farthest point of tree line toward station, 6.45 meters (21.2 feet) from the station in azimuth 268° 07′. The tangent to Kadin Island and the left tangent of Sokolof Island are in azimuths 190° 50′ and 70° 46′, respectively.

Grey (J. A. Daniels, 1916; 1922).—In Dry Strait, on the east side of Grey Island, on the top of rounded granite rock, on the last point that sees Vank Island, about 2 meters (7 feet) above and 3 meters (10 feet) inside of high-water mark. The surrounding rock is all granite, rounded and of no regular slant. Station sees north edge of Wrangell Island in range with left tangent of Liesnoi Island. A log, 2½ feet in diameter, just above high-water mark, lies across rock just in front of the station, and a deep cut in rock extending nearly to tree line is just north of station. A rounded knob of rock 2 feet higher than the station is 4 meters (13 feet) south of the station. The station is marked as described in note 2. The reference mark, as described in note 12d, is on top of rounded rock, 3 meters (10 feet) inside tree line and about 1 meter (3 feet) higher than the station, 16.400 meters (53.81 feet) from the station in azimuth 193° 57′ 24″. The witness mark, as described in note 15a, is on a spruce tree 2 feet in diameter

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on tree line directly back of station, 9.86 meters (32.3 feet) from the station in azimuth 117° 47′. Tangent to Vank Island and right tangent to Kadin Island are in azimuths 21° 01′ 47″ and 278° 57′, respectively.

Kad (J. A. Daniels, 1916).—In Dry Strait, on the west side of Kadin Island, on rounded granite ledge, on next to the last point of land which sees west tangent of Liesnoi Island, on rock farthest from the tree line, at elevation of mean higher high water. Surrounding rock is all granite, rounded on top and set at an angle of 30° to vertical, and slopes abruptly into water outside the station. The station is marked as described in note 2. The reference mark, as described in note 12d, is about 0.5 meter (2 feet) above station in elevation, and 0.5 meter (2 feet) inside higher high water looking southward from station, 15.400 meters (50.52 feet) from the station in azimuth 339° 14′ 40″. The witness mark is a cross cut in rock by natural causes, on flat face of bed granite facing southwest and sloping inshore at 30° to vertical. It is about 1 meter (3 feet) above the station and 2 meters (7 feet) inside higher high water, 4.69 meters (15.4 feet) from the station in azimuth 211° 26′. Station sees northwest tangent of Sokolof Island a little to north of middle of channel between Grey and Rynda Islands. The west tangent of Liesnoi Island and north tangent of Rynda Island are in azimuths 10° 57′ and 130° 47′, respectively.

Ryn (J. A. Daniels, 1916).—In Dry Strait, on the east side of Rynda Island, on south side of last point to see Greys Island, on flat-topped rock, 2 feet above higher high water, and 1.5 meters (5 feet) inside higher high-water line. Surrounding rock is granite, rounded on top and sloping abruptly into the water. Just to the north of the station a triangular flat ledge, right-angled in shape with hypothenuse parallel to water, is just above higher high water. The triangle has longest side of 6 meters (20 feet), and the inshore leg meets vertical cliff extending up about 3 meters (10 feet). The station is marked as described in note 2. The reference mark, as described in note 12d, is set in round top rock 2 meters (7 feet) above higher high water and 1 meter (3 feet) inside, 15.175 meters (49.79 feet) from the station in azimuth 40° 48′ 52″. The witness mark, as described in note 15a, is on pine tree 1½ feet in diameter on tree line directly inshore from station mark, 7.80 meters (25.6 feet) from the station in azimuth 113° 57′ 00″. The north tangent to Kadin Island and the west tangent to Five-Mile Island are in azimuths 260° 05′ 00″ and 358° 02′, respectively.

Large 2 (A. M. Sobieralski, 1922).—In Dry Strait, on the north shore of Woronkofski Island, on the most eastward point which sees both tangents of Vank Island, on the higher high water line about 9 feet back of and 4 feet above high water. The left tangent of Kadin Island is just hidden back of Liesnoi Island. The station is marked as described in note 2. The reference mark, as described in note 8, is on flat surface which slopes to seaward at about a 30° angle, about on line with the left tangent of Vank Island, 8.088 meters (26.54 feet) from the station in azimuth 96° 38′ 19″. The witness mark is a blaze in a 10-inch spruce tree.

Field (A. M. Sobieralski, 1922).—In Dry Strait, on Wrangell Island, about 100 meters (328 feet) south from Point Highfield, on the top face of a very large bowlder about 20 meters (66 feet) seaward from the tree line. The station commands a good view of the shore of Woronkofski Island and also of Point Rothsay to the northward. It is covered by a 17.5-foot tide. The station is marked as described in note 2. The reference mark, as described in note 12c, is at tree line about 1 meter (3 feet) above high-water line, 27.370 meters (89.80 feet) from the station in azimuth 1° 27′ 43″.

Roth (A. M. Sobieralski, 1922).—At the entrance of Stikine River, on Point Rothsay, which is on the mainland side of the channel near Wrangell, at the high-water line on the last point from which Point Highfield is visible to the southeast. The station is marked as described in note 2. The reference mark, as described in note 12a, is on line with Point Highfield, 30.311 meters (99.45 feet), from the station in azimuth 12° 54′ 08″.

Farm (A. M. Sobieralski, 1922).—In Dry Strait, on Farm Island, near the top of the tree line leading up the ridge from the southern end of the island, on probably the only point from which the mud flats at the base of the mountain from Point Rothsay around to Dry Island are visible. Considerable cutting was done to clear the lines from this station, especially the line to Camp Island, and this should furnish an excellent way of locating the mark. The ridge is not wide and when an elevation is reached where the trees are stunted, the station should be found without trouble. A small creek flows about 50 meters (164 feet) to the north and west of the station, leading from open muskeg ground just above it.

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The station can best be reached by following the channel from the southern side between Dry and Farm Islands to a point near the farms owned by the Swenson brothers (known as the Knig's farm, from Knig Johanson who built the house), then proceeding across the flat to the point of the ridge and up the ridge. It is necessary to cross two gullies, but the way is fairly open and not too steep. A fairly good camp site can be found near the station. The station is marked as described in note 2. No reference marks were set.

Rynda (A. M. Sobieralski, 1922; 1929).—In Dry Strait, on the northeast extremity of Rynda Island, on the bluff ledge of bed granite about 2 meters (7 feet) above high water, at the edge of the young alder tree line. The rock is somewhat rounded at this point but becomes more nearly flat at the tree line. The station is marked as described in note 2. The reference mark, as described in note 12a, is very nearly on range with west side of passage through Dry Strait to left of Summit Island, 15.028 meters (49.30 feet) from the station in azimuth 160° 51′ 17″.

Trouble (A. M. Sobieralski, 1922).—In Dry Strait, on the northern extremity of Mitkof Island, a small high-water island on range between Summit Island and Cosmos Point, about 1½ miles northwest from Point Blaquiere, and immediately across the narrowest part of Dry Strait from Dry Island. The station is marked as described in note 2, and is about 1 meter (3 feet) above high water. Reference mark No. 1, as described in note 12a, is 17.765 meters (58.28 feet) from the station in azimuth 3° 14′ 10″. Reference mark No. 2, a copper bolt cemented in bedrock (probably triangulation station *Out*), is 3.195 meters (10.48 feet) from the station on range with the left tangent to Woronkofski Island.

Dry Strait east base (A. M. Sobieralski, 1922; 1929).—In Dry Strait, near the main entrance to Stikine River, on Farm Island, on the west end of a grassy knoll on the sand flats. The highest point of Kadin Island appears just to the left of the tree line of Sergief Island, and the right tangent of Dry Island is hidden from view by Farm Island. Low ground a little inside of left tangent to Sergief Island hides tangent of mainland near Green Point. A second knoll covered with bushes and trees about ½ mile west is almost on range with the left tangent to Dry Island, and the line to *Dry Strait west base* just clears this knoll. The station is marked as described in note 1a. The reference mark, as described in note 11a, is 16.825 meters (55.20 feet) from the station in azimuth 251° 00′ 05″.

Dry Strait west base (A. M. Sobieralski, 1922; 1929).—In Dry Strait, on the east side of what is known locally as Little Dry Island, a part of the sand flats of Dry Strait, immediately east of Dry Island and separated from it by a definite channel, on the most westerly point of the island from which the mountain on Farm Island is visible. Summit Island is on range with Blaquiere Point. The station is marked as described in note 2. It is the west end of the 4-mile base line which extends eastward across the flats in the direction just clear of the most easterly clump of trees on the flats of Farm Island. The reference mark, as described in note 12a, is 27.814 meters (91.25 feet) from the station in azimuth 247° 19′ 45″.

Dry (A. M. Sobieralski, 1922).—In Dry Strait, on Dry Island, on one of the secondary peaks or ridges, about ½ mile from the rounded massive peak which forms the highest point of the island. On account of its rounded formation surrounded by shoulders, it was impossible to use the highest point for the station without the use of a very high stand. The point used is the only one from which Farm Island, Cosmos Point, Camp Island, and the small high water island upon which station *Trouble* is located can be seen. The station is best reached by following the bed of the stream which flows down the valley immediately northwest of the highest point of the island to Dry Strait on the west side of the island. This stream can be followed nearly to the summit, and the station will then be found to the northwest near the end of the ridge. The station is marked as described in note 1b. No reference marks were set. The trees at this point are quite stunted and twisted, and in clearing for the station enough of them were removed to facilitate the recovery of the station.

Cosmos (A. M. Sobieralski, 1922).—Near the entrance to Dry Strait, on Mitkof Island, on Cosmos Point, Frederick Sound. The station is at higher high-water line and so located as to command the view from the south side of the passage through Dry Strait through 180° to the left, to a point on the west side of Frederick Sound where station *Creek* is located. Just above the station is the stump of a hemlock tree projecting horizontally from the bank. The station is marked as described in note 2. The reference mark, as described in note 12a, is almost on range with the point forming the south side of Dry Strait (station *Trouble*), 10.056 meters (32.99 feet) from the station in azimuth 331° 34′ 45″.

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Camp (A. M. Sobieralski, 1922).—In Frederick Sound, on the northwest grassy point of Camp Island, near the entrance to LeConte Bay, about 10 meters (33 feet) from the tree line, and 15 meters (49 feet) from the most northwesterly edge of the grass line. The station commands a view from near the top of the slope of Farm Island to the southeast around the horizon to beyond the entrance to LeConte Bay to the northeast. The station is marked as described in note 1a. Reference marks No. 1 and No. 2, as described in note 12c, are, respectively, 13.065 meters (42.86 feet) from the station in azimuth 129° 59′ 12″ and 16.940 meters (55.58 feet) from the station in azimuth 192° 38′ 03″.

FREDERICK SOUND

Principal points

Bluff 3 (A. M. Sobieralski, 1922).—On the northeast shore of Frederick Sound, on the last point to the southeast from which the McDonald Islands can be seen and about 5 miles southeast of them, and about 4 miles northwest of Camp Island. A large log standing at an angle of 45° is about 10 meters northwest of the station, and another large log lying horizontally at higher high water has its roots about 20 meters (66 feet) southeast of the station. The station is marked as described in note 2. The reference mark, as described in note 12a, is 12.878 meters (42.25 feet) from the station in azimuth 300° 22′ 19″.

Creek (A. M. Sobieralski, 1922).—On the west shore of Frederick Sound, on prominent point of Mitkof Island, about 6 miles northwest of Coney Island, about 5 meters (16 feet) seaward from the tree line. The station is covered by a 19-foot tide. It is marked as described in note 2. The reference mark, as described in note 12a, is about 30° to the westward of the line to *Cosmos*, 4.210 meters (13.81 feet) from the station in azimuth 347° 28′ 22″.

Fred (E. W. Eickelberg, 1917; 1922).—In Frederick Sound, on Mitkof Island, at the only place on Frederick Point from which triangulation stations *Creek* and *Pete* can be seen, and about 7.9 feet above mean sea level. The station is covered by a 17-foot tide. It is marked as described in note 2. The reference mark, as described in note 12a, is 11.71 meters (38.4 feet) from the station in azimuth 331° 14′ 32″. A 22-caliber shell cemented in solid rock is 4.837 meters (15.87 feet) from the station in azimuth 42° 15′ 39″.

Island 2 (E. W. Eickelberg, 1917; 1922).—In Frederick Sound, on the outer and smaller McDonald Island, on a shoulder of a ledge bordering on a grassy plat, 11.3 feet above mean sea level. The station of 1887 is located on the grassy plot between the ledge and the woods. Stations *Cliff* and *Bluff* can be seen through openings in the trees. The station is marked as described in note 2. The reference mark, as described in note 12a, is 9.078 meters (29.78 feet) from the station in azimuth 168° 49′. *Island 1887* is 6.67 meters (21.9 feet) from the station in azimuth 219° 53′.

Cliff (E. W. Eickelberg, 1917; 1922).—On the eastern shore of Frederick Sound, on a rounding point known as Horn Cliff, the last point from which station *Agassiz south base* can be easily seen, and 13.4 feet above mean sea level. There are two other more southerly points from which station *Agassiz south base* is seen, but the lines of sight pass within 6 feet of a cliff. The station is marked as described in note 2. The reference mark, as described in note 12a, is 5.10 meters (16.7 feet) from the station in azimuth 359° 48′ 42″. A copper shell set in a patch of cement on a rocky shoulder is 2.033 meters (6.67 feet) from the station in azimuth 313° 18′.

Pete (E. W. Eickelberg, 1917).—In Frederick Sound, on Kupreanof Island, on a rocky point about 2 miles north of the entrance to Wrangell Strait, 15.9 feet above mean sea level. The rock is very much stratified in layers of various thickness and very hard. The station is marked as described in note 2. The reference mark, as described in note 12a, is 5.045 meters (16.55 feet) from the station in azimuth 325° 36′ 47″. The witness mark, as described in note 15, is on a 30-inch spruce tree 10.55 meters (34.6 feet) from the station in azimuth 150°.

Agassiz south base (E. W. Eickelberg, 1917; 1923).—On the eastern side of Frederick Sound, on a rocky bluff point 2 miles south of Point Agassiz, 12.3 feet above mean sea level. The station is marked as described in note 2. Three reference marks, as described in note 12a, are, respectively, 5.610 meters (18.41 feet) from the station in azimuth 165° 32′ 05″, 2.14 meters (7.0 feet) in azimuth 278° 52′, and 3.246 meters (10.65 feet) in azimuth 304° 03′ 05″.

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Fox (E. W. Eickelberg, 1917; 1923).—In Frederick Sound, on the northwest corner of the southernmost of the Sukoi Islands, locally known as Fox Islands, 9.4 feet above mean sea level. A small wooden shack is located near the station. The station is marked as described in note 2. Two reference marks, as described in note 12a, are, respectively, 11.896 meters (39.03 feet) from the station in azimuth 77° 32′ 20″ and 23.93 meters (78.5 feet) in azimuth 44° 37′ 07″. A blaze at the base of a spruce tree is 10.37 meters (34.0 feet) from the station in azimuth 288° 28′ 34″.

Agassiz north base (E. W. Eickelberg, 1917).—In Frederick Sound, on a sandy spit, the first point north of Point Agassiz, about 50 meters (164 feet) from the main tree line. The nearest high-water mark is 10 meters (33 feet) west. The station is marked as described in notes 1c and 7a. Two reference marks, as described in note 11c, are, respectively, 8.23 meters (27.0 feet) from the station in azimuth 160° 38′ 49″ and 6.60 meters (21.7 feet) in azimuth 64° 24′ 29″. The witness mark, as described in note 15a, is on a small scrub spruce tree, 4.822 meters (15.82 feet) from the station in azimuth 221°.

New (E. W. Eickelberg, 1917).—On the western side of Frederick Sound, on Kupreanof Island, north of Sukoi Islands, on one of the several slightly projecting points south of the lighthouse beacon. The mark is covered at extreme high water. The station is marked as described in note 2. The reference mark, as described in note 12a, is 4.697 meters (15.41 feet) from the station in azimuth 127° 09′. The witness mark, as described in note 15a, is 7.52 meters (24.7 feet), inclined distance, from the station in azimuth 45° 36′. Sukoi Island Light is in azimuth 323° 26′ 11″.

Noon (C. M. Thomas, 1887; 1923).—In Frederick Sound, on Kupreanof Island, on the rocky shore line about 4 miles north of Sukoi Islands, 10.2 feet above mean sea level. The station is marked as described in note 2. The reference mark, as described in note 12a, is 10.198 meters (33.46 feet) from the station in azimuth 21° 11′ 32″. A .22-caliber copper shell is set in a patch of neat cement, 2.875 meters (9.43 feet) from the station in azimuth 101° 00′ 25″. The lighthouse beacon on the same point is 14.27 meters (46.8 feet) from the station in azimuth 83° 45′ 45″. The Sukoi Island Light is in azimuth 327° 12′ 11″. This station was first established in 1887 as a third-order station, but was reoccupied in 1917 as a first-order one.

Wave 2 (E. W. Eickelberg, 1917).—On the northeastern shore of Frederick Sound, on the point of land 1 mile south of Wood Point, 12.9 feet above mean sea level. The station is marked as described in note 4. The mark is in a large bowlder about 6 feet by 6 feet located on the beach among a patch of bowlders and on the extreme high-water line. Two reference marks, as described in note 12c, are respectively, 10.508 meters (34.47 feet) from the station in azimuth 1° 39′ 31″ and 7.250 meters (23.79 feet) from the station in azimuth 320° 21′ 45″. Two witness marks, as described in note 15a, are, respectively, on a 2-foot spruce tree 11.775 meters (38.63 feet) from the station in azimuth 177° 40′ 41″, and on a leaning spruce tree 8.52 meters (28.0 feet) from the station in azimuth 258° 20′ 45.″

Sand (E. W. Eickelberg, 1917; 1923).—In Frederick Sound, on Kupreanof Island ½ mile south of Cape Strait Light, and just north of what is locally known as Twelve-Mile Creek, 16.5 feet above mean sea level. The line of sight from station *Noon* to station *Sand* passes over the point which marks the entrance to the creek. The station is marked as described in note 2, in rock which is very soft and of a sandstone formation. The reference mark, as described in note 12a, is 15.667 meters (51.40 feet) from the station in azimuth 325° 20′ 50″. The witness mark, as described in note 15a, is on a 10-inch spruce tree 7.74 meters (25.4 feet) from the station in azimuth 61°.

Square (E. W. Eickelberg, 1917; 1924).—In Frederick Sound, on the spit which forms the northern entrance to Thomas Bay, on a large square granite bowlder which is about 10 feet square, 80 meters (262 feet) from the tree line, on the high-water line and partially buried in gravel but 5 feet above the beach. The station is 14.5 feet above mean sea level and is marked as described in note 4. Two reference marks, as described in note 12c, are, respectively, 12.070 meters (39.60 feet) from the station in azimuth 64° 48′ 35″, and 28.925 meters (94.90 feet) in azimuth 180° 08′ 08″. No. 1 is on a bowlder which is covered 3 feet deep at high water and No. 2 is on a flat bowlder 50 meters (164 feet) from the tree line and on extreme high-water line close to the edge of the grass. Station *Kit 2* is 0.392 meters (1.29 feet) from the station in azimuth 217° 10′, and Cape Strait Light is in azimuth 67° 03′ 52″.

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Catch 2 (E. W. Eickelberg, 1917).—On the eastern shore of Frederick Sound, 3 miles north of Thomas Bay, on a rocky shoulder just north of a salt lagoon the entrance to which is bare at low water, and 15.5 feet above mean sea level. The station is marked as described in note 2. Two reference marks, as described in note 12a, are, respectively, 8.53 meters (28.0 feet) from the station in azimuth 150° 14′ 57″, and 16.04 meters (52.6 feet) from the station in azimuth 276° 07′ 07″. No. 1 is in the vertical face of a cliff to the northward, and No. 2 is on a shoulder to the southward.

South Grand (E. W. Eickelberg, 1917).—On the northern shore of Frederick Sound, about 450 meters (1,476 feet) east of Grand Point, and 10.7 feet above mean sea level. A small bight lies between the station and Grand Point. The station is marked as described in note 4. The reference mark, as described in note 12c, is 22.955 meters (75.31 feet) from the station in azimuth 7° 18′ 49″. The witness mark, as described in note 15a, is on a 30-inch spruce tree 12.76 meters (41.9 feet) from the station in azimuth 201° 26′ 59″. Cape Strait Light is in azimuth 332° 24′ 05″.

Bridge (E. W. Eickelberg, 1917).—In Frederick Sound, on Kupreanof Island, on an uneven rocky ledge 16.2 feet above mean sea level which has a sharp pinnacle rock 5 feet high, 1 meter (3 feet) from the station. Portage Island shows just clear of a point 100 meters (328 feet) to the northward. The station is marked as described in note 2. A reference mark, as described in note 12a, is 14.32 meters (47.0 feet) from the station in azimuth 313° 04′ 00″. Another reference mark was set in a vertical wall of rock just inshore from the station but the distance and azimuth are not available. The witness mark, as described in note 15a, is on a leaning spruce tree 8.80 meters (28.9 feet) from the station. Station *Bridge* established in 1887 is 0.045 meter (0.15 foot) from the station in azimuth 189°.

Portage (E. W. Eickelberg, 1917).—In Frederick Sound, off Kupreanof Island, on the highest point of the narrow ledge on the northern shore of the western Portage Island, 26 feet above mean sea level. The station is marked as described in note 1c. Two reference marks, as described in note 12a, are, respectively, 1.820 meters (5.97 feet) from the station in azimuth 332° 46′, and 4.35 meters (14.3 feet) in azimuth 71° 56′ 27″. The witness mark, as described in note 15a, is on a 30-inch spruce tree 15.05 meters (49.4 feet) from the station in azimuth 31° 16′.

Bay Point (E. W. Eickelberg, 1917).—In Frederick Sound, at the western entrance to Farragut Bay, on Bay Point, 19.5 feet above mean sea level. The point makes out about 70 meters (230 feet) to the westward from the station and is almost an island at high water. The station is marked as described in note 2. The reference mark, as described in note 12a, is 7.677 meters (25.19 feet) from the station in azimuth 271° 21′ 50″. The witness mark, as described in note 15a, is on a 12-inch scrub spruce tree which stands alone, 7.20 meters (23.6 feet) from the station in azimuth 171° 49′ 15″.

Flat (E. W. Eickelberg, 1917).—In Frederick Sound, on Kupreanof Island, about 10 miles west of Portage Islands, on a flat-top rock about 6 by 8 feet, on a broad point outside of which there is a large area of kelp, and 12.8 feet above mean sea level. West of the station is a small bight into which a creek empties. The station is marked as described in note 4. The reference mark, as described in note 12c, is on a bowlder inshore, 6.192 meters (20.31 feet) from the station in azimuth 12° 09′ 31″. The witness mark, as described in note 15a, is 30.26 meters (99.3 feet) from the station in azimuth 351° 27′ 09″. Station *Mark* established in 1887, is 72.406 meters (237.55 feet) from the station in azimuth 287° 12′ 16″.

Highland (E. W. Eickelberg, 1917).—On the northern shore of Frederick Sound, about 4½ miles east of Cape Fanshaw, 14.8 feet above mean sea level. The rock is of a soft shaly nature, and a square-shaped pinnacle stands near the station. The station is marked as described in note 2a. The reference mark, as described in note 12a, is 8.022 meters (26.32 feet) from the station in azimuth 213° 29′ 57″. The witness mark, as described in note 15a, is 27.40 meters (89.9 feet) from the station in azimuth 222° 52′ 30″.

Fanshaw (E. W. Eickelberg, 1917).—In Frederick Sound on Cape Fanshaw, about 23.5 feet above mean sea level. The station is marked as described in note 2. Two reference marks, as described in note 12a, are, respectively, 6.985 meters (22.92 feet) from the station in azimuth 348° 48′ 05″ and 12.585 meters (41.29 feet) in azimuth 43° 15′ 05″. The Fanshaw Light is 5.63 meters (18.5 feet) from the station in azimuth 236° 43′ 35″.

Top (E. W. Eickelberg, 1917; 1925).—In Frederick Sound, on the top of Turnabout Island. A hemlock tree was sawed off near its top and used as an

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instrument support. The station is marked by a standard disk station mark in the top of the trunk.

Southwest (E. W. Eickelberg, 1917; 1920).—In Frederick Sound, on the most southerly island of the Five Finger group, 31.5 feet above mean sea level. The station is marked as described in note 2a. Two reference marks, as described in note 12a, are, respectively, 6.92 meters (22.7 feet) from the station in azimuth 91° 56′ 52″, and 3.992 meters (13.10 feet) in azimuth 331° 49′ 58″. Five Finger Lighthouse is in azimuth 279° 50′ 25″.

Round Rock (E. W. Eickelberg, 1917; 1924).—In Frederick Sound, on Round Rock Island, southwest from the Brothers Island, and 45.0 feet above mean sea level. The station is marked as described in note 1c. The reference mark, as described in note 12a, is 15.55 meters (51.0 feet) from the station in azimuth 271° 49′ 15″. Turnabout Light is in azimuth 12° 11′ 48″. An unwatched light on Round Rock is 3 meters west of the station.

Spruce (E. W. Eickelberg, 1917; 1925).—In Frederick Sound, near the southern end of Spruce Island, on a conglomerate ledge. There is a flat shelf in front of the station, which is covered at high water. The station is marked as described in note 2a. The reference mark, as described in note 12a, is 9.58 meters (31.4 feet) from the station in azimuth 88° 52′ 41″. Three witness marks, as described in note 15a, are, respectively, on an 18-inch spruce tree 6.55 meters (21.5 feet) from the station in azimuth 80° 07′ 21″, on a 4-foot spruce tree 7.86 meters (25.8 feet) from the station in azimuth 198° 03′ 31″ and on a 30-inch spruce tree 15.46 meters (50.7 feet) from the station in azimuth 222° 03′ 46″. Turnabout Light is in azimuth 325° 29′ 31″.

Pean (E. W. Eickelberg, 1917; 1927).—In Frederick Sound, on Admiralty Islands, on Point Napean, a low rock point with much driftwood, and 11.8 feet above mean sea level. The point projects to the northward about 150 meters (492 feet) from the station. The station is marked as described in note 2a. Two reference marks, as described in note 12a, are, respectively, on a prominent shoulder 3 feet higher than the station 5.826 meters (19.11 feet) from the station in azimuth 91° 45′ 49″, and close to a crevice 7 meters (23 feet) from the station in azimuth 215° 46′ 22″. Turnabout Light is in azimuth 273° 34′ 39″.

Bendel (E. W. Eickelberg, 1917; 1925).—In Frederick Sound, on Kupreanof Island, on Cape Bendel, on a ledge of rock outside of extreme high water, 400 meters (1,312 feet) north of a fish trap, and 15.2 feet above mean sea level. A small bight lies just to the southward into which a small creek empties. The station is marked as described in note 2a. Reference mark No. 1, as described in note 12a, is 5.348 meters (17.55 feet) from the station in azimuth 259° 32′ 14″. Reference mark No. 2, as described in note 12c; is 24.963 meters (81.90 feet) from the station in azimuth 309° 22′ 24″.

Bill Point (E. W. Eickelberg, 1917; 1920).—In Frederick Sound, on the northwestern end of Whitney Island, on Bill Point, 26.2 feet above mean sea level, and 50 meters (164 feet) from the extremity of the point. The cleavage of the shaly rock is almost perpendicular and very much weathered. The station is marked as described in note 2a. Two reference marks, as described in note 12a, are, respectively, 5.775 meters (18.95 feet) from the station in azimuth 159° 46′ 03″ and 7.998 meters (26.24 feet) in azimuth 236° 14′ 55″. The witness mark, as described in note 15a, is on an 8-inch spruce tree 25.09 meters (82.3 feet) from the station in azimuth 291° 43′ 48″.

Pybus (E. W. Eickelberg, 1917; 1924).—In Frederick Sound, on Admiralty Island, on False Point Pybus, a rocky point 32.5 feet above mean sea level, south of a small bight which bares at low water and north of a small bight suitable for anchorage in calm weather. The rock in this vicinity is exceedingly hard and brittle. Round Rock can be seen to the southward the line of sight passing close to a point 300 meters (984 feet) distant. The station is marked as described in note 3. Two reference marks, as described in note 12b, are, respectively, 3.886 meters (12.75 feet) from the station in azimuth 154° 22′ 14″, and 4.116 meters (13.50 feet), azimuth not given. Three witness marks, as described in note 15a, are on spruce trees, respectively, 16.02 meters (52.6 feet) from the station in azimuth 75° 58′ 29″, 13.68 meters (44.9 feet) in azimuth 112° 07′ 54″ and 17.72 meters (58.1 feet) in azimuth 145° 22′ 52″.

Twin (E. W. Eickelberg, 1917; 1924).—In Frederick Sound, on the outermost point of the westerly Twin Island, 21.9 feet above mean sea level. The station is marked as described in note 2a. The reference mark, as described in note 12a, is in range with Bill Point, 11.755 meters (38.57 feet) from the station in azimuth 357° 57′ 35″. The witness mark, as described in note 15a, is 35.5 meters (116

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feet) from the station in azimuth 292° 57′. Southeast Five Finger Light is in azimuth 15° 06′ 35″.

Gambier (N. H. Heck, 1920; 1924).—In Frederick Sound, on Gambier Island, on a black rock ledge making off the southeast end of the island, about 6 feet above higher high water and disconnected from the main shore at mean high water. The lighthouse, about 200 meters (656 feet) to the southwest, is just visible at the edge of the tree line. The station is marked as described in note 3. Two reference marks, as described in note 12b, are, respectively, 6.63 meters (21.8 feet) from the station in azimuth 137° 52′, and 6.79 meters (22.3 feet) in azimuth 345° 56′. The witness mark, as described in note 15a, is on a tree immediately back of the station, about 60 meters (197 feet) from the station in azimuth 79° 56′. All distances are measured on slope.

Supplementary points

Take (C. M. Thomas, 1887; 1917).—In Frederick Sound, east of the entrance to Wrangell Narrows, on the north shore of Mitkoff Island, on a bowlder at high-water line. The station is marked by a cross on the north face of the bowlder. At the base of the bowlder, which is imbedded in the beach, a beef extract jar is buried under the cross mark with a cairn of rocks piled over it. A tree is blazed at the tree line back from the station and from this blaze the station mark is toward bald spot in face of bluff over in Brown Cove and 57 feet distant.

Island (C. M. Thomas, 1887; 1917).—In Frederick Sound, directly across from the north entrance to Wrangell Strait, on the western side of the western of two small islands, on a small grass-covered flat above high water. The station is marked by a hole in the rock. Reference mark No. 1 is a copper bolt cemented in a bowlder, 3.014 meters (9.89 feet) from the station in a southwesterly direction. Reference mark No. 2 is a copper bolt in a bowlder, 9.668 meters (31.72 feet) from the station in a southeasterly direction.

Ag (E. W. Eickelberg, 1917).—In Frederick Sound, on the northern extremity of Point Agassiz. The station is marked as described in note 2a.

Beacon (E. W. Eickelberg, 1917).—On the west shore of Frederick Sound, 3 miles north of Sukoi Island. A white tripod beacon.

Horn (E. W. Eickelberg, 1917).—In Frederick Sound, on Horn Mountain, on the first prominent shoulder about 500 feet lower than the peak. The station is marked as described in note 2a. The reference mark is a patch of cement with arrow engraved on it pointing toward the station.

Cape Strait Lighthouse (E. W. Eickelberg, 1917).—In Frederick Sound, on the mainland. The station is a blinker light on top of a steel structure.

Shore (C. M. Thomas, 1887; 1917).—In Frederick Sound, on Kupreanof Island, on the first of the most prominent points to the westward of Portage Islands, on the eastern one of a group of three large rocks that stand out prominently on the point. These rocks are about 20 meters (66 feet) from the woods back of them and at the line of high-water mark. The shore is low and rocky. The station is marked by a cross in the rock. The witness marks were three piles of stones, each 3 meters (10 feet) from the station northeast, west, and south-southeast, respectively, but in 1917 they could not be found.

Mark (C. M. Thomas, 1887; 1917).—In Frederick Sound, on Kupreanof Island, on the next prominent point to the westward of station *Shore*. The station is marked by a cross drilled in a large rock standing by itself. The witness marks were three piles of stones, each 9 feet from the station, northeast, west, and south-southeast, respectively, but in 1917 they could not be found.

Slate 2 (E. W. Eickelberg, 1917).—In Frederick Sound, on Kupreanof Island on a low point of land 4½ miles west of station *Flat*. The station is marked as described in note 2a. A reference mark was set as described in note 12a.

Turnabout Island Lighthouse (E. W. Eickelberg, 1917).—In Frederick Sound, on the mainland. The station is the blinker light on top of a white box.

Point Gambier Lighthouse (E. W. Eickelberg, 1917).—In Frederick Sound, on the mainland. The station is the blinker light on top of a white box.

Five Finger Lighthouse (E. W. Eickelberg, 1917).—In Frederick Sound, on the mainland, on the southeast Five Finger Island. The station is the light tower on top of a residence.

STEPHENS PASSAGE

Principal points

Sunset (N. H. Heck, 1920; 1921).—In Stephens Passage, near the northern end of the west side of Sunset Island, on the top of a steep white granite cliff

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between some large granite bowlders, about 20 feet above higher high-water line, and close to the tree line. The west tangent of the western one of the Twins to the southward is just visible along the edge of the tree line. The station is marked as described in note 1c. Two reference marks, as described in note 12c, are, respectively, 7.25 meters (23.8 feet) from the station in azimuth 195° 44′ and 5.80 meters (19.0 feet) in azimuth 347° 27′. The witness mark, as described in note 15a, is about 15 meters (49 feet) from the station in azimuth 260°. All distances are measured on slope.

Hugh (N. H. Heck, 1920; 1921).—In Stephens Passage, on Glass Peninsula, on the second projecting point just north of Point Hugh, on a black rocky ledge making off shore, at about higher high-water line. There is another ledge, covered at high water, a few hundred meters to the southward, forming in between a small bight with gravel and rocky beach. The station is marked as described in note 4. Two reference marks, as described in note 12c, are, respectively, 6.14 meters (20.1 feet) from the station in azimuth 34° 24′, and 4.13 meters (13.5 feet) from the station in azimuth 89° 17′. All distances are measured on slope.

Cliff (N. H. Heck, 1921).—In Stephens Passage, near the southern extremity of Point League, about 150 meters (492 feet) south of Point League proper which is a hummocky, grass-covered knoll, on a step or shelf of narrow, rocky ledge, about 6 feet above higher high water, and about 3 meters (10 feet) in front of a steep bluff. The shore is very steep, rocky, and precipitous and the point is gently rounding. The section of the cliff slightly to the south of the station and about 15 feet higher was whitewashed. The station is marked as described in note 3. The reference mark, as described in note 12b, is 7.835 meters (25.71 feet) from the station in azimuth 204° 39′. The witness mark, as described in note 15a, is 9.8 meters (32.2 feet) from the station in azimuth 262° 13′.

Mid (N. H. Heck, 1920; 1921).—In Stephens Passage, on the southern part of Glass Peninsula, on a projecting point halfway between Point Hugh and the point just north of the lighthouse, on a black, rocky ledge approximately 2 feet below the higher high-water line. The lighthouse is visible just inside of the next point to the northward. The station is marked as described in note 2. Two reference marks, as described in note 12c, are, respectively, 10.72 meters (35.2 feet) from the station in azimuth 65° 23′, and 16.40 meters (53.8 feet) in azimuth 142° 23′. The witness mark, as described in note 15a, is approximately 30 meters (98 feet) from the station in azimuth 69° 02′. All distances are measured on slope.

Lookout (N. H. Heck, 1921).—In Stephens Passage, on Point Lookout, a narrow rocky point barely connected with the main shore at higher high water. The summit of the point is hummocky and lightly covered with grass and is about 20 feet above high water. The station is not on the highest part but about 10 feet lower, on the ledge making off to seaward. Directly to the south of the point is a small bight with sand and gravel beach. The station is marked as described in note 3. The reference mark, as described in note 12b, is near the highest part of the point, on a grassy yellowish oval-shaped mound, 8.41 meters (27.6 feet) from the station in azimuth 250° 07′. The witness mark, as described in note 15a, is 13.7 meters (44.9 feet) from the station in azimuth 281° 38′.

Lite (N. H. Heck, 1920; 1921).—In Stephens Passage, on the northern end of the southern section of Glass Peninsula, on a projecting point about ¼ mile north of the lighthouse, on conspicuous white granite cliff, about 10 feet above higher high water. A cliff immediately back of the station is white, perpendicular, and about 30 feet high. From the station Midway Point is just visible inside of Glass Point. The station is marked as described in note 4. The reference mark, as described in note 12b, is on the same shelf or cliff, in line with the lighthouse, 3.93 meters (12.9 feet) from the station in azimuth 11° 14′. All distances are measured on slope.

Tip (N. H. Heck, 1921; 1923).—In Stephens Passage, on the highest point of a bare pinnacle rock lying about 50 meters (164 feet) south of narrow neck of land approximately midway between Point Astley and Point Lookout, on rock rectangular in shape about 6 feet above higher high water. Although rock appears isolated it is really the highest point of a ledge projecting from the shore. The top of the rock is about 6 feet square. The station is marked as described in note 4. The reference mark, as described in note 12b, is near the station, on the same rock, and in azimuth 268° 30′.

Midway (N. H. Heck, 1920; 1925).—In Stephens Passage, on Glass Peninsula, on Midway Point, on top of white, conspicuous cliff about 30 feet above higher high water, between two large sections of rock, which are white and considerably

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broken up. There is a round grassy knoll back of the station, and a small indentation in the coast line just north of the station. The station is marked as described in note 3. The reference mark, as described in note 12a, is 3.70 meters (12.1 feet) from the station in azimuth 274° 39′. All distances are measured on slope.

Astley Laplace (G. D. Cowie, 1923; 1925).—In Stephens Passage, on the northern extremity of Point Astley, on a narrow ledge of crumbling schist, about 5 feet above higher high water, about 30 meters (98 feet) from the tree line. The station is a standard brass disk cemented in a hole drilled in a crevice in the top of the ledge. Reference mark No. 1 is a standard disk on the same ledge, 12.225 meters (40.11 feet) from the station in azimuth 317° 06′. Reference mark No. 2 is a brass rod cemented in a drilled hole in the top of a small prominence on the same ledge, 9.79 meters (32.1 feet) from the station in azimuth 342° 37′. The witness mark is a blaze on a spruce tree 36.7 meters (120.4 feet) from the station in azimuth 335° 45′. The longitude station is 110.86 meters (363.7 feet) from the station in azimuth 278° 55′.

Glass (N. H. Heck, 1920; 1925).—In Stephens Passage, on Glass Peninsula on a black rocky ledge projecting from Glass Point, about 5 feet above higher high water. Midway Point is in range with the summit of a prominent hill back of it, and is visible above the highest part of a projecting reef about ½ mile to the southward. The station is marked as described in note 3. The reference mark, as described in note 12b, is 8.80 meters (28.9 feet) from the station in azimuth 335° 44′. The witness mark, as described in note 15a, is approximately 30 meters (98 feet) from the station in azimuth 73°. All distances are measured on slope.

Coke (N. H. Heck, 1920; 1921).—In Stephens Passage, on a point nearly abreast of Midway Island Light, which lies about 3 miles north of Point Coke, near the top of a conspicuous, white, vertical cliff, about 20 feet above higher high water. There are numerous large white shalelike bowlders lying about. The station is marked as described in note 2. The reference mark, as described in note 12c, is 4.54 meters (14.9 feet) from the station in azimuth 186° 00′. All distances are measured on slope.

Tracy (N. H. Heck, 1921; 1925).—In Stephens Passage, on Point Coke, on a steep rocky cliff about 600 meters (1,968 feet) to the westward of a small inlet which is just inside of Point Coke, about 15 feet above higher high water, and about 5 meters from the timber line. The rock on the cliff is of needle formation. The station is marked as described in note 3. The reference mark, as described in note 12b, is 3.445 meters (11.30 feet) from the station in azimuth 138° 21′ 30″. The witness mark, as described in note 15a, is 7.0 meters (23 feet) from the station in azimuth 194° 26′ 30″. All distances are measured on slope.

Holk (J. Senior, 1925; 1927).—On the southern end of Holkham Bay, on the first point to the eastward of Point Astley. The station is marked as described in note 3. The reference mark, as described in note 12a, is 3.68 meters (12.1 feet) from the station in azimuth 39° 12′.

Harbor (N. H. Heck, 1921; 1925).—In Stephens Passage, in Holkham Bay, on the southern side of Harbor Island, on the highest and most easterly of two prominent rocks about 30 meters (98 feet) apart and about 20 meters (66 feet) off shore, and about 20 feet above higher high water. The station is marked as described in note 3. The reference mark, as described in note 12b, is 7.562 meters (24.81 feet) from the station in azimuth 275° 08′ 29″, and about 5 feet below the station mark. The witness mark, as described in note 15a, is 37.2 meters (122.0 feet) from the station in azimuth 214° 28′ 39″. All distances are measured on slope.

Holkham Bay north base (J. Senior, 1925; 1927).—In Stephens Passage, at the southern end of Holkham Bay, on the northern end of the sand spit, on the western edge of a grass plot, on a large bowlder about 3 by 6 feet on top, at about the higher high-water mark. The station is marked as described in note 4. The reference mark, as described in note 11a, is about 15 meters (49 feet) from the northern end of the grass edge, and about 5 meters (16 feet) from the east and west edge, 12.19 meters (40.0 feet) from the station in azimuth 324° 30′.

Holkham Bay south base (J. Senior, 1925; 1927).—In Stephens Passage, at the southern end of Holkham Bay, on the sand beach, about 400 meters (1,312 feet) south of the edge of the trees bordering on the sand spit, about 150 meters (492 feet) north of the first creek south of the spit, at about high water, and just off the range of the point just to the westward of the above creek and the first point to the eastward of Point Astley. The station is marked as described in note 1a.

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The reference mark, as described in note 12c, is on the outermost of two large bowlders about 6 feet square and 5 feet high at the high-water mark, 157.94 meters (518.2 feet) from the station in azimuth 187° 08′.

Twin Point (N. H. Heck, 1920; 1921).—In Stephens Passage, on Glass Peninsula on Twin Point, the northern one of two points on the shore opposite Port Snettisham, on a reef making off this point for about 50 meters (164 feet), approximately at mean high-water line and about 5 meters (16 feet) from the steep, perpendicular cliff at the sound end of the point. The beach at this point is composed of coarse sand and gravel with soft irregular shale rock imbedded in the sand. The station is marked as described in note 3. Two reference marks, as described in note 12c, are, respectively, 11.80 meters (38.7 feet) from the station in azimuth 13° 41′ and 19.00 meters (62.3 feet) in azimuth 20° 23′. The distances are measured on slope.

Anmer (N. H. Heck, 1920; 1921).—In Stephens Passage, on Point Anmer, near the top of a conspicuous, white, vertical cliff, not on the highest point but on a shelf of rock near the outer edge, about 30 feet above higher high water, and about 25 feet below the top of round grass knob. A prominent cascade is located about 1 mile south, but is not visible from the station. The shelf containing this station is quite narrow and is covered with loose, small rocks which in time will cover the mark. The station is marked as described in note 3. The reference mark, as described in note 12a, is at the same elevation, on the same shelf, approximately south, and close to the edge of the perpendicular cliff, 7.56 meters (24.8 feet) from the station. All distances are measured on slope.

South (N. H. Heck, 1921).—In Stephens Passage, near the southeast extremity of South Island, on ledge projecting from main shore, on jagged rock slightly higher than surrounding ledge, and approximately 3 feet above higher high water. A vertical cliff, about 25 feet high, is about 4 meters (13 feet) directly back of the station, and a small bight with sandy beach is about 50 meters (164 feet) to the south. The station is on range with the high point of the reef off the southeast point of the island and Point League on the opposite shore. It is marked as described in note 3. A reference mark, as described in note 12a, is in a drill hole in outcropping bedrock to the south of the station and about 3 feet lower. No measurements were recorded.

Style (N. H. Heck, 1920; 1921).—In Stephens Passage, about 1½ miles north of Point Styleman, on top of large, flat, granite bowlder imbedded for the greater part in the sand and gravel beach, on the grass line, approximately on the higher high-water line. The beach consists of small flat pebbles with many large bowlders scattered around. Three rocks awash at half tide are about 100 meters (328 feet) to the southward. The station is marked as described in note 4. Reference mark No. 1, as described in note 12c, is on the top of a large, flat, granite bowlder, imbedded in sand for the greater part, projecting about 1 foot above the surface of the beach, 6.40 meters (21.0 feet) from the station in azimuth 148° 08′. Reference mark No. 2, as described in note 12c, is on top of a large, black, irregular rock about 5 feet high lying in front of tree line on higher high-water line, 7.95 meters (26.1 feet) from the station in azimuth 318° 01′.

Stone (N. H. Heck, 1920; 1929).—In Stephens Passage, on Glass Peninsula, on a bold conspicuous bluff about 1 mile north of Station Point, on top of a ledge, about 3 feet from the outer side, and about 40 feet above high water. Taku cannery is visible on the opposite shore. The station is marked as described in note 2. The reference mark, as described in note 12a, is on top of the ledge about 6 feet higher than the station and only 6 inches from the steep perpendicular side of the cliff forming a deep gorge, 10.10 meters (33.1 feet) from the station in azimuth 127° 26′. All distances are measured on slope.

Limestone (N. H. Heck, 1921; 1929).—In Stephens Passage, on the south point at the southern entrance to Limestone Inlet, on top of a small rocky islet barely separated from the main shore at high water, and about 20 feet above higher high water. The summit is knoll-shaped and is covered with grass and some small spruce trees. The station is marked as described in note 1c in bedrock about 2 feet below the surface of the soil. Reference mark No. 1, as described in note 12b, is on top of a wedge-shaped rock separated from the station by an intervening gorge and about 8 feet below the station, 10.75 meters (35.3 feet) from the station in azimuth 350°. Reference mark No. 2, as described in note 12b, is on the same ledge of rock as the station and about 8 feet lower, 5.20 meters (17.1 feet) from the station in azimuth 90° 47′. It is in range with station *Stone*.

Rock (F. S. Borden, 1917; 1929).—On the west side of Stephens Passage, abreast of Taku Harbor, on a rock about 200 feet off shore but connected with

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the shore at low water, on a level shelf about 6 feet above high-water mark, and 4 feet below the highest sharp ridge of the rock which runs in the direction of Grand Island. The left tangent of Circle Point is just visible along the right tangent of Grand Island. The station is marked as described in note 2. The reference mark, as described in note 12a, is 6.95 meters (22.8 feet) from the station and is just inside the right tangent of Grand Island.

Grave (F. S. Borden, 1917; 1929).—In Stephens Passage, on Grave Point, which is the north entrance point to Taku Harbor, on an outcropping ledge of rocks, about 3 meters (10 feet) from the extreme edge, on a level area 10 feet wide and covered with 6 inches of soil, about 6 feet higher than the base of Grave Point Lighthouse, and 30 feet above high-water mark. The light shows half way between Grand Island and the most prominent hill on the opposite side of the channel. The three legs of the tripod were cemented to the rock and this cement should aid in recovering the station. The station is marked as described in note 2. The reference mark, as described in note 12a, is 8.18 meters (26.8 feet) from the station in azimuth 98° 47′. Grave Point Lighthouse is 8.58 meters (28.1 feet) from the station in azimuth 108° 55′ 24″.

Whale (F. S. Borden, 1917).—In Stephens Passage, on the south side of Grand Island, about 400 meters (1,312 feet) from the south end of the island, on a slightly sloping granite ledge, about 25 feet above high water and 1 meter (3 feet) from the edge of the cliff. The slope is in the direction of Grave Point and the ledge drops off abruptly to westward. The station is marked as described in note 2. The reference mark, as described in note 12a, is on top of rocky ledge, 9.77 meters (32.1 feet) from the station in azimuth 201° 49′. From the reference mark, Grave Point and a point 400 meters (1,312 feet) to the westward of the station are on range.

Doty (F. S. Borden, 1917).—On the west side of Stephens Passage, abreast Grand Island, on a high prominent knoblike rock 40 feet above high-water mark and about 2 meters (7 feet) from the cliff which drops vertically to the water, on range with the small rock off the northwest end of Grand Island and the highest part of the 900-foot hill back of Circle Point. The station is marked as described in note 2. The reference mark, as described in note 12a, is on top of a rock detached from the point and surrounded by water at high tide, about 6 feet above high water, 31.90 meters (104.7 feet) from the station in azimuth 195° 16′ 31″.

Cove (F. S. Borden, 1917).—In Stephens Passage, on the south end of a grassy knoll on Cove Point, on top of a lone bowlder 3 feet across and 2 feet deep, 1 meter (3 feet) from the edge of the embankment which drops almost vertically to the high-water mark 30 feet below. The north entrance point to Taku Inlet shows just over a ledge and by the tree line on the next point 300 meters (984 feet) northward. The station is marked as described in note 4. The reference mark, as described in note 12c, is on top of an enormous granite bowlder directly in line with the station and the right tangent to Grand Island, on face of rock 20 feet below station and 10 feet above high-water mark, 14.40 meters (47.2 feet) from the station in azimuth 341° 56′.

Circle (F. S. Borden, 1917).—In Stephens Passage, on Circle Point, the last point to the southward from which the south entrance point to Taku Inlet is visible, and about 300 meters (984 feet) north of the last point from which Grave Point can be seen, on a granite ledge 10 feet above extreme high water, on a level area 4 feet across. The station is marked as described in note 2. The reference mark, as described in note 12c, is on top of a large granite bowlder in the direction of Taku Inlet 15.65 meters (51.3 feet) from the station in azimuth 172° 12′. Two trees, which form almost an equilateral triangle with the station, are blazed. The north blaze is 8.80 meters (28.9 feet) and the south blaze 9.40 meters (30.8 feet) from the station.

Grand (F. S. Borden, 1917).—In Stephens Passage, on the north side of Grand Island, about 400 meters (1,312 feet) from the northwest point, on a flat-top outcropping rock at the edge of the wood line, about 65 feet above the water. From the station the northwest end of the island is visible but there is a very prominent steep ledge about 60 meters (197 feet) east of the station from which the northwest end of the island is not visible. The station is marked as described in note 2. The reference mark, as described in note 12c, is on top of a pinnacle rock bowlder in the direction of the bay back of Cove Point and 20 feet below the station, 15.78 meters (51.8 feet) from the station in azimuth 117° 28′.

Slocum (F. S. Borden, 1917; 1929).—In Stephens Passage, on a prominent point about 2 miles north of Slocum Inlet, on top of a rock 30 feet high detached from the mainland by a deep gulch. The rock is covered with grass, has several

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scrub trees growing on it, and is almost surrounded by water at high tide. The station is on a level shelf 5 feet lower than the highest point of the rock and about 3 meters (10 feet) from the highest part in the direction of Cove Point. It is marked as described in note 2. The reference mark, as described in note 12a, is in a vertical cliff 4 feet high which practically faces the station at the north end of the islet, 2½ feet above the shelf, and 1 meter (3 feet) from the edge of a cliff dropping vertically to the water, 9.96 meters (32.7 feet) from the station in azimuth 191° 32′.

Arden (F. S. Borden, 1917; 1929).—In Stephens Passage, on a grassy point about 200 meters (656 feet) from Arden Point Light in the direction of Grand Island, about 4 meters (13 feet) back from extreme end of the point, in range with the extreme end of the point and a prominent white cliff on the south side of Taku Inlet, and about 30 feet above high-water mark. The station is marked as described in notes 1c and 7d. The reference mark, as described in note 12c, is on top of a large granite bowlder on the same level as the station and at the head of a small ravine formed by the point on which the station is located and the next point to the northward, 11.10 meters (36.4 feet) from the station in azimuth 100° 49′.

Bishop (F. S. Borden, 1917; 1929).—In Stephens Passage, on Bishop Point, on a sloping ledge of rock bearing in the direction of Circle Point, about 20 feet above high-water mark, 4 meters (13 feet) from the tree line, and about 2 meters (7 feet) west of a cleft in the rock which runs inland and forms a small ravine. The station is marked as described in note 2. The reference mark, as described in note 12a, is on a ledge to the westward and about 1 foot to the left of a line from the station to Salisbury Point, 26.11 meters (85.7 feet) from the station in azimuth 95° 46′.

Salisbury (F. S. Borden, 1917; 1925).—In Stephens Passage, on Salisbury Point, on top of the outermost rock on the point, about 6 feet above extreme high-water mark and surrounded by water at high tide. From the side the rock appears cube-shaped about 8 feet across. Bishop Point is just visible past a point 200 meters (656 feet) east of the station. The station is marked as described in note 2. The reference mark, as described in note 12a, is on top of a ledge of rocks 4 meters (13 feet) from the wood line and 6 inches from the edge of the ledge which drops off vertically to the extreme high-water mark, 29.41 meters (96.5 feet) from the station in azimuth 230° 32′.

Corner (F. S. Borden, 1917; 1925).—On the south shore of Stephens Passage about 1 mile northwest of Point Arden, 2 miles southeast of Marmion Island, on a sloping ridge covered with grass, at tree line, 15 meters (49 feet) back from where the sloping ridge terminates in a vertical cliff, and about 35 feet above high water. The station is marked as described in note 4. The reference mark, as described in note 12a, is on a sloping ledge to the east 30 feet below the station, 20.56 meters (67.5 feet) from the station in azimuth 245° 23′. The stump of a 24-inch tree which was cut down to clear the line of sight serves as a witness mark.

Tantallon (F. S. Borden, 1917; 1925).—In Stephens Passage, on the south end of Douglas Island, on a very abrupt and steep point, the only shelf of rock that exists in the cliffs which rise vertically from the high-water mark. A low peninsula 400 meters (1,312 feet) to the westward can just be seen past the adjacent cliff. The station is marked as described in note 2a. The reference mark, as described in note 12a, is in the top of a ridge of rock to the eastward of the station. No measurements were recorded.

New (J. Senior, 1925).—In Stephens Passage, on Admiralty Island, east of Oliver Inlet, on the gently rounding point of land west of Point False Arden and south (true) of Tantallon Point, about 12 feet above higher high water. The rounding point to the westward of Oliver Inlet is just visible from the station. The station, directly in front of the tree line, is marked as described in note 4. The reference mark, as described in note 12a, is approximately 4 feet lower than the station, 9.28 meters (30.4 feet) from the station in azimuth 140° 08′ 51″.

Ton (J. Senior, 1925).—On Gastineau Channel, on Douglas Island back of Marmion Island, on a high cliff which is the second one projecting outward south of the sand spit, in bedrock about 3 feet below the surface of the ground. A trail leads from the house of K. T. Markstrom (Taku View) past the station. The station is marked as described in note 3. The reference mark, as described in note 12a, is on a pinnacle rock about 15 feet high and about 20 feet outward from the cliff, 15.35 meters (50.4 feet) from the station in azimuth 227° 06′ 00″.

Gastineau Channel south base (J. Senior, 1925).—On the east side of Gastineau Channel, about ½ mile north of Point Salisbury, on the last point visible from

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station *Gastineau Channel north base*, about 50 meters (164 feet) south of a small creek, at about the high-water mark. This creek is the first creek south of the gravel beach which is about 1 mile south of the du Pont de Nemours powder warehouse. The station is marked as described in note 3. The reference mark, as described in note 12c, is 13.28 meters (43.6 feet) from the station in azimuth 324° 02′ 41″.

Marks (J. Senior, 1925).—On the west side of Gastineau Channel, on Douglas Island, on the third cliff of exposed bedrock north of Marmion Island, and about 3 feet from the edge of the cliff. The station is marked as described in note 3. The reference mark, as described in note 12a, is on a projecting point of bedrock about 3 feet lower and 10 feet out from the edge of the cliff, 5.375 meters (17.63 feet) from the station in azimuth 185° 14′.

Gastineau Channel north base (J. Senior, 1925).—In Gastineau Channel, about 30 feet northeast of where the high water crosses Du Pont Creek, in a rock flush with the ground at the high-water mark. The powder warehouse of the du Pont de Nemours Co. is located on the opposite side of the creek at this point. The station is marked as described in note 4. The reference mark, as described in note 12c, is on a bowlder about 3 by 2 by 2 feet, 9.70 meters (31.8 feet) from the station in azimuth 90° 53′.

Oliver (F. S. Borden, 1917; 1921).—On the south side of Stephens Passage, 1 mile northeast of Oliver Inlet, on a rounding rocky point 2 meters (7 feet) west of a watercourse, and 20 feet above high-water mark. The cliff drops vertically from the station to the bottom of the watercourse and slopes off gradually in a westerly direction. The station is on the top of an outcropping granite pinnacle rock 1 foot above the moss and soil around the rock and is marked as described in note 2. The reference mark, as described in note 12a, is 15 feet above high water at the edge of the tree line, 17.96 meters (58.9 feet) from the station in azimuth 96° 45′. The witness mark, as described in note 15a, is 3 feet above the ground in a spruce tree 2 feet in diameter, 5.80 meters (19.0 feet) from the station in azimuth 10° 17′.

Rain (F. S. Borden, 1917; 1922).—On the south side of Stephens Passage, 5 miles east of Young Point, on a grass and gravel point, about 400 meters (1,312 feet) east of the most easterly point from which Young Point is visible, 4 meters (13 feet) from the tree line, and 10 meters (33 feet) from the high-water mark. The point is conspicuous on account of a ledge of black rocks just off the point at high-water mark. The station is marked as described in note 4. The reference mark, as described in note 12c, is on a black rock in range with the station and a gap between the two most prominent peaks on the opposite side of the channel, 16.01 meters (52.5 feet) from the station in azimuth 200° 29′.

Donough (F. S. Borden, 1917).—In Stephens Passage, about 5 miles east of Hilda Point, on the outermost one of several rocks which extend out from a sandy point, on a flat-top rock which slopes slightly toward the channel, and about 3 feet above extreme high water. A short strip of sand beach is just to the westward of the point. The station is marked as described in note 2. The reference mark, as described in note 12a, is on top of a rock to the eastward at the same elevation as the station, in azimuth 271° 30′ 46″. From the reference mark Scull Island shows just over the station mark.

Jumbo (F. S. Borden, 1917; 1922).—On the north side of Stephens Passage, 3 miles east of Hilda Point, on a ledge of rocks the top of which is somewhat flat and large enough for a signal, and 5 feet above high water. A pinnacle 5 feet higher than the station is about 5 meters (16 feet) to the eastward. The station is marked as described in note 2. The reference mark, as described in note 12c, is in the top of the west side of the highest bowlder on the point to the eastward, 10 feet above high water and 6 feet from the vertical cliff back of the mark, 38.32 meters (125.7 feet) from the station in azimuth 267° 01′.

Bight (F. S. Borden, 1917; 1922).—On the south side of Stephens Passage, about 3 miles east of Young Point, on a rounding point just to the eastward of a small bight, 2 meters (7 feet) from the tree line, and 5 meters (16 feet) back from the high-water mark. The right tangent of Douglas Island shows by the next point to the eastward of the station. The station is marked as described in note 4. The reference mark, as described in note 12c, is on the largest bowlder in the vicinity, 2½ feet high and 4 feet long, at the edge of the grass and beach line, 24.48 meters (80.3 feet) from the station in azimuth 103° 34′.

Young (F. S. Borden, 1917; 1923).—In Stephens Passage, at the eastern entrance to Young Bay, on Young Point, 5 meters (16 feet) from extreme high water and about 7 feet above high water. The point is covered with grass. The station

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is marked as described in note 1b. The reference mark, as described in note 11b, is at the edge of the woods on the highest ground in the vicinity, 10.84 meters (35.6 feet) from the station in azimuth 348° 47′. The top of the 7-inch galvanized iron casing of the monument projects about 4 inches above the surface of the ground. The witness mark, as described in note 15a, is on a spruce tree 5 feet in diameter, one of the largest spruce trees in the vicinity, at the edge of the woods, 14.920 meters (48.95 feet) from the station in azimuth 14° 45′. A brass plug 2 inches long and ¼ inch in diameter is in the center of the blaze. A concrete base, 3 feet square, used for gravity, is about 6 meters (20 feet) southwest of the station.

Hilda (F. S. Borden, 1917; 1922).—In Stephens Passage, at Young Bay, on a rounding point about ⅜ mile west of Hilda Point, on the top of a large bowlder 3 feet high and 4 feet across which is at extreme high water, 4 feet above high-water mark, and 14 meters (46 feet) from the wood line. The station is marked as described in note 4. The reference mark, as described in note 12c, is on top of a large bowlder 4 feet high and 10 feet long at the edge of the woods, 16.58 meters (58.4 feet) from the station in azimuth 163° 24′. The station was reported as probably lost in 1922.

Target (F. S. Borden, 1917).—In Stephens Passage, in Young Bay, on the second point east of the point (Lighthouse Point) on which station *Deer* is located, on top of a bowlder 2½ by 2 by 4 feet partially imbedded in the ground, at the tree line, 2 meters (7 feet) back from and 1 meter (3 feet) above extreme high water. The point is rounded and covered with large bowlders and gravel. Station *Hilda* is just visible past a wooded point ¾ mile to the eastward. The station is marked as described in note 4. Reference mark No. 1, as described in note 12c, is on the highest point of a flat rock 5 feet square and 18 inches thick, just within the woods, and 5 meters (16 feet) back from extreme high water, 6.050 meters (19.85 feet) from the station in azimuth 164° 51′. Reference mark No. 2, as described in note 15a, is the head of a fiftypenny spike in a large blaze 2 feet above the ground in a spruce tree 18 inches in diameter, about 8 meters (26 feet) back from high-water mark, and 8.550 meters (28.1 feet) from the station in azimuth 222° 39′. Witness marks are the two largest bowlders on the beach in this vicinity. Distances to them were not recorded.

Scull 2 (F. S. Borden, 1917; 1923).—In Stephens Passage, in Young Bay, on the highest point of Scull Island. The station is marked as described in note 4. The reference mark, as described in note 12a, is in the top of and 3 meters (10 feet) from the edge of the ledge, about 6 feet lower than the station, at the edge of grass and moss line, and on range with the station and Hilda Point, 8.11 meters (26.6 feet) from the station in azimuth 261° 57′.

Deer (F. S. Borden, 1917).—In Stephens Passage, on the southwest side of Douglas Island, about 2½ miles north by east (true) of Scull Island, at the outer end of a long sand spit covered with grass, about 4 meters (13 feet) from extreme high-water mark, and 2 feet above the high-water mark. The station is marked as described in notes 1b and 7b. The reference mark, as described in note 11c, is in a cement block which is cemented to the concrete foundation on the southwest side of the lighthouse about 1½ feet from the west corner, 11.945 meters (39.19 feet) from the station in azimuth 271° 51′. The lighthouse is 12.85 meters (42.2 feet) from the station in azimuth 269° 58′ 39″.

Grouse (F. S. Borden, 1917).—In Stephens Passage, on the west entrance to Young Bay, on a point covered with large bowlders, on top of a granite bowlder at the high-water mark which projects about 1 foot above the ground, and about 10 meters (33 feet) from the edge of the wood line. The station is marked as described in note 4. The reference mark, as described in note 12c, is on the northwest corner of a large bowlder 2 feet high which is in the woods about 2 meters (7 feet) from the wood line, the only bowlder along the edge of the woods in this locality, 25.825 meters (84.73 feet) from the station in azimuth 119° 23′ 48″.

Hawk (F. S. Borden, 1917).—In Stephens Passage, on the west side of and about 2 miles north from the head of Young Bay, on a rounding point covered with large bowlders, on the highest bowlder, which is cone-shaped and projects about 3½ feet above the beach, 10 meters (33 feet) from the wood line, and 2 feet below extreme high water at its base. The station is marked as described in note 4. The reference mark, as described in note 12c, is on a bowlder 3 feet high, at extreme high water, at the tree line, and on range with the station and the highest peak on the east side of Young Bay, 19.115 meters (62.71 feet) from the station.

Young Bay east base (F. S. Borden, 1917).—In Stephens Passage, about 1 mile east from the southwest angle of Young Bay, on the west side of and about

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200 meters (656 feet) from the outer end of a rocky point, 5 meters (16 feet) back from high water and 3 meters (10 feet) from the tree line. A watercourse, across which a large tree has fallen, is a few meters to the westward of the station. The line to station *West Base* passes close to a wooded point halfway between the two base stations. The station is marked as described in notes 4 and 7d. The reference mark, as described in note 12c, is on top of a large bowlder 3 feet high, on the beach at about high-water mark, 17.54 meters (57.5 feet) from the station in azimuth 131° 07′.

Young Bay west base (F. S. Borden, 1917).—In Stephens Passage, in the southwest angle of Young Bay, about 8 meters (26 feet) from the tree line, on a sandy ridge covered with grass, about 20 meters (66 feet) from the high-water mark, and 4.5 meters (15 feet) from a tree which stands detached from the other trees. Station *Hawk*, on the second point to the northward, is visible past the first point to the northward. The station is marked as described in notes 4 and 7d. The reference mark, as described in note 11b, is in the woods about 6 meters (20 feet) from the wood line and 10 meters (32 feet) from a vertical cliff, 15.505 meters (50.87 feet) from the station in azimuth 27° 46′. From the reference mark the station is in range with Scull Island. The witness mark, as described in note 15a, is in the detached tree mentioned above, 4.45 meters (14.6 feet) from the station in azimuth 316° 20′.

Horse (F. S. Borden, 1917).—In Stephens Passage, on the northeast end of Horse Island, on a shelf of slate rock at the foot of a vertical slate cliff, about 5 meters (16 feet) south from the extreme end of the cliff, and 3 feet above high water. Scull Island can just be seen outside of the rocky ledge to the southward. The station is marked as described in note 2. The reference mark, as described in note 12a, is in the vertical cliff mentioned above, 3 feet above the shelf used as a support in drilling the hole for the mark, and about 6 feet above the high-water mark, 6.365 meters (20.88 feet) from the station in azimuth 114° 28′.

Eagle (F. S. Borden, 1917).—In Stephens Passage, on the southwest side of Douglas Island and about 2 miles from the west end, on a rocky shelf in the side of a steep ledge 12 feet above high water, on the only point from which the two adjacent stations on Douglas Island can be seen. The station is marked as described in note 2. The reference mark, as described in note 12a, is on the same shelf of rock, 0.522 meter (1.71 feet) from the station in azimuth 274° 08′. The witness mark, as described in note 15b, is on a tree at the edge of the woods in azimuth 233° 58′.

Clearing (F. S. Borden, 1917).—In Stephens Passage, about ½ mile northwest of Colt Island, on the highest part of a cleared point and about 40 meters (131 feet) from the extreme tip of the point, at the southeast end of a deep bight having a gravel and sand beach, and about 35 feet above the high-water mark. The station is marked as described in notes 1b and 7b. The reference mark, as described in note 12a, is on the extreme tip of the point and cemented in the top of a small rock knob, 39.887 meters (130.86 feet) from the station in azimuth 126° 26′ 13″. The witness mark, as described in note 15a, is on the only tree on the point, 26.4 meters (86.6 feet) from the station in azimuth 113° 21′ 11″.

Outer (F. S. Borden, 1917).—In Stephens Passage, at the end of a rocky ledge, about 150 meters (492 feet) southeast of Outer Point, on top of the outermost rock which is 7 feet across, and 3 feet above extreme high water. At high tide the rock is surrounded by water. Station *Eagle* is just visible past a cliff 150 meters (492 feet) southeast of the station. The station is marked as described in note 2. The reference mark, as described in note 12a, is in the vertical face of the cliff to the eastward, 3 feet above the shelf used as a support in drilling the hole, 45.62 meters (149.7 feet) from the station in azimuth 298° 18′ 43″. From the reference mark, the station is on range with Symonds Point.

Cabin (F. S. Borden, 1917).—On the west side of Stephens Passage, about 3 miles south of Shelter Island, on a prominent sand and gravel point, 15 meters (49 feet) back from high-water mark, and 4 meters (13 feet) from the tree line, on a mound of sand. Symonds Point is visible just to the right of the first point to the northward and Barlow Point can be seen just to the right of Symonds Point. The station is marked as described in notes 1b and 7b. The reference mark, as described in note 12c, is on a sand mound about 1½ feet higher than the surrounding ground, and about 4 meters (13 feet) from the tree line, in the top of a bowlder 1 foot square and 1 foot deep, 5.347 meters (17.54 feet) from the station in azimuth 138° 02′ 34″. The witness mark, as described in note 15a, is on a spruce tree 6 inches in diameter at the edge of the tree line, 3 feet above the ground, and 6.685 meters (21.93 feet) from the station in azimuth 50° 30′. A 50-penny spike was driven in the center of the blaze.

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Cow 2 (F. S. Borden, 1917).—In Stephens Passage, about 400 meters (1,312 feet) off the northwest end of Portland Island, on a small islet, on a small mound at the north end of the islet, 1.20 meters (3.9 feet) from the highest tip of a rock in the direction of Outer Point. It is near the station of 1890. The station is marked as described in note 1b. The reference mark, as described in note 12a, is in the rock to the westward of the station, 0.36 meters (1.2 feet) from the highest tip of the rock in the direction of the peak back of Mendenhall Glacier, 1.33 meters (4.4 feet) from the station in azimuth 163° 00′ 35″.

Symonds (F. S. Borden, 1917).—On the south side of Stephens Passage, abreast Portland Island, about 150 meters (492 feet) southeast of Symonds Point, on a bluff 30 feet above high water, 30 meters (98 feet) from the cut in the cliff, and 2 meters (7 feet) back from the edge of the same cliff. The station is marked as described in notes 1b and 7b. The reference mark, as described in note 12c, is on a bowlder 8 inches square and halfway between two trees 2 feet apart, 9.25 meters (30.3 feet) from the station in azimuth 353° 07′ 50″. The line between the two trees is in the direction of Portland Island. The inside tree is 18 inches in diameter and the offshore tree 4 inches in diameter. The witness mark, as described in note 15a, a ¼-inch brass plug driven into the blaze on an 18-inch tree, is 6.46 meters (21.2 feet) from the station in azimuth 64° 50′ 50″.

Lena (F. S. Borden, 1917).—In Stephens Passage, on Lena Point, on an irregular ledge of rocks, 12 feet above high-water mark, on practically the only place level enough to build a signal. From the station the cliff drops almost vertically to the high-water mark. The station is marked as described in note 2. Reference mark No. 1, as described in note 12c, is in a square bowlder on top of the embankment, 10 feet above the station, 12.66 meters (41.5 feet) from the station in azimuth 237° 31′. Reference mark No. 2, as described in note 12a, is on a ledge of rock in the general direction of Coughlan Island, 24.12 meters (79.1 feet) from the station in azimuth 320° 39′.

Dairy (F. S. Borden, 1917).—In Stephens Passage, on the southeast end of Shelter Island, 1 meter (3 feet) from the edge of the bank, and 8 feet above high-water mark. The station is marked as described in notes 1b and 7. The reference mark, as described in note 12c, is on a bowlder 3 meters (10 feet) from the edge of the bank to the northward of the station, 21.87 meters (71.8 feet) from the station in azimuth 152° 07′ 04″. From the reference mark the station is on range with a triple peak back of Auke Cove in Young Bay. The witness mark, as described in note 15a, is on a tree to the southward of the station, 29.45 meters (96.6 feet) from the station in azimuth 348° 44′ 53″. Shelter Island Lighthouse is 5.68 meters (18.6 feet) from the station in azimuth 135° 11′.

Cliff (F. S. Borden, 1917).—In Stephens Passage, on the northeast side of Shelter Island and about 1 mile from the south end, on the middle of three points about 300 meters (984 feet) apart, and 1 meter (3 feet) from a vertical cliff, on a flat shelf of rock, in a triangular crevice in slate rock. The station is marked as described in note 3. The reference mark, as described in note 12c, is on a large greenish bowlder 3 feet high in the bight to the southward, 31.64 meters (103.8 feet) from the station in azimuth 19° 01′.

Ledge (F. S. Borden, 1917).—In Stephens Passage, on the northeast side of Shelter Island and about 3 miles from the southeast end, 20 meters (66 feet) in the direction of Benjamin Island from the outer end of a ledge of rocks which is the outermost point between stations *Cliff* and *Slate*, on the top of the largest bowlder in this locality, 4 feet high and 6 feet across, at about average high-water mark, and 10 meters (33 feet) from the cliff and wood line. The station is marked as described in note 4. The reference mark, as described in note 12a, is in the highest part of a slate ledge 6 feet high, and 4 meters (13 feet) from a vertical embankment, 10.553 meters (34.62 feet) from the station in azimuth 62° 55′. The station is in range with the reference mark and the highest part of the mountain range on the opposite side of the channel.

Tee (F. S. Borden, 1917).—In Stephens Passage, on the north side of Favorite Channel, on a rounding point about 1 mile north of the north entrance point to Tee Harbor, about 20 feet almost vertically above extreme high water, on a shelf in the ledge, on the only spot where a signal could be built. The station is in a conical crevice in the ledge, about 5 inches below the surface of the soil which covers the ledge at this point, and is marked as described in note 3. The reference mark, as described in note 12a, is in the top of the highest ledge outcropping on the shore below the station, 10 meters (33 feet) from the cliff, a few feet above high water and surrounded by water at high tide, 32.54 meters (106.8

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feet) inclined distance from the station in azimuth 18° 23′ 19″. The witness mark is a white log 40 feet by 14 inches lying up against the ledge, 15 feet from the station in the direction of Tee Harbor. The center of the log is about on a level with the station.

Slate (F. S. Borden, 1917).—In Stephens Passage, on the south side of Favorite Channel, on Shelter Island, on the outermost point between stations *Ledge* and *Indian*, on a shelf of slate rock 8 feet above high water, 1 meter (3 feet) from a 20-foot vertical cliff back of the station, in a V-shaped crevice. Station *Indian*, 3 miles up the channel, is visible past a point 150 meters (492 feet) to the northward. The station is marked as described in note 3. The reference mark, as described in note 12a, is on a flat shelf of slate rock at about the same elevation as the station but separated from it by a sloping ledge the face of which is inclined about 45° to the vertical, sloping offshore. It is 10.405 meters (34.14 feet) from the station in azimuth 123° 55′.

Islet (F. S. Borden, 1917).—On the north side of Stephens Passage, about 2½ miles north of Tee Harbor, on the south side of a small islet, on a shelf formed in the smooth face of a cliff inclined at an angle of about 60°, in an inverted conical crevice between the rocks which project above the station mark on each side, 12 feet above high water. The station is marked as described in note 3. The reference mark, as described in note 12b, on the highest part of the northwest end of the island, in a crevice in the rock, 8.24 meters (27.0 feet) from the station in azimuth 203° 13′ 32″. From the reference mark the cliff drops vertically on the west side while on the south side the smooth rock face slopes abruptly to the station 15 feet below. The witness mark is a blaze on a tree 14 inches in diameter immediately back and above the station.

Supplementary points

Bib (H. B. Mansfield, 1890; 1917).—In Stephens Passage, on Colt Island, on a small high-water rock. The station is marked by a standard brass disk hydrographic station mark cemented in the surface of a flat slab buried in the ground. The reference mark is a hole 1 inch in diameter and 4 inches deep in the flat rock at the highest point of the islet, 4.75 meters (15.6 feet) from the station in azimuth 347° 56′. It is in range with the station and Lena Point.

LYNN CANAL

Principal points

Indian (F. S. Borden, 1917).—In Stephens Passage, on the east side of Shelter Island and about 1 mile from the north end, on the most southerly of two prominent points, on the highest part of a rocky grass-covered islet, 35 feet above high water, and separated from the main point by a ravine 30 feet wide. The station is marked as described in note 3. The reference mark, as described in note 12c, is in the top of a large bowlder across the ravine on the main point, a few feet lower than the station and near the end of the slope, 17.215 meters (56.48 feet) from the station in azimuth 19° 34′.

Pearl (F. S. Borden, 1917).—In Stephens Passage, on the north side of Favorite Channel, 4 miles southeast of Sentinel Island, on a rounding point, on a slope of the cliff, on the edge of the wood line, and 20 feet above extreme high water. A large dome-shaped peak on the mainland to the westward can be seen just to the left of the center of Gull Island. The station is 1 meter (3 feet) from the edge of a vertical cliff to the northward and is marked as described in note 2. The reference mark, as described in note 12a, is in the smooth, gradually sloping face of a cliff, 6 feet above high water, in the general direction of station *Islet*, 20.79 meters (68.2 feet) inclined distance from the station in azimuth 321° 00′.

Gull (F. S. Borden, 1917; 1925).—In Stephens Passage, on the extreme north end of Gull Island, about 4 meters (13 feet) from the end of a rocky bluff approximately 6 meters (20 feet) in width, in solid rock which slopes slightly in the direction of Shelter Island. The end of the bluff is separated from the main part of the island by a small gully. The station is marked as described in note 3. The reference mark, as described in note 12a, is on the highest part of the island, on outcropping rock 1 meter (3 feet) in width and 6 meters (20 feet) long, 14.91 meters (48.9 feet) from the station in azimuth 337° 40′. From the reference mark the station is in range with the left tangent of Benjamin Island.

Sentinel (F. S. Borden, 1917; 1925).—In Stephens Passage, on Sentinel Island, on a grass knoll 35 meters (115 feet) from Sentinel Island Lighthouse in the direc-

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tion of Lincoln Island, 2.5 meters (8 feet) from the edge of an embankment dropping vertically to high-water mark, and near the center of a triangle formed by three spruce tree stumps each about 2 feet in diameter. The station is marked as described in note 1b. The reference mark, as described in note 12a, is on the next knoll to the northward, at about the same elevation as the station and separated from it by low ground, 17.795 meters (58.38 feet) from the station in azimuth 217° 46′.

Eagle River south base (J. Senior, 1925).—In Stephens Passage, in Favorite Channel, at the extreme southern edge of the sand-beach flats at Eagle River, about 100 meters (328 feet) from the point where the cliffs to the southward of Eagle River begin, in the grass about 10 feet inside the extreme high-water mark. The station is marked as described in notes 1a and 7a. The reference mark, as described in note 12b, is in a pinnacle rock of outcropping bedrock about where the cliff commences. 71.60 meters (234.9 feet) from the station in azimuth 312° 04′ 39″.

Eagle River north base (J. Senior, 1925).—In Stephens Passage, in Favorite Channel, about 200 meters (656 feet) south of the creek emptying into the first bight north of Eagle River, in the grass about 5 feet inside the extreme high-water mark. The bight can be easily distinguished by the sheer rock cliffs about 20 feet high, arising directly at the water's edge. These are the first rock cliffs encountered north of Eagle River. The station is marked as described in notes 1a and 7a. The reference mark, as described in note 12d, is on a bowlder 4 feet high at about the high-water mark, 47.12 meters (154.6 feet) from the station in azimuth 315° 24′ 53″.

Lincoln (F. S. Borden, 1917).—In Stephens Passage, on the east side of Lincoln Island and about 2 miles from the north end, on a prominent point, on the highest point of a grassy knoll 40 feet about high water, 1.5 meters (5 feet) from the cliff line and 2 meters (7 feet) from the wood line. The station is marked as described in note 4. The reference mark, as described in note 12c, is on a grassy knoll north of the station and at about the same elevation 12.670 meters (41.57 feet) from the station in azimuth 138° 07′.

Little (F. S. Borden, 1917; 1922).—In Lynn Canal, on the highest part of Little Island, about 5 meters (16 feet) from Little Island Lighthouse in the direction of Sentinel Island. The station is marked as described in note 1b. The reference mark, as described in note 12a is on the extreme north end of the high ground of the island and at about the same elevation as the station, 27.832 meters (91.31 feet) from the station in azimuth 180° 36′. Little Island Light is 5 meters (16 feet) from the station in azimuth 83° 12′.

Whid (N. H. Heck, 1921).—In Lynn Canal, 2½ nautical miles north of Point Whidbey, on a rocky bluff point on the north side of a fairly deep bight in the shore line, near the eastern extremity of the point, about 2 meters (7 feet) from the edge of the bluff, and about 25 feet above high water. The station is marked as described in note 1c. The reference mark, as described in note 12b, is 6 feet above and 12.180 meters (39.96 feet) from the station.

Bridget (N. H. Heck, 1921; 1922).—In Lynn Canal, between Bridget Cove and Point Bridget and about 1 nautical mile south of the latter, on top of a bluff which has the appearance on two sides of being a square block. The flattest and most nearly perpendicular surface is 30 feet high and faces the northwest. The station is 15 feet back of this face and about 45 feet above high water. It is marked as described in note 3. Two reference marks, as described in note 12a, are, respectively, 5.414 meters (17.76 feet) from the station in azimuth 206° 25′ and 6.219 meters (20.40 feet) in azimuth 270° 58′.

Will (N. H. Heck, 1921; 1922).—In Lynn Canal, south of William Henry Bay, 1⅓ nautical miles north of the entrance to Boat Harbor, on a steep, bluff, rounding point, on the north side of a small indentation in the shore line 80 meters (262 feet) wide, 5 feet back from the face of the cliff, on a small point about 20 feet wide, and about 35 feet above high water. The station is marked as described in note 1c. Two reference marks, as described in note 12b, are, respectively, 8 feet above and 5.681 meters (18.64 feet) away from the station in azimuth 37° 31′; and 14½ feet above and 9.481 meters (31.11 feet) away from the station in azimuth 87° 36′.

Bern (N. H. Heck, 1921; 1922).—In Lynn Canal, north of Berners Bay, 2½ nautical miles north of Point Mary, ⅕ nautical mile south of a rocky point at the south end of a long shallow bight, on a ledge 12 feet above high water and 10 feet from the face of a nearly perpendicular gray cliff in the back. The rock in this locality is mostly loose shale and, although the point selected for the mark

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is as solid as any available, cement was smeared over the top of a considerable area to prevent weathering as much as possible. The station is marked as described in note 3. Two reference marks, as described in note 12a, are, respectively, 3.477 meters (11.41 feet) from the station in azimuth 198° 18′, and 20.262 meters (66.48 feet) in azimuth 321° 59′.

River (N. H. Heck, 1921; 1922).—In Lynn Canal, on the first salient point south (⅓ nautical mile) of the mouth of the Endicott River, on a ledge of a light-colored bluff, principally marble, about 20 feet above high water and 30 feet from the top of the cliff. The shore at this point is very rocky and steep. The station is marked as described in note 3. Reference mark No. 1, as described in note 12b, is 15 feet below and 7.200 meters (23.62 feet) away from the station in azimuth 302° 20′ 29″. This distance was measured on a slope from 4 feet above the station mark to the reference mark itself and the vertical angle was measured as 32° 09′. Reference mark No. 2, as described in note 12b, is 4 feet above the station and 4.013 meters (13.17 feet) away from the station in azimuth 17° 30′ 49″

Chan (N. H. Heck, 1921; 1922).—In Lynn Canal, about 1½ nautical miles south of Point Sherman Light, on a rounding sand and gravel point, about 6 feet back from the edge of the grass on top of the point, directly inshore from a number of pilings remaining from a fish trap. The point projects out somewhat from the line of small pine trees on this shore and is covered with high grass. The station is marked as described in note 1a. Reference mark No. 1, as described in note 11a, is almost directly inshore from the station mark against the edge of the tree line, 18.850 meters (61.84 feet) from the station in azimuth 218° 01′ 40″. Reference mark No. 2, as described in note 11a, is at a point of the tree line, 9.757 meters (32.01 feet) from the station in azimuth 266° 14′ 25″.

Cot (N. H. Heck, 1921; 1922).—On the west shore of Lynn Canal, at the north side of the mouth of Endicott River, on a sod-covered rock 50 feet high and about 40 by 50 feet at the top. The high point of the sod is about 18 feet away in the direction of Point Budget. The station is marked as described in note 2. The reference mark, as described in note 12a, is 6.058 meters (19.88 feet) from the station in azimuth 338° 26′ 11″.

Half (J. H. Hawley, 1922).—In Lynn Canal, on the second prominent point ¾ nautical mile south of Point Sherman Light, on a small gravel knoll about 8 meters (26 feet) from the high-water line, and 10 meters (33 feet) from the tree line. A line of small pine trees runs along this shore and the beach consists of sand and small bowlders with high grass between the water and the tree line. The station is marked as described in note 1c. Two reference marks, as described in note 11a, are respectively, 11.289 meters (37.04 feet) from the station in azimuth 200° 42′ 42″ and 14.455 meters (47.42 feet) in azimuth 316° 06′ 02″.

Sher (J. H. Hawley, 1922).—On the east shore of Lynn Canal, on Point Sherman, about 20 meters (66 feet) northwest of Point Sherman Light, in the summit of the tallest of several slate rocks near the high-water line. The station is marked as described in note 3. Two reference marks, as described in note 12b, are respectively, 8.932 meters (29.30 feet) from the station in azimuth 151° 35′ 37″ and 8.820 meters (28.94 feet) in azimuth 258° 40′ 09″. Point Sherman Light is in azimuth 298° 44′ 12″.

Van (N. H. Heck, 1921; 1923).—In Lynn Canal, on the southeastern end of Sullivan Island, on a rotten slate ledge. Back of the station the ledge rises perpendicularly 8 feet, and there are large granite bowlders and driftwood between the ledge and the timber line on the bluff about 50 feet away. The station is marked as described in note 3. The reference mark, as described in note 12b, is 5.85 meters (19.2 feet) from the station in azimuth 131° 27′. The witness mark, a copper bolt marked "O. M. L. .07" is cemented in a mass of slate rock badly disintegrated, 5.56 meters (18.2 feet) from the station in azimuth 99° 24′.

Met (N. H. Heck, 1921; 1922).—On the east shore of Lynn Canal, on the first most prominently projecting point about 5 nautical miles north of Point Sherman, on a high rock of dark granite, about 20 feet above high water, and about 60 feet west of the tree line. The shore line in this vicinity consists of high rocky cliffs. The station is marked as described in note 3. Reference mark No. 1, as described in note 12b, is on the same rock as the station mark, inshore from and about 3 meters (10 feet) below it, 4.795 meters (15.73 feet) from the station in azimuth 287° 48′ 44″. Reference mark No. 2, as described in note 12d, is on a large granite bowlder, inshore from and about 2 meters (7 feet) below the station, 10.992 meters (36.06 feet) from the station in azimuth 241° 39′ 15″.

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Island (N. H. Heck, 1921; 1922).—On the eastern shore of Sullivan Island and about 2½ nautical miles north of the southern end, off a steep wedge-shaped rocky cliff, on the top of a bowlder 7 feet high. A gravel beach projects out south of this bowlder. The station is marked as described in note 5. Two reference marks, as described in note 11c, are, respectively, 8.376 meters (27.48 feet) from the station in azimuth 116° 30′ 23″, and 5.469 meters (17.9 feet) in azimuth 162° 34′ 41″.

Eld (J. H. Hawley, 1922; 1923).—In Lynn Canal, on Eldred Rock, on the southwest side of the lighthouse, near the edge of the bluff. The station is marked as described in note 1a. Reference mark No. 1 is the southernmost of two water plugs in the west wall of the lighthouse, 9.120 meters (29.92 feet) from the station in azimuth 214° 08′ 51″. Reference mark No. 2 is the west corner of the southern wall of the lighthouse, 9.850 meters (32.32 feet) from the station in azimuth 265° 02′ 46″.

Slide (N. H. Heck, 1921; 1925).—On the east shore of Lynn Canal, on a prominent point from which the north end of Sullivan Island can be seen just north of Seduction Island, on the top of a large, flat, dark bowlder approximately 10 by 10 feet and 7 feet high, and about 20 meters (66 feet) west of the tree line. The station is approximately 300 feet north of station *Flow* established in 1890 and the same distance north of a fairly large stream. The station is marked as described in note 5. Two reference marks, as described in note 12d, are, respectively, 5.737 meters (18.82 feet) from the station in azimuth 225° 00′ 00″ and 11.380 meters (37.34 feet) in azimuth 299° 45′ 01″.

Sed (N. H. Heck, 1921; 1922).—In Lynn Canal, on the most southerly point of the rock, 108 feet south of Seduction Island, on a flat shelf of rock which projects out from a steep rocky cliff, and about 15 feet above the high-water mark. The station is marked as described in note 3. Reference mark No. 1, as described in note 12b, is 8.137 meters (26.7 feet) from the station in azimuth 144° 48′ 38″. Reference mark No. 2, as described in note 12b, is 3.385 meters (11.11 feet) from the station.

Kabe (O. M. Leland, 1907; 1925).—In Lynn Canal, on Sullivan Island, on a grassy bluff which juts out from the extreme northeast end of the island, about 30 feet above high tide. About 100 yards west and below the station is a small spring. The station is marked as described in note 4, on a bowlder about 1 foot in diameter. Reference mark No. 1, as described in note 12a, is 12.110 meters (39.37 feet) from the station in azimuth 36° 30′ 12″. Reference mark No. 2, as described in note 12d, is 9.150 meters (30.02 feet) from the station in azimuth 85° 55′ 52″. The station was established in 1907 as a third-order station, but was reoccupied in 1922 as a first-order one.

Chil (N. H. Heck, 1921; 1925).—In Lynn Canal, at the entrance to Chilkat Inlet, on the top of the tiny, grass-covered islet lying just north of the second of the Seduction Islands counting from the north, on the highest point, about 5 paces south of a dugout, 3 paces west of the east side of the rock, and 4 paces east of the western edge. The station is marked as described in note 3. The reference mark, as described in note 12b, is 5.57 meters (18.3 feet) from the station in azimuth 323° 35′.

Glacier Point south base (J. Senior, 1925).—In Lynn Canal, south of Glacier Point, at the entrance to Chilkat Inlet, on the southern extremity of the gravel beach just where the rocky shore commences, about 400 meters (1,312 feet) south of the first creek south of Davison Creek, on a dark-colored bowlder about 5 by 3 feet, flat, partly embedded in the sand, and covered at high tide. The tip of Sullivan Island is just visible from an elevation of 5 feet above the station. The station is marked as described in note 4. The reference mark, as described in note 12c, is on a very conspicuous white granite bowlder about 4 by 6 feet which is just above high-water mark, near the edge of the grass, and imbedded in the sand but standing about 1½ feet above the ground. The reference mark is 15.14 meters (49.7 feet) from the station in azimuth 86° 39′ 45″.

Glacier Point north base (J. Senior, 1925).—In Lynn Canal, at the entrance to Chilkat Inlet, about 20 meters (66 feet) south of the mouth of the first small stream north of Davison Creek, on the flats east of the glacier, on the tip end of a sand and gravel peninsula which is bare at high water and about on an extension of an old rail fence normal to the tree line marking the boundary of an abandoned farm. This peninsula runs parallel to the general trend of the shore line and is distinctive at the highest tides. The station is marked as described in note 1a. Two reference marks, as described in note 11a, are, respectively,

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151.37 meters (496.6 feet) from the station in azimuth 100° 54′ 44″ and 65.49 meters (214.9 feet) in azimuth 135° 34′ 37″. *Lag*, a third-order station established in 1922, is 86.16 meters (282.7 feet) from the station in azimuth 79° 12′ 01″.

Duck (J. H. Hawley, 1922; 1925).—In Lynn Canal, at the eastern entrance to Chilkat Inlet, just back of Seduction Point, on the southwestern end of Dalasuga Island, on top of a rocky and precipitous cliff about 30 feet high, close to the tree line, and about 30 meters (98 feet) above high water. There is a cave in the bluff just under the station. The station is marked as described in note 1b. The reference mark, as described in note 12b, is in shalelike rock on the very edge of the point, close to the precipitous cliff, 2.08 meters (6.8 feet) from the station in azimuth 10° 39′ 45″.

Kal (J. Senior, 1925).—In Chilkoot Inlet, back of Seduction Point, on the highest point of a 1,450-foot hill which commands a view in all directions. The best approach to the station is from the Chilkoot side, up the steep slope south of the station and along the southern edge of the loose rock slide leading to a point on the ridge about ¼ mile from the station, then along the ridge to the highest point. The station is marked as described in note 2. The reference mark, as described in note 12a, is 15.24 meters (50.0 feet) from the station in azimuth 61° 31′ 29″.

Twin (J. Senior, 1925).—In Chilkoot Inlet, just south of the Katzehin River, on the westerly one of the twin peaks about 4,300 feet high. The station is not on the highest point, but on the flat part of the ridge leading thereto, and about 500 feet lower than the peak summit. The twin peaks are readily discernible from the south. In climbing the mountain to the station it is well to start at the small stream in the indentation in the coast line south of the station and proceed up the valley between the two peaks gradually working toward the side of the westerly mountain. The way is steep and the mountain side is closely covered with heavy underbrush, but the climb can be made in 5 hours with a pack. The station is marked as described in note 2. The reference mark, as described in note 12a, is 2.92 meters (9.6 feet) from the station in azimuth 290° 18′ 46″.

Riley (J. F. Pratt, 1894; 1925).—On the spit of land between Chilkat and Chilkoot Inlets, about 1½ miles below Chilkat Village, on the highest peak of the peninsula running south from Haines, just east from Litnikof Cove, and about 1,750 feet above the high-water mark. The summit is bare except for burnt-over stumps and the station commands a clear view in all directions. The station is best reached by climbing the steep slope from the Chilkat side starting from Litnikof Cove, about 400 meters (1,312 feet)north of the cannery. The station is marked as described in note 2. The reference mark, as described in note 12a, is set in outcropping bedrock, 9.48 meters (31.1 feet) from the station in azimuth 35° 06′ 07″ and about 10 feet lower than the station. The station was established in 1894 and occupied in 1907 as a third-order station, but was reoccupied in 1925 as a first-order one.

Vil (J. Senior, 1925).—In Chilkoot Inlet, on the outermost part of the prominent flat part of the northern shoulder leading to Mount Villard, at an approximate elevation of 3,000 feet. As seen from the south the shoulder has the appearance of a series of steps of flats starting above the timber line, and the station is on the second step, which is the first bare rock summit. The third step, which is visible from the station, appears as a prominent conical peak, but Mount Villard is not visible. The highest part of Mount Riley and the middle of the lower part of Davidson Glacier are approximately in range. The best method of approach to the station is to land at the mouth of a swift stream which flows down a mountain ravine, and proceed up the left slope to the station. There is a vacant shack and a small clearing at the mouth of the stream. The climb can be made in 3 hours with pack. The station is marked as described in note 2. The reference mark, as described in note 12b, is 3.53 meters (11.6 feet) from the station in azimuth 11° 04′ 37″.

Ripinski (J. Senior, 1925).—In Chilkoot Inlet, north of Haines post office, on the southeastern knoll of Mount Ripinski. The knoll is about 200 feet lower than the highest point of the mountain summit. The best method of approach is by way of the road leading to the Canadian border from Haines. Follow this road nearly to the 2-mile post, and then proceed along the left edge of the deep gulch on the southeastern slope of the mountain. When the top of the gulch is reached turn to the right until the top of the ridge is reached, and then follow the ridge to the station. The climb can be made in 3 hours with pack. The station is marked as described in note 2. The reference mark, as described in note 12a, is 6.97 meters (22.9 feet) from the station in azimuth 298° 40′ 22″.

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Hal (J. Senior, 1925).—Between Taiyasanka and Taiya Inlets, on the ridge leading north from Indian Rock, on the highest point of the 4,500-foot peak. The station is in range with station *Kal* and the east tangent of Sullivan Island. The best and possibly the only means of approach is to climb up the stream bed, which lies southeast of the peak on the Chilkoot side. The climb can be made in 5 hours with pack. The station is marked as described in note 2. The reference mark, as described in note 12b, is 13.485 meters (44.24 feet) from the station in azimuth 351° 15′.

Top (J. Senior, 1925).—In Chilkoot Inlet, on top of the peak about 3,300 feet high which lies in front of the glacier leading to the 6,100-foot peak (chart 8303) north of Mount Villard. The peak containing the station is the first one east of the water's edge fronting the glacier and as seen from the south is dome shaped and lies directly in front of and considerably below the flat mountain summit to the eastward. The army post at Haines post office and the point of the peninsula off Indian Rock are in range with the station. The best method of approach is to climb the creek bed with leads a little north of the peak, and keep to the creek bed even though quite steep as the mountain side elsewhere is quite impassable. The climb can be made in 4 hours. The station is marked as described in note 2. The reference mark, as described in note 12a, is 10.91 meters (35.8 feet) from the station in azimuth 23° 52′ 16″.

Tai (J. Senior, 1925).—On the west side of Taiya Inlet, opposite Skagway, on a conspicuous bare knoll, on the southeastern slope leading up Face Mountain, at about 2,800 feet elevation. Just beyond the knoll is a deep ravine. Station *Hal* is just visible over the slope of the ridge leading to Mount Harding, though to one not acquainted, *Hal* might appear as part of the intervening high slope (Mount Harding). The best method of approach is to climb up the ridge mentioned above. The going is not difficult and the climb with pack can be made in 2 or 3 hours. The station is marked as described in note 2. The reference mark, as described in note 12a, is 9.97 meters (32.7 feet) from the station in azimuth 259° 00′ 03″.

Skag (J. Senior, 1925).—On the east side of Taiya Inlet, about 2 miles southeast (true) from Skagway, on the highest point near the northern extremity of a flat ridge which runs north and south and fronts the high cone-shaped mountain 5,100 feet high. The ridge containing the station is about 4,000 feet high, and there is a deep depression or valley back of it, but as seen from seaward the ridge is barely distinguishable from the slope to the high mountain back of it. The ridge however, is easily discernible from the south. The town of Skagway is visible from the station. The best method of approach is to start at a small stream about 3 miles south of Skagway and follow up the southern slope of the mountain. The station is marked as described in note 2. The reference mark, as described in note 12a, is 9.23 meters (30.3 feet) from the station in azimuth 340° 25′ 08″.

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CONVERSION TABLES

Lengths—Feet to meters (from 1 to 1,000 units)

[Reduction factor: 1 foot = 0.3048006096 meter]

Feet	Meters	Feet	Meters	Feet	Meters	Feet	Meters	Feet	Meters
0	0.0	50	15.24003	100	30.48006	150	45.72009	200	60.96012
1	0.30480	1	15.54483	1	30.78486	1	46.02489	1	61.26492
2	0.60960	2	15.84963	2	31.08966	2	46.32969	2	61.56972
3	0.91440	3	16.15443	3	31.39446	3	46.63449	3	61.87452
4	1.21920	4	16.45923	4	31.69926	4	46.93929	4	62.17932
5	1.52400	5	16.76403	5	32.00406	5	47.24409	5	62.48412
6	1.82880	6	17.06883	6	32.30886	6	47.54890	6	62.78893
7	2.13360	7	17.37363	7	32.61367	7	47.85370	7	63.09373
8	2.43840	8	17.67844	8	32.91847	8	48.15850	8	63.39853
9	2.74321	9	17.98324	9	33.22327	9	48.46330	9	63.70333
10	3.04801	60	18.28804	110	33.52807	160	48.76810	210	64.00813
1	3.35281	1	18.59284	1	33.83287	1	49.07290	1	64.31293
2	3.65761	2	18.89764	2	34.13767	2	49.37770	2	64.61773
3	3.96241	3	19.20244	3	34.44247	3	49.68250	3	64.92253
4	4.26721	4	19.50724	4	34.74727	4	49.98730	4	65.22733
5	4.57201	5	19.81204	5	35.05207	5	50.29210	5	65.53213
6	4.87681	6	20.11684	6	35.35687	6	50.59690	6	65.83693
7	5.18161	7	20.42164	7	35.66167	7	50.90170	7	66.14173
8	5.48641	8	20.72644	8	35.96647	8	51.20650	8	66.44653
9	5.79121	9	21.03124	9	36.27127	9	51.51130	9	66.75133
20	6.09601	70	21.33604	120	36.57607	170	51.81610	220	67.05613
1	6.40081	1	21.64084	1	36.88087	1	52.12090	1	67.36093
2	6.70561	2	21.94564	2	37.18567	2	52.42570	2	67.66574
3	7.01041	3	22.25044	3	37.49047	3	52.73051	3	67.97054
4	7.31521	4	22.55525	4	37.79528	4	53.03531	4	68.27534
5	7.62002	5	22.86005	5	38.10008	5	53.34011	5	68.58014
6	7.92482	6	23.16485	6	38.40488	6	53.64491	6	68.88494
7	8.22962	7	23.46965	7	38.70968	7	53.94971	7	69.18974
8	8.53442	8	23.77445	8	39.01448	8	54.25451	8	69.49454
9	8.83922	9	24.07925	9	39.31928	9	54.55931	9	69.79934
30	9.14402	80	24.38405	130	39.62408	180	54.86411	230	70.10414
1	9.44882	1	24.68885	1	39.92888	1	55.16891	1	70.40894
2	9.75362	2	24.99365	2	40.23368	2	55.47371	2	70.71374
3	10.05842	3	25.29845	3	40.53848	3	55.77851	3	71.01854
4	10.36322	4	25.60325	4	40.84328	4	56.08331	4	71.32334
5	10.66802	5	25.90805	5	41.14808	5	56.38811	5	71.62814
6	10.97282	6	26.21285	6	41.45288	6	56.69291	6	71.93294
7	11.27762	7	26.51765	7	41.75768	7	56.99771	7	72.23774
8	11.58242	8	26.82245	8	42.06248	8	57.30251	8	72.54255
9	11.88722	9	27.12725	9	42.36728	9	57.60732	9	72.84735
40	12.19202	90	27.43205	140	42.67209	190	57.91212	240	73.15215
1	12.49682	1	27.73686	1	42.97689	1	58.21692	1	73.45695
2	12.80163	2	28.04166	2	43.28169	2	58.52172	2	73.76175
3	13.10643	3	28.34646	3	43.58649	3	58.82652	3	74.06655
4	13.41123	4	28.65126	4	43.89129	4	59.13132	4	74.37135
5	13.71603	5	28.95606	5	44.19609	5	59.43612	5	74.67615
6	14.02083	6	29.26086	6	44.50089	6	59.74092	6	74.98095
7	14.32563	7	29.56566	7	44.80569	7	60.04572	7	75.28575
8	14.63043	8	29.87046	8	45.11049	8	60.35052	8	75.59055
9	14.93523	9	30.17526	9	45.41529	9	60.65532	9	75.89535

Lengths—Feet to meters (from 1 to 1,000 units)—Continued

Feet	Meters	Feet	Meters	Feet	Meters	Feet	Meters	Feet	Meters
250	76.20015	300	91.44018	350	106.68021	400	121.92024	450	137.16027
1	76.50495	1	91.74498	1	106.98501	1	122.22504	1	137.46507
2	76.80975	2	92.04978	2	107.28981	2	122.52985	2	137.76988
3	77.11455	3	92.35458	3	107.59462	3	122.83465	3	138.07468
4	77.41935	4	92.65939	4	107.89942	4	123.13945	4	138.37948
5	77.72416	5	92.96419	5	108.20422	5	123.44425	5	138.68428
6	78.02896	6	93.26899	6	108.50902	6	123.74905	6	138.98908
7	78.33376	7	93.57379	7	108.81382	7	124.05385	7	139.29388
8	78.63856	8	93.87859	8	109.11862	8	124.35865	8	139.59868
9	78.94336	9	94.18339	9	109.42342	9	124.66345	9	139.90348
260	79.24816	310	94.48819	360	109.72822	410	124.96825	460	140.20828
1	79.55296	1	94.79299	1	110.03302	1	125.27305	1	140.51308
2	79.85776	2	95.09779	2	110.33782	2	125.57785	2	140.81788
3	80.16256	3	95.40259	3	110.64262	3	125.88265	3	141.12268
4	80.46736	4	95.70739	4	110.94742	4	126.18745	4	141.42748
5	80.77216	5	96.01219	5	111.25222	5	126.49225	5	141.73228
6	81.07696	6	96.31699	6	111.55702	6	126.79705	6	142.03708
7	81.38176	7	96.62179	7	111.86182	7	127.10185	7	142.34188
8	81.68656	8	96.92659	8	112.16662	8	127.40665	8	142.64669
9	81.99136	9	97.23139	9	112.47142	9	127.71146	9	142.95149
270	82.29616	320	97.53620	370	112.77623	420	128.01626	470	143.25629
1	82.60097	1	97.84100	1	113.08103	1	128.32106	1	143.56109
2	82.90577	2	98.14580	2	113.38583	2	128.62586	2	143.86589
3	83.21057	3	98.45060	3	113.69063	3	128.93066	3	144.17069
4	83.51537	4	98.75540	4	113.99543	4	129.23546	4	144.47549
5	83.82017	5	99.06020	5	114.30023	5	129.54026	5	144.78029
6	84.12497	6	99.36500	6	114.60503	6	129.84506	6	145.08509
7	84.42977	7	99.66980	7	114.90983	7	130.14986	7	145.38989
8	84.73457	8	99.97460	8	115.21463	8	130.45466	8	145.69469
9	85.03937	9	100.27940	9	115.51943	9	130.75946	9	145.99949
280	85.34417	330	100.58420	380	115.82423	430	131.06426	480	146.30429
1	85.64897	1	100.88900	1	116.12903	1	131.36906	1	146.60909
2	85.95377	2	101.19380	2	116.43383	2	131.67386	2	146.91389
3	86.25857	3	101.49860	3	116.73863	3	131.97866	3	147.21869
4	86.56337	4	101.80340	4	117.04343	4	132.28346	4	147.52350
5	86.86817	5	102.10820	5	117.34823	5	132.58827	5	147.82830
6	87.17297	6	102.41300	6	117.65304	6	132.89307	6	148.13310
7	87.47777	7	102.71781	7	117.95784	7	133.19787	7	148.43790
8	87.78258	8	103.02261	8	118.26264	8	133.50267	8	148.74270
9	88.08738	9	103.32741	9	118.56744	9	133.80747	9	149.04750
290	88.39218	340	103.63221	390	118.87224	440	134.11227	490	149.35230
1	88.69698	1	103.93701	1	119.17704	1	134.41707	1	149.65710
2	89.00178	2	104.24181	2	119.48184	2	134.72187	2	149.96190
3	89.30658	3	104.54661	3	119.78664	3	135.02667	3	150.26670
4	89.61138	4	104.85141	4	120.09144	4	135.33147	4	150.57150
5	89.91618	5	105.15621	5	120.39624	5	135.63627	5	150.87630
6	90.22098	6	105.46101	6	120.70104	6	135.94107	6	151.18110
7	90.52578	7	105.76581	7	121.00584	7	136.24587	7	151.48590
8	90.83058	8	106.07061	8	121.31064	8	136.55067	8	151.79070
9	91.13538	9	106.37541	9	121.61544	9	136.85547	9	152.09550

Lengths—Feet to meters (from 1 to 1,000 units)—Continued

Feet	Meters	Feet	Meters	Feet	Meters	Feet	Meters	Feet	Meters
500	152.40030	550	167.64034	600	182.88037	650	198.12040	700	213.36043
1	152.70511	1	167.94514	1	183.18517	1	198.42520	1	213.66523
2	153.00991	2	168.24994	2	183.48997	2	198.73000	2	213.97003
3	153.31471	3	168.55474	3	183.79477	3	199.03480	3	214.27483
4	153.61951	4	168.85954	4	184.09957	4	199.33960	4	214.57963
5	153.92431	5	169.16434	5	184.40437	5	199.64440	5	214.88443
6	154.22911	6	169.46914	6	184.70917	6	199.94920	6	215.18923
7	154.53391	7	169.77394	7	185.01397	7	200.25400	7	215.49403
8	154.83871	8	170.07874	8	185.31877	8	200.55880	8	215.79883
9	155.14351	9	170.38354	9	185.62357	9	200.86360	9	216.10363
510	155.44831	560	170.68834	610	185.92837	660	201.16840	710	216.40843
1	155.75311	1	170.99314	1	186.23317	1	201.47320	1	216.71323
2	156.05791	2	171.29794	2	186.53797	2	201.77800	2	217.01803
3	156.36271	3	171.60274	3	186.84277	3	202.08280	3	217.32283
4	156.66751	4	171.90754	4	187.14757	4	202.38760	4	217.62764
5	156.97231	5	172.21234	5	187.45237	5	202.69241	5	217.93244
6	157.27711	6	172.51715	6	187.75718	6	202.99721	6	218.23724
7	157.58192	7	172.82195	7	188.06198	7	203.30201	7	218.54204
8	157.88672	8	173.12675	8	188.36678	8	203.60681	8	218.84684
9	158.19152	9	173.43155	9	188.67158	9	203.91161	9	219.15164
520	158.49632	570	173.73635	620	188.97638	670	204.21641	720	219.45644
1	158.80112	1	174.04115	1	189.28118	1	204.52121	1	219.76124
2	159.10592	2	174.34595	2	189.58598	2	204.82601	2	220.06604
3	159.41072	3	174.65075	3	189.89078	3	205.13081	3	220.37084
4	159.71552	4	174.95555	4	190.19558	4	205.43561	4	220.67564
5	160.02032	5	175.26035	5	190.50038	5	205.74041	5	220.98044
6	160.32512	6	175.56515	6	190.80518	6	206.04521	6	221.28524
7	160.62992	7	175.86995	7	191.10998	7	206.35001	7	221.59004
8	160.93472	8	176.17475	8	191.41478	8	206.65481	8	221.89484
9	161.23952	9	176.47955	9	191.71958	9	206.95961	9	222.19964
530	161.54432	580	176.78435	630	192.02438	680	207.26441	730	222.50445
1	161.84912	1	177.08915	1	192.32918	1	207.56922	1	222.80925
2	162.15392	2	177.39395	2	192.63399	2	207.87402	2	223.11405
3	162.45872	3	177.69876	3	192.93879	3	208.17882	3	223.41885
4	162.76353	4	178.00356	4	193.24359	4	208.48362	4	223.72365
5	163.06833	5	178.30836	5	193.54839	5	208.78842	5	224.02845
6	163.37313	6	178.61316	6	193.85319	6	209.09322	6	224.33325
7	163.67793	7	178.91796	7	194.15799	7	209.39802	7	224.63805
8	163.98273	8	179.22276	8	194.46279	8	209.70282	8	224.94285
9	164.28753	9	179.52756	9	194.76759	9	210.00762	9	225.24765
540	164.59233	590	179.83236	640	195.07239	690	210.31242	740	225.55245
1	164.89713	1	180.13716	1	195.37719	1	210.61722	1	225.85725
2	165.20193	2	180.44196	2	195.68199	2	210.92202	2	226.16205
3	165.50673	3	180.74676	3	195.98679	3	211.22682	3	226.46685
4	165.81153	4	181.05156	4	196.29159	4	211.53162	4	226.77165
5	166.11633	5	181.35636	5	196.59639	5	211.83642	5	227.07645
6	166.42113	6	181.66116	6	196.90119	6	212.14122	6	227.38125
7	166.72593	7	181.96596	7	197.20599	7	212.44602	7	227.68606
8	167.03073	8	182.27076	8	197.51080	8	212.75083	8	227.99086
9	167.33553	9	182.57557	9	197.81560	9	213.05563	9	228.29566

Lengths—Feet to meters (from 1 to 1,000 units)—Continued

Feet	Meters	Feet	Meters	Feet	Meters	Feet	Meters	Feet	Meters
750	228.60046	800	243.84049	850	259.08052	900	274.32055	950	289.56058
1	228.90526	1	244.14529	1	259.38532	1	274.62535	1	289.86538
2	229.21006	2	244.45009	2	259.69012	2	274.93015	2	290.17018
3	229.51486	3	244.75489	3	259.99492	3	275.23495	3	290.47498
4	229.81966	4	245.05969	4	260.29972	4	275.53975	4	290.77978
5	230.12446	5	245.36449	5	260.60452	5	275.84455	5	291.08458
6	230.42926	6	245.66929	6	260.90932	6	276.14935	6	291.38938
7	230.73406	7	245.97409	7	261.21412	7	276.45415	7	291.69418
8	231.03886	8	246.27889	8	261.51892	8	276.75895	8	291.99898
9	231.34366	9	246.58369	9	261.82372	9	277.06375	9	292.30378
760	231.64846	810	246.88849	860	262.12852	910	277.36855	960	292.60859
1	231.95326	1	247.19329	1	262.43332	1	277.67336	1	292.91339
2	232.25806	2	247.49809	2	262.73813	2	277.97816	2	293.21819
3	232.56287	3	247.80290	3	263.04293	3	278.28296	3	293.52299
4	232.86767	4	248.10770	4	263.34773	4	278.58776	4	293.82779
5	233.17247	5	248.41250	5	263.65253	5	278.89256	5	294.13259
6	233.47727	6	248.71730	6	263.95733	6	279.19736	6	294.43739
7	233.78207	7	249.02210	7	264.26213	7	279.50216	7	294.74219
8	234.08687	8	249.32690	8	264.56693	8	279.80696	8	295.04699
9	234.39167	9	249.63170	9	264.87173	9	280.11176	9	295.35179
770	234.69647	820	249.93650	870	265.17653	920	280.41656	970	295.65659
1	235.00127	1	250.24130	1	265.48133	1	280.72136	1	295.96139
2	235.30607	2	250.54610	2	265.78613	2	281.02616	2	296.26619
3	235.61087	3	250.85090	3	266.09093	3	281.33096	3	296.57099
4	235.91567	4	251.15570	4	266.39573	4	281.63576	4	296.87579
5	236.22047	5	251.46050	5	266.70053	5	281.94056	5	297.18059
6	236.52527	6	251.76530	6	267.00533	6	282.24536	6	297.48539
7	236.83007	7	252.07010	7	267.31013	7	282.55017	7	297.79020
8	237.13487	8	252.37490	8	267.61494	8	282.85497	8	298.09500
9	237.43967	9	252.67971	9	267.91974	9	283.15977	9	298.39980
780	237.74448	830	252.98451	880	268.22454	930	283.46457	980	298.70460
1	238.04928	1	253.28931	1	268.52934	1	283.76937	1	299.00940
2	238.35408	2	253.59411	2	268.83414	2	284.07417	2	299.31420
3	238.65888	3	253.89891	3	269.13894	3	284.37897	3	299.61900
4	238.96368	4	254.20371	4	269.44374	4	284.68377	4	299.92380
5	239.26848	5	254.50851	5	269.74854	5	284.98857	5	300.22860
6	239.57328	6	254.81331	6	270.05334	6	285.29337	6	300.53340
7	239.87808	7	255.11811	7	270.35814	7	285.59817	7	300.83820
8	240.18288	8	255.42291	8	270.66294	8	285.90297	8	301.14300
9	240.48768	9	255.72771	9	270.96774	9	286.20777	9	301.44780
790	240.79248	840	256.03251	890	271.27254	940	286.51257	990	301.75260
1	241.09728	1	256.33731	1	271.57734	1	286.81737	1	302.05740
2	241.40208	2	256.64211	2	271.88214	2	287.12217	2	302.36220
3	241.70688	3	256.94691	3	272.18694	3	287.42697	3	302.66701
4	242.01168	4	257.25171	4	272.49174	4	287.73178	4	302.97181
5	242.31648	5	257.55652	5	272.79655	5	288.03658	5	303.27661
6	242.62129	6	257.86132	6	273.10135	6	288.34138	6	303.58141
7	242.92609	7	258.16612	7	273.40615	7	288.64618	7	303.88621
8	243.23089	8	258.47092	8	273.71095	8	288.95098	8	304.19101
9	243.53569	9	258.77572	9	274.01575	9	289.25578	9	304.49581

Lengths—Meters to feet (from 1 to 1,000 units)

[Reduction factor: 1 meter=3.280833333 feet]

Meters	Feet	Meters	Feet	Meters	Feet	Meters	Feet	Meters	Feet
0		50	164.04167	100	328.08333	150	492.12500	200	656.16667
1	3.28083	1	167.32250	1	331.36417	1	495.40583	1	659.44750
2	6.56167	2	170.60333	2	334.64500	2	498.68667	2	662.72833
3	9.84250	3	173.88417	3	337.92583	3	501.96750	3	666.00917
4	13.12333	4	177.16500	4	341.20667	4	505.24833	4	669.29000
5	16.40417	5	180.44583	5	344.48750	5	508.52917	5	672.57083
6	19.68500	6	183.72667	6	347.76833	6	511.81000	6	675.85167
7	22.96583	7	187.00750	7	351.04917	7	515.09083	7	679.13250
8	26.24667	8	190.28833	8	354.33000	8	518.37167	8	682.41333
9	29.52750	9	193.56917	9	357.61083	9	521.65250	9	685.69417
10	32.80833	60	196.85000	110	360.89167	160	524.93333	210	688.97500
1	36.08917	1	200.13083	1	364.17250	1	528.21417	1	692.25583
2	39.37000	2	203.41167	2	367.45333	2	531.49500	2	695.53667
3	42.65083	3	206.69250	3	370.73417	3	534.77583	3	698.81750
4	45.93167	4	209.97333	4	374.01500	4	538.05667	4	702.09833
5	49.21250	5	213.25417	5	377.29583	5	541.33750	5	705.37917
6	52.49333	6	216.53500	6	380.57667	6	544.61833	6	708.66000
7	55.77417	7	219.81583	7	383.85750	7	547.89917	7	711.94083
8	59.05500	8	223.09667	8	387.13833	8	551.18000	8	715.22167
9	62.33583	9	226.37750	9	390.41917	9	554.46083	9	718.50250
20	65.61667	70	229.65833	120	393.70000	170	557.74167	220	721.78333
1	68.89750	1	232.93917	1	396.98083	1	561.02250	1	725.06417
2	72.17833	2	236.22000	2	400.26167	2	564.30333	2	728.34500
3	75.45917	3	239.50083	3	403.54250	3	567.58417	3	731.62583
4	78.74000	4	242.78167	4	406.82333	4	570.86500	4	734.90667
5	82.02083	5	246.06250	5	410.10417	5	574.14583	5	738.18750
6	85.30167	6	249.34333	6	413.38500	6	577.42667	6	741.46833
7	88.58250	7	252.62417	7	416.66583	7	580.70750	7	744.74917
8	91.86333	8	255.90500	8	419.94667	8	583.98833	8	748.03000
9	95.14417	9	259.18583	9	423.22750	9	587.26917	9	751.31083
30	98.42500	80	262.46667	130	426.50833	180	590.55000	230	754.59167
1	101.70583	1	265.74750	1	429.78917	1	593.83083	1	757.87250
2	104.98667	2	269.02833	2	433.07000	2	597.11167	2	761.15333
3	108.26750	3	272.30917	3	436.35083	3	600.39250	3	764.43417
4	111.54833	4	275.59000	4	439.63167	4	603.67333	4	767.71500
5	114.82917	5	278.87083	5	442.91250	5	606.95417	5	770.99583
6	118.11000	6	282.15167	6	446.19333	6	610.23500	6	774.27667
7	121.39083	7	285.43250	7	449.47417	7	613.51583	7	777.55750
8	124.67167	8	288.71333	8	452.75500	8	616.79667	8	780.83833
9	127.95250	9	291.99417	9	456.03583	9	620.07750	9	784.11917
40	131.23333	90	295.27500	140	459.31667	190	623.35833	240	787.40000
1	134.51417	1	298.55583	1	462.59750	1	626.63917	1	790.68083
2	137.79500	2	301.83667	2	465.87833	2	629.92000	2	793.96167
3	141.07583	3	305.11750	3	469.15917	3	633.20083	3	797.24250
4	144.35667	4	308.39833	4	472.44000	4	636.48167	4	800.52333
5	147.63750	5	311.67917	5	475.72083	5	639.76250	5	803.80417
6	150.91833	6	314.96000	6	479.00167	6	643.04333	6	807.08500
7	154.19917	7	318.24083	7	482.28250	7	646.32417	7	810.36583
8	157.48000	8	321.52167	8	485.56333	8	649.60500	8	813.64667
9	160.76083	9	324.80250	9	488.84417	9	652.88583	9	816.92750

Lengths—Meters to feet (from 1 to 1,000 units)—Continued

Meters	Feet	Meters	Feet	Meters	Feet	Meters	Feet	Meters	Feet
250	820.20833	300	984.25000	350	1,148.29167	400	1,312.33333	450	1,476.37500
1	823.48917	1	987.53083	1	1,151.57250	1	1,315.61417	1	1,479.65583
2	826.77000	2	990.81167	2	1,154.85333	2	1,318.89500	2	1,482.93667
3	830.05083	3	994.09250	3	1,158.13417	3	1,322.17583	3	1,486.21750
4	833.33167	4	997.37333	4	1,161.41500	4	1,325.45667	4	1,489.49833
5	836.61250	5	1,000.65417	5	1,164.69583	5	1,328.73750	5	1,492.77917
6	839.89333	6	1,003.93500	6	1,167.97667	6	1,332.01833	6	1,496.06000
7	843.17417	7	1,007.21583	7	1,171.25750	7	1,335.29917	7	1,499.34083
8	846.45500	8	1,010.49667	8	1,174.53833	8	1,338.58000	8	1,502.62167
9	849.73583	9	1,013.77750	9	1,177.81917	9	1,341.86083	9	1,505.90250
260	853.01667	310	1,017.05833	360	1,181.10000	410	1,345.14167	460	1,509.18333
1	856.29750	1	1,020.33917	1	1,184.38083	1	1,348.42250	1	1,512.46417
2	859.57833	2	1,023.62000	2	1,187.66167	2	1,351.70333	2	1,515.74500
3	862.85917	3	1,026.90083	3	1,190.94250	3	1,354.98417	3	1,519.02583
4	866.14000	4	1,030.18167	4	1,194.22333	4	1,358.26500	4	1,522.30667
5	869.42083	5	1,033.46250	5	1,197.50417	5	1,361.54583	5	1,525.58750
6	872.70167	6	1,036.74333	6	1,200.78500	6	1,364.82667	6	1,528.86833
7	875.98250	7	1,040.02417	7	1,204.06583	7	1,368.10750	7	1,532.14917
8	879.26333	8	1,043.30500	8	1,207.34667	8	1,371.38833	8	1,535.43000
9	882.54417	9	1,046.58583	9	1,210.62750	9	1,374.66917	9	1,538.71083
270	885.82500	320	1,049.86667	370	1,213.90833	420	1,377.95000	470	1,541.99167
1	889.10583	1	1,053.14750	1	1,217.18917	1	1,381.23083	1	1,545.27250
2	892.38667	2	1,056.42833	2	1,220.47000	2	1,384.51167	2	1,548.55333
3	895.66750	3	1,059.70917	3	1,223.75083	3	1,387.79250	3	1,551.83417
4	898.94833	4	1,062.99000	4	1,227.03167	4	1,391.07333	4	1,555.11500
5	902.22917	5	1,066.27083	5	1,230.31250	5	1,394.35417	5	1,558.39583
6	905.51000	6	1,069.55167	6	1,233.59333	6	1,397.63500	6	1,561.67667
7	908.79083	7	1,072.83250	7	1,236.87417	7	1,400.91583	7	1,564.95750
8	912.07167	8	1,076.11333	8	1,240.15500	8	1,404.19667	8	1,568.23833
9	915.35250	9	1,079.39417	9	1,243.43583	9	1,407.47750	9	1,571.51917
280	918.63333	330	1,082.67500	380	1,246.71667	430	1,410.75833	480	1,574.80000
1	921.91417	1	1,085.95583	1	1,249.99750	1	1,414.03917	1	1,578.08083
2	925.19500	2	1,089.23667	2	1,253.27833	2	1,417.32000	2	1,581.36167
3	928.47583	3	1,092.51750	3	1,256.55917	3	1,420.60083	3	1,584.64250
4	931.75667	4	1,095.79833	4	1,259.84000	4	1,423.88167	4	1,587.92333
5	935.03750	5	1,099.07917	5	1,263.12083	5	1,427.16250	5	1,591.20417
6	938.31833	6	1,102.36000	6	1,266.40167	6	1,430.44333	6	1,594.48500
7	941.59917	7	1,105.64083	7	1,269.68250	7	1,433.72417	7	1,597.76583
8	944.88000	8	1,108.92167	8	1,272.96333	8	1,437.00500	8	1,601.04667
9	948.16083	9	1,112.20250	9	1,276.24417	9	1,440.28583	9	1,604.32750
290	951.44167	340	1,115.48333	390	1,279.52500	440	1,443.56667	490	1,607.60833
1	954.72250	1	1,118.76417	1	1,282.80583	1	1,446.84750	1	1,610.88917
2	958.00333	2	1,122.04500	2	1,286.08667	2	1,450.12833	2	1,614.17000
3	961.28417	3	1,125.32583	3	1,289.36750	3	1,453.40917	3	1,617.45083
4	964.56500	4	1,128.60667	4	1,292.64833	4	1,456.69000	4	1,620.73167
5	967.84583	5	1,131.88750	5	1,295.92917	5	1,459.97083	5	1,624.01250
6	971.12667	6	1,135.16833	6	1,299.21000	6	1,463.25167	6	1,627.29333
7	974.40750	7	1,138.44917	7	1,302.49083	7	1,466.53250	7	1,630.57417
8	977.68833	8	1,141.73000	8	1,305.77167	8	1,469.81333	8	1,633.85500
9	980.96917	9	1,145.01083	9	1,309.05250	9	1,473.09417	9	1,637.13583

Lengths—Meters to feet (from 1 to 1,000 units)—Continued

Meters	Feet	Meters	Feet	Meters	Feet	Meters	Feet	Meters	Feet
500	1,640.41667	550	1,804.45833	600	1,968.50000	650	2,132.54167	700	2,296.58333
1	1,643.69750	1	1,807.73917	1	1,971.78083	1	2,135.82250	1	2,299.86417
2	1,646.97833	2	1,811.02000	2	1,975.06167	2	2,139.10333	2	2,303.14500
3	1,650.25917	3	1,814.30083	3	1,978.34250	3	2,142.38417	3	2,306.42583
4	1,653.54000	4	1,817.58167	4	1,981.62333	4	2,145.66500	4	2,309.70667
5	1,656.82083	5	1,820.86250	5	1,984.90417	5	2,148.94583	5	2,312.98750
6	1,660.10167	6	1,824.14333	6	1,988.18500	6	2,152.22667	6	2,316.26833
7	1,663.38250	7	1,827.42417	7	1,991.46583	7	2,155.50750	7	2,319.54917
8	1,666.66333	8	1,830.70500	8	1,994.74667	8	2,158.78833	8	2,322.83000
9	1,669.94417	9	1,833.98583	9	1,998.02750	9	2,162.06917	9	2,326.11083
510	1,673.22500	560	1,837.26667	610	2,001.30833	660	2,165.35000	710	2,329.39167
1	1,676.50583	1	1,840.54750	1	2,004.58917	1	2,168.63083	1	2,332.67250
2	1,679.78667	2	1,843.82833	2	2,007.87000	2	2,171.91167	2	2,335.95333
3	1,683.06750	3	1,847.10917	3	2,011.15083	3	2,175.19250	3	2,339.23417
4	1,686.34833	4	1,850.39000	4	2,014.43167	4	2,178.47333	4	2,342.51500
5	1,689.62917	5	1,853.67083	5	2,017.71250	5	2,181.75417	5	2,345.79583
6	1,692.91000	6	1,856.95167	6	2,020.99333	6	2,185.03500	6	2,349.07667
7	1,696.19083	7	1,860.23250	7	2,024.27417	7	2,188.31583	7	2,352.35750
8	1,699.47167	8	1,863.51333	8	2,027.55500	8	2,191.59667	8	2,355.63833
9	1,702.75250	9	1,866.79417	9	2,030.83583	9	2,194.87750	9	2,358.91917
520	1,706.03333	570	1,870.07500	620	2,034.11667	670	2,198.15833	720	2,362.20000
1	1,709.31417	1	1,873.35583	1	2,037.39750	1	2,201.43917	1	2,365.48083
2	1,712.59500	2	1,876.63667	2	2,040.67833	2	2,204.72000	2	2,368.76167
3	1,715.87583	3	1,879.91750	3	2,043.95917	3	2,208.00083	3	2,372.04250
4	1,719.15667	4	1,883.19833	4	2,047.24000	4	2,211.28167	4	2,375.32333
5	1,722.43750	5	1,886.47917	5	2,050.52083	5	2,214.56250	5	2,378.60417
6	1,725.71833	6	1,889.76000	6	2,053.80167	6	2,217.84333	6	2,381.88500
7	1,728.99917	7	1,893.04083	7	2,057.08250	7	2,221.12417	7	2,385.16583
8	1,732.28000	8	1,896.32167	8	2,060.36333	8	2,224.40500	8	2,388.44667
9	1,735.56083	9	1,899.60250	9	2,063.64417	9	2,227.68583	9	2,391.72750
530	1,738.84167	580	1,902.88333	630	2,066.92500	680	2,230.96667	730	2,395.00833
1	1,742.12250	1	1,906.16417	1	2,070.20583	1	2,234.24750	1	2,398.28917
2	1,745.40333	2	1,909.44500	2	2,073.48667	2	2,237.52833	2	2,401.57000
3	1,748.68417	3	1,912.72583	3	2,076.76750	3	2,240.80917	3	2,404.85083
4	1,751.96500	4	1,916.00667	4	2,080.04833	4	2,244.09000	4	2,408.13167
5	1,755.24583	5	1,919.28750	5	2,083.32917	5	2,247.37083	5	2,411.41250
6	1,758.52667	6	1,922.56833	6	2,086.61000	6	2,250.65167	6	2,414.69333
7	1,761.80750	7	1,925.84917	7	2,089.89083	7	2,253.93250	7	2,417.97417
8	1,765.08833	8	1,929.13000	8	2,093.17167	8	2,257.21333	8	2,421.25500
9	1,768.36917	9	1,932.41083	9	2,096.45250	9	2,260.49417	9	2,424.53583
540	1,771.65000	590	1,935.69167	640	2,099.73333	690	2,263.77500	740	2,427.81667
1	1,174.93083	1	1,938.97250	1	2,103.01417	1	2,267.05583	1	2,431.09750
2	1,778.21167	2	1,942.25333	2	2,106.29500	2	2,270.33667	2	2,434.37833
3	1,781.49250	3	1,945.53417	3	2,109.57583	3	2,273.61750	3	2,437.65917
4	1,784.77333	4	1,948.81500	4	2,112.85667	4	2,276.89833	4	2,440.94000
5	1,788.05417	5	1,952.09583	5	2,116.13750	5	2,280.17917	5	2,444.22083
6	1,791.33500	6	1,955.37667	6	2,119.41833	6	2,283.46000	6	2,447.50167
7	1,794.61583	7	1,958.65750	7	2,122.69917	7	2,286.74083	7	2,450.78250
8	1,797.89667	8	1,961.93833	8	2,125.98000	8	2,290.02167	8	2,454.06333
9	1,801.17750	9	1,965.21917	9	2,129.26083	9	2,293.30250	9	2,457.34417

Lengths—Meters to feet (from 1 to 1,000 units)—Continued

Meters	Feet	Meters	Feet	Meters	Feet	Meters	Feet	Meters	Feet
750	2,460.62500	800	2,624.66667	850	2,788.70833	900	2,952.75000	950	3,116.79167
1	2,463.90583	1	2,627.94750	1	2,791.98917	1	2,956.03083	1	3,120.07250
2	2,467.18667	2	2,631.22833	2	2,795.27000	2	2,959.31167	2	3,123.35333
3	2,470.46750	3	2,634.50917	3	2,798.55083	3	2,962.59250	3	3,126.63417
4	2,473.74833	4	2,637.79000	4	2,801.83167	4	2,965.87333	4	3,129.91500
5	2,477.02917	5	2,641.07083	5	2,805.11250	5	2,969.15417	5	3,133.19583
6	2,480.31000	6	2,644.35167	6	2,808.39333	6	2,972.43500	6	3,136.47667
7	2,483.59083	7	2,647.63250	7	2,811.67417	7	2,975.71583	7	3,139.75750
8	2,486.87167	8	2,650.91333	8	2,814.95500	8	2,978.99667	8	3,143.03833
9	2,490.15250	9	2,654.19417	9	2,818.23583	9	2,982.27750	9	3,146.31917
760	2,493.43333	810	2,657.47500	860	2,821.51667	910	2,985.55833	960	3,149.60000
1	2,496.71417	1	2,660.75583	1	2,824.79750	1	2,988.83917	1	3,152.88083
2	2,499.99500	2	2,664.03667	2	2,828.07833	2	2,992.12000	2	3,156.16167
3	2,503.27583	3	2,667.31750	3	2,831.35917	3	2,995.40083	3	3,159.44250
4	2,506.55667	4	2,670.59833	4	2,834.64000	4	2,998.68167	4	3,162.72333
5	2,509.83750	5	2,673.87917	5	2,837.92083	5	3,001.96250	5	3,166.00417
6	2,513.11833	6	2,677.16000	6	2,841.20167	6	3,005.24333	6	3,169.28500
7	2,516.39917	7	2,680.44083	7	2,844.48250	7	3,008.52417	7	3,172.56583
8	2,519.68000	8	3,683.72167	8	2,847.76333	8	3,011.80500	8	3,175.84667
9	2,522.96083	9	2,687.00250	9	2,851.04417	9	3,015.08583	9	3,179.12750
770	2,526.24167	820	2,690.28333	870	2,854.32500	920	3,018.36667	970	3,182.40833
1	2,529.52250	1	2,693.56417	1	2,857.60583	1	3,021.64750	1	3,185.68917
2	2,532.80333	2	2,696.84500	2	2,860.88667	2	3,024.92833	2	3,188.97000
3	2,536.08417	3	2,700.12583	3	2,864.16750	3	3,028.20917	3	3,192.25083
4	2,539.36500	4	2,703.40667	4	2,867.44833	4	3,031.49000	4	3,195.53167
5	2,542.64583	5	2,706.68750	5	2,870.72917	5	3,034.77083	5	3,198.81250
6	2,545.92667	6	2,709.96833	6	2,874.01000	6	3,038.05167	6	3,202.09333
7	2,549.20750	7	2,713.24917	7	2,877.29083	7	3,041.33250	7	3,205.37417
8	2,552.48833	8	2,716.53000	8	2,880.57167	8	3,044.61333	8	3,208.65500
9	2,555.76917	9	2,719.81083	9	2,883.85250	9	3,047.89417	9	3,211.93583
780	2,559.05000	830	2,723.09167	880	2,887.13333	930	3,051.17500	980	3,215.21667
1	2,562.33083	1	2,726,37250	1	2,890.41417	1	3,054.45583	1	3,218.49750
2	2,565.61167	2	2,729.65333	2	2,893.69500	2	3,057.73667	2	3,221.77833
3	2,568.89250	3	2,732.93417	3	2,896.97583	3	3,061.01750	3	3,225.05917
4	2,572.17333	4	2,736.21500	4	2,900.25667	4	3,064.29833	4	3,228.34000
5	2,575.45417	5	2,739.49583	5	2,903.53750	5	3,067.57917	5	3,231.62083
6	2,578.73500	6	2,742.77667	6	2,906.81833	6	3,070.86000	6	3,234.90167
7	2,582.01583	7	2,746.05750	7	2,910.09917	7	3,074.14083	7	3,238.18250
8	2,585.29667	8	2,749.33833	8	2,913.38000	8	3,077.42167	8	3,241.46333
9	2,588.57750	9	2,752.61917	9	2,916.66083	9	3,080.70250	9	3,244.74417
790	2,591.85833	840	2,755.90000	890	2,919.94167	940	3,083.98333	990	3,248.02500
1	2,595.13917	1	2,759.18083	1	2,923.22250	1	3,087.26417	1	3,251.30583
2	2,598.42000	2	2,762.46167	2	2,926.50333	2	3,090.54500	2	3,254.58667
3	2,601.70083	3	2,765.74250	3	2,929.78417	3	3,093.82583	3	3,257.86750
4	2,604.98167	4	2,769.02333	4	2,933.06500	4	3,097.10667	4	3,261.14833
5	2,608.26250	5	2,772.30417	5	2,936.34583	5	3,100.38750	5	3,264.42917
6	2,611.54333	6	2,775.58500	6	2,939.62667	6	3,103.66833	6	3,267.71000
7	2,614.82417	7	2,778.86583	7	2,942.90750	7	3,106.94917	7	3,270.99083
8	2,618.10500	8	2,782.14667	8	2,946.18833	8	3,110.23000	8	3,274.27167
9	2,621.38583	9	2,785.42750	9	2,949.46917	9	3,113.51083	9	3,277.55250

PART II

GENERAL STATEMENT

The remaining pages of this publication are devoted to a description of field methods and to a discussion of errors and methods of adjustment. The condition equations and other data used in making the adjustments are also included.

While these may be of little interest to the engineer who desires only the geographical positions of control points in some particular area, there are a number of reasons why they should be published. The methods employed in the field work are of interest and value to local organizations carrying on detailed triangulation. For the information of those using the data the size of the errors in the observations and the distribution of the discrepancies in the adjustment should be evident in the published results. The condition equations and other adjustment data should be published in order that future work may be started with certainty at any point without recourse to the original data. Finally, publication of complete results is the best insurance against loss of original records by fire or otherwise. In any future reprints of the data for this arc of triangulation only the preceding portions of this publication need be printed.

The methods employed in the field will be described very briefly.

RECONNAISSANCE AND SIGNAL BUILDING

Detailed specifications for reconnaissance for first-order triangulation, such as governed the selection of the stations on this arc, are given in United States Coast and Geodetic Survey Special Publication No. 93. In brief, the principal requirements are that such stations and figures should be selected as to make the total cost of reconnaissance, signal building, and observing a minimum, that the R_1 between bases should be about 80 and should not exceed 110, that Laplace stations should be provided at intervals of from six to eight figures, and that if the line of a figure in the direction of progress is more than 40 miles in length, then additional stations, which need not be occupied, should be interpolated.

For a great part of this arc very little reconnaissance was necessary since the figures of the existing second-order and third-order triangulation were satisfactory for the first-order scheme. However, due to the narrowness of the bodies of water, to the numerous rounding points, and to the peculiar turns, a thorough reconnaissance was necessary in Stikine and Dry Straits to determine the location of stations which would be intervisible. Again where the scheme leaves the coast line of Lynn Canal and follows the high mountains up Chilkoot Inlet it was necessary to do considerable reconnaissance. Only in a few instances was it necessary to build signals of much height, a great many of them being only 4 or 5 meters high. The reconnaissance and signal building were done in conjunction with the observing. Considerable reconnaissance was necessary in determining the proper sites for base lines.

HORIZONTAL ANGLE OBSERVATIONS

The observing on this first-order arc was begun in the season of 1916, and after numerous interruptions was completed in 1925. During the years 1918–1920 no work whatever was done on the arc. The triangulation, consisting of a quadrilateral, which makes the connection between the Alaskan and Canadian triangulations in Dixon Entrance was made by Jack Senior in the summer of 1924. Three of the stations—Lazaro, Dundas, and Tow Hill—were occupied, while the fourth station, Chacon, was sighted on. The actual observing for this connection was done on four nights, but the work required about six weeks due to a persistent haze. The length of the longest line, Lazaro-Tow Hill, of this connection is about 59 miles.

From this connection the triangulation was carried northward by J. H. Hawley in 1921 through Clarence Strait to the vicinity of Behm Canal; then continued through Clarence Strait by A. M. Sobieralski in 1922 to Stikine Strait, connecting with the triangulation in Stikine and Dry Straits executed by J. A. Daniels in 1916. In 1922 A. M. Sobieralski executed the triangulation connecting the work in Dry Strait with that in Frederick Sound done by E. W. Eickelberg in 1917. In 1921 N. H. Heck was in charge of the party making the triangulation connection of the work in Frederick Sound with that done by F. S. Borden in 1917 in Stephens Passage. N. H. Heck in 1921 and J. H. Hawley in 1922 carried the triangulation from Stephens Passage through Lynn Canal to Chilkoot Inlet. The work was finally carried northward through Chilkoot Inlet to the vicinity of Skagway in 1925 by Jack Senior.

From Dixon Entrance up to the head of Lynn Canal the first-order stations were located along the shore line. This was done because the location of the stations on the peaks back of the shores would have involved greater cost for signal building, considerable difficulty in carrying heavy instruments to the peaks, and loss of time in clearing lines of sight. Besides, the signals located along the shore were also available for hydrography and topography, and as most of the parties executed the combined operations of triangulation and hydrography, this resulted in a considerable saving of time.

However, in order to obtain a strong scheme up Chilkoot Inlet, it was necessary to leave the coast and place the stations on the high mountains. These mountains, from 3,000 to 5,000 feet in height, are rugged and steep. Some of the peaks are almost surrounded by immense, impassable glaciers, and the climbing of them was extremely hazardous. A scheme of triangulation could have been carried along the coasts of Chilkoot Inlet in a much shorter time, but such a scheme would have been entirely too weak for first-order triangulation.

On all this triangulation launches were used for transportation.

INSTRUCTIONS GOVERNING THE OBSERVATIONS

The instructions for the observation of horizontal angles on first-order triangulation are given in detail in United States Coast and Geodetic Survey Special Publication No. 120 and will not be repeated here. In brief, such instruments and methods are used as will insure that the maximum closing error of a triangle is not greater than three seconds with an average closure of one second or less, while the

closure in length upon a measured base or a line of adjusted triangulation must not exceed that represented by an error of $\frac{1}{25000}$ after the angle and side equations have been satisfied in the adjustment.

The observations for horizontal angles between first-order stations across Dixon Entrance, in the lower part of Clarence Strait, in Chilkoot Inlet, and over a few long lines in Frederick Sound were made at night on lights. All the other observations for horizontal angles were made in the daytime either on targets or heliotropes. Because of the low elevation of practically all of the stations, no observations of vertical angles were made.

INSTRUMENTS

Practically all the first-order measures for horizontal directions were made with a standard 12-inch direction theodolite such as has been in use in the survey for a number of years. At a few of the stations to which a large instrument could not be carried a 7-inch Berger was used.

For most of the day observations the signal used consisted of a tripod with center pole which varied in dimensions from 1 by 1 inch to 3 by 3 inches, depending upon the length of sight. On lines of such a length that the center pole could not be distinguished targets were attached to the pole. Heliotropes were also used for some of the observations. For the night observations both the carbide and automatic electric signal lamps were used.

BASE MEASUREMENTS

Ten bases of first-order accuracy were measured on the first-order triangulation in southeast Alaska. They were measured according to the same methods which have been used for a number of years in the United States Coast and Geodetic Survey and for which the instructions are given in Special Publication No. 120. The measurements were made with 50-meter invar tapes, at least two of which were used on each base. These tapes were standardized at the Bureau of Standards before they were used on the bases.

It will be noticed that the probable errors of several of the bases are rather large for bases measured with first-order accuracy. Also in several of the adjustments, the agreement between the measured length of a base and the length computed from a preceding measured base is not as close as we ordinarily should expect in triangulation of first-order accuracy. The large probable errors and the large discrepancies between the measured and computed values are due to the fact that in most cases good base sites were not available, and the bases had to be measured under extremely difficult conditions. For instance, in measuring the Glacier Point base, for which of all the bases measured the probable error is the highest, it was necessary to cross a swift glacial stream, and during this work the men had to stand waist high in ice-cold water. First-order accuracy is hardly possible under such conditions.

METHOD OF MEASUREMENT

The Metlakatla base was broken and measured in three sections, which were projected onto one line, the length of which was held in the adjustment.

The Zarembo Island base is a broken base and the sections are not consecutive, so that they could not be projected onto one line. To obtain the length of the base used in the main adjustment a least-square adjustment was made in which the measured lengths of the five sections were held fixed. (See p. 98.)

The Holkham base is a broken base and the lengths of the two sections were projected onto one line the length of which was held fixed in the main adjustment.

The Gastineau Channel base is a broken base, and the lengths of the two sections were projected onto one line the length of which was held in the main adjustment.

The Luck Point base was broken and measured in eight sections, which were projected onto one line the length of which was held in the adjustment.

Below are given the lengths of the bases with the probable errors of their corresponding measured lengths. These probable errors do not include the probable errors of the standardizations of the tapes.

Lengths and probable errors of bases

Base	Length	Probable error	
		Mm.	1 part in—
	Meters		
Metlakatla	3220.8753	±2.2	1,500,000
Luck Point	5983.5307	±5.5	1,140,000
Zarembo Island (5 sections)		±2.8	1,200,000
South base to Hot	399.5624		
Oart to Mid	1749.4640		
Mid to Warm	549.7414		
Warm to Near	395.0955		
Near to north base	257.7441		
Dry Strait	6256.8768	±5.5	1,100,000
Agassiz	4808.7049	±5.5	870,000
Holkham	2204.5692	±4.3	530,000
Gastineau Channel	2313.8942	±1.0	2,300,000
Young Bay	1793.6851	±1.4	1,300,000
Eagle River	3277.5452	±2.8	1,170,000
Glacier Point	3726.5350	±7.7	484,000

ASTRONOMICAL WORK

All the astronomical work along the first-order triangulation of southeast Alaska was done during the field season of 1923 by the party under the direction of George D. Cowie, assisted by Donald B. Pheley and Charles Pierce. Seven stations were occupied at an average of 70 miles apart and covered the entire arc of first-order triangulation from Dixon Entrance to Eldred Rock in Lynn Canal, 25 miles south of Skagway. The principal purpose of this work was to obtain the astronomical longitudes at Laplace stations for the purpose of controlling the azimuths in the triangulation as explained below. The astronomical latitude was observed at each longitude station for the purpose of determining the deflection of the vertical in the meridian.

At each station three nights of observations were made for longitude, two for azimuth, and one or two for latitude. The work was divided among the three officers of the party, G. D. Cowie observing longitude and part of the latitude, D. B. Pheley part of the azimuth and the latitude, and Charles Pierce part of the azimuth. The automatic radio recording set which had been used in 1922 in the western

part of the United States was used in recording the time signals sent from the Naval Observatory through the Annapolis radio station at 4 a. m. for the longitude work.

The 60-foot cabined launch *Audwin* was used to transport the party and equipment. In addition to the officers it carried a crew of three men.

LAPLACE POINTS

A Laplace station is a station of the triangulation at which the astronomical azimuth and the astronomical longitude have been determined.

A Laplace azimuth is an observed astronomical azimuth corrected for the prime vertical component of the deflection of the vertical. This deflection is the angle formed by the actual plumb-line direction with the normal to the reference spheroid at the point of observation.

It is possible to carry the geodetic longitudes throughout a continuous system of triangulation with very little error, but the geodetic azimuth is affected by the accidental errors of the observations of horizontal directions and also by the systematic error which seems almost always to be present in an arc of triangulation. The effect on the azimuth is, in general, of such a magnitude that it is very desirable that true or Laplace azimuths be introduced into the scheme and held in the adjustment of the triangulation. This was done in the triangulation covered by this report. The Laplace azimuths are at Seal, Ship, Fox, Eld, Young, Astley, and Har.

ASTRONOMICAL LATITUDES

The observations for latitude were made with the Bamberg broken-telescope transit No. 20. The general methods followed in this work were those explained in United States Coast and Geodetic Survey Special Publication No. 14.

At each station from 10 to 18 pairs of stars were observed on from one to three nights, with a resulting accuracy represented by a probable error for the station of from $\pm 0''.07$ to $\pm 0''.19$.

In every case the astronomical station was referred to the triangulation station, the descriptions of which may be found by consulting the index. The astronomical latitude stations are coincident with the astronomical longitude stations.

The following table gives the names of the latitude stations, their geodetic latitudes and longitudes, their astronomical latitudes reduced to sea level, and the values of A–G, which is the astronomical minus the geodetic latitude, or the deflection of the vertical in the meridian. The astronomical latitudes have not been reduced for the variation of pole.

Deflections in the meridian at latitude stations

Station	Geodetic latitude			Geodetic longitude			Astronomical latitude	A–G
	°	′	″	°	′	″	″	″
Seal, Clarence Strait	54	55	57.479	131	35	32.708	48.72	−8.76
Ship, Clarence Strait	55	35	56.541	132	12	05.577	50.50	−6.04
Fox, Frederick Sound	56	53	36.592	132	54	49.068	31.92	−4.67
Eld 1921, Lynn Canal	58	58	16.082	135	13	08.969	06.77	−9.31
Young, Stephens Passage	58	11	42.736	134	33	24.111	40.69	−2.05
Astley, Stephens Passage	57	42	59.817	133	39	00.343	59.61	−0.21
Har, Stikine Strait	56	14	10.947	132	39	28.481	11.74	+0.79

ASTRONOMICAL LONGITUDES

The seven observed differences of longitude connected the seven new stations in this longitude chain with the old longitude station at the United States Naval Observatory (center of clock room), Washington, D. C., the latter being a point in the adjusted longitude net of the United States.

The observations were made with Bamberg broken-telescope transit No. 20, the time signals being received with a portable radio set. The instrument was mounted either on a portable aluminum tripod or on wooden stands.

Below are given descriptions of the new stations and the data connected with each of the seven differences of longitude.

Difference of longitude between Seal, Alaska, and United States Naval Observatory, Washington, D. C.

Date of reception of time signals	Observer	Difference of longitude	v
1923		h. m. s.	
May 24	G. D. Cowie	3 38 05.826	+0.006
May 25	do	05.846	−0.014
June 1	do	05.824	+0.008
Mean		3 38 05.832 ±0.005	

The longitude station Seal, Percy Island, Clarence Strait, is 105.28 meters (03″40) north and 335.31 meters (18″82) east of Seal triangulation station. (See description on p. 42.)

	h.	m.	s.
Mean observed difference, Seal to Naval Observatory	3	38	05.832
Longitude, United States Naval Observatory, Washington, D. C.	5	08	15.784
Longitude, Seal	8	46	21.616
	131°	35′	24″.24
Reduction to Seal triangulation station			+18.82
Longitude, Seal triangulation station	131	35	43.06

Difference of longitude between Ship Island, Alaska, and United States Naval Observatory, Washington, D. C.

Date of reception of time signals	Observer	Difference of longitude	v
1923		h. m. s.	
June 13	G. D. Cowie	3 40 33.302	+0.014
June 20	do	33.299	+0.017
June 28	do	33.348	−0.032
Mean		3 40 33.316 ±0.011	

The longitude station Ship Island, Clarence Strait, is 6.79 meters (0″22) north and 43.82 meters (2″50) east of triangulation station Ship. (See description on p. 47.)

	h.	m.	s.
Mean observed difference, Ship Island to Naval Observatory	3	40	33.316
Longitude, United States Naval Observatory, Washington, D. C.	5	08	15.784
Longitude, Ship Island	8	48	49.100
	132°	12′	16″.50
Reduction to Ship triangulation station			+2.50
Longitude, Ship triangulation station	132	12	19.00

Difference of longitude between Fox, Sukoi Island, Alaska, and United States Naval Observatory, Washington, D. C.

Date of reception of time signals	Observer	Difference of longitude	v
1923		h. m. s.	
July 14	G. D. Cowie	3 43 23.201	−0.011
July 23	do	23.237	−0.047
July 27	do	23.199	−0.009
July 28	do	23.124	+0.066
Mean		3 43 23.190 ±0.016	

The longitude station Fox (Sukoi Island), Frederick Sound, Alaska, is 25.01 meters (0″.81) south and 27.59 meters (1″.63) west of triangulation station Fox. (See description on p. 59.)

	h.	m.	s.
Mean observed difference, Fox to Naval Observatory	3	43	23.190
Longitude, United States Naval Observatory, Washington, D. C	5	08	15.784
Longitude, Fox	8	51	38.974
	132°	54′	44″.61
Reduction to Fox triangulation station			−1.63
Longitude, Fox triangulation station	132	54	42.98

Difference of longitude between Eldred Rock, Alaska, and United States Naval Observatory, Washington, D. C.

Date of reception of time signals	Observer	Difference of longitude	v
1923		h. m. s.	
Aug. 5	G. D. Cowie	3 52 37.973	−0.024
Aug. 6	do	37.948	+0.001
Aug. 7	do	Rejected 37.944	
Aug. 8	do	37.927	+0.022
Mean		3 52 37.949 ±0.009	

The longitude station Eldred Rock, Lynn Canal, Alaska, is 24.30 meters (0″.79) north and 4.44 meters (0″.28) east of triangulation station Eld. (See description on p. 75.)

	h.	m.	s.
Mean observed difference, Eldred Rock to Naval Observatory	3	52	37.949
Longitude, United States Naval Observatory, Washington, D. C	5	08	15.784
Longitude, Eldred Rock	9	00	53.733
	135°	13′	26″.00
Reduction to Eld triangulation station			+0.28
Longitude, Eld triangulation station	135	13	26.28

Difference of longitude between Young Point, Alaska, and United States Naval Observatory, Washington, D. C.

Date of reception of time signals	Observer	Difference of longitude	v
1923		h. m. s.	
Aug. 16	G. D. Cowie	3 49 58.010	+0.009
Aug. 17	do	58.041	−0.022
Aug. 18	do	58.007	+0.012
Mean		3 49 58.019 ±0.007	

The longitude station Young Point, Stephens Passage, Alaska, is 0.44 meter (0.″01) south and 13.49 meters (0.″83) west of triangulation station Young. (See description on p. 68.)

	h.	m.	s.
Mean observed difference, Young Point to Naval Observatory	3	49	58.019
Longitude, United States Naval Observatory, Washington, D. C.	5	08	15.784
Longitude, Young Point	8 134°	58 33′	13.803 27.″04
Reduction to Young triangulation station			−0.83
Longitude, Young triangulation station	134	33	26.21

Difference of longitude between Astley Point, Alaska, and United States Naval Observatory, Washington, D. C.

Date of reception of time signals	Observer	Difference of longitude	v
1923		h. m. s.	
Aug. 25	G. D. Cowie	3 46 20.977	+0.024
Aug. 26	do	21.025	−0.024
Sept. 4	do	Rejected 20.895	
Mean		3 46 21.001 ±0.016	

The longitude station Astley Point, Holkham Bay, Alaska, is on Point Astley 17.172 meters (0.″56) south and 109.52 meters (6.″61) east of triangulation station Astley Laplace. (See description on p. 64.)

	h.	m.	s.
Mean observed difference, Astley Point to Naval Observatory	3	46	21.001
Longitude, United States Naval Observatory, Washington, D. C.	5	08	15.784
Longitude, Astley Point	8 133°	54 39′	36.785 11.″78
Reduction to Astley triangulation station			+6.61
Longitude, Astley triangulation station	133	39	18.39

Difference of longitude between Quiet Harbor, Alaska, and United States Naval Observatory Washington, D. C.

Date of reception of time signals	Observer	Difference of longitude	v
1923		h. m. s.	
Sept. 10	G. D. Cowie	3 42 22.664	−0.003
Sept. 11	do	22.633	+0.028
Sept. 11	do	22.685	−0.024
Mean		3 42 22.661 ±0.010	

The longitude station Quiet Harbor, Stikine Strait, Alaska, is 6.73 meters (0.″22) north and 31.97 meters (1.″86) west of triangulation station Har. (See description on p. 53.)

	h.	m.	s.
Mean observed difference, Quiet Harbor to Naval Observatory	3	42	22.661
Longitude, United States Naval Observatory, Washington, D. C.	5	08	15.784
Longitude, Quiet Harbor	8 132°	50 39′	38.445 36.″68
Reduction to Har triangulation station			−1.86
Longitude, Har triangulation station	132	39	34.82

The following table gives for each longitude station the name of the station, the geodetic latitude and longitude, the astronomical longitude, the difference between the astronomical and geodetic longitude, A–G, the cosine of the geodetic latitude ϕ, and finally the deflection in the prime vertical.

The astronomical longitudes have not been corrected for variation of pole. They have in each case been reduced to the triangulation station.

Deflections in the prime vertical at longitude stations

Station	Geodetic latitude			Geodetic longitude			Astronomical longitude	A–G	Cos ϕ	A–G (P. V.)
	°	′	″	°	′	″	″	″		
Seal, Clarence Strait	54	55	57.479	131	35	32.708	43.06	+10.35	0.5745	+5.95
Ship, Clarence Strait	55	35	56.541	132	12	05.577	19.00	+13.42	.5650	+7.58
Fox, Frederick Sound	56	53	36.592	132	54	49.068	42.98	−6.09	.5462	−3.33
Eld 1921, Lynn Canal	58	58	16.082	135	13	08.969	26.28	+17.31	.5155	+8.92
Young, Stephens Passage	58	11	42.736	134	33	24.111	26.21	+2.10	.5270	+1.11
Astley, Stephens Passage	57	42	59.817	133	39	00.343	18.39	+18.05	.5341	+9.64
Har, Stikine Strait	56	14	10.947	132	39	28.481	34.82	+6.34	.5558	+3.52

ASTRONOMICAL AZIMUTHS

Astronomical azimuths were measured at seven stations—Seal, Ship, Fox, Eld, Young, Astley Laplace, and Har. All of these stations are Laplace stations, and observations were made on at least two different nights at each station with probable errors varying from ±0.″29 to ±0.″56. The angle measures were made with theodolites Nos. 280 and 289. Detailed descriptions of the methods used may be found in United States Coast and Geodetic Survey Special Publication No. 14.

The table below gives the program of occupation of the azimuth stations with the name of the observer, the number of positions, and the probable error at each station. It also gives for each station its geographic position, the geodetic azimuth of a line of the main scheme of the triangulation, the astronomical azimuth of the same, the difference between the astronomical and geodetic azimuths, A–G, the negative cotangent of the geodetic latitude of the occupied station ($-\cot\phi$), the value of A–G (P. V.) or the deflection in the prime vertical, the Laplace azimuth, and the A–G (from longitude) times the sine of the geodetic latitude of the occupied station.

In each case the azimuth and triangulation stations are coincident. The mark used was the signal lamp accurately centered over the triangulation station at the distant end of the line of triangulation for which the azimuth is given. The astronomical azimuth is corrected for diurnal aberration, eccentricities, and elevation of mark but not for variation of pole.

Deflections in the prime vertical at Laplace azimuth stations

Station	Dates of occupation and observer	Number [1] of positions	Probable error	Geodetic latitude			Geodetic longitude			Geodetic azimuth			To station—	Astronomical azimuth	A-G	−Cot ϕ	A-G (P. V.)	Laplace azimuth			(A-G) (from longitude) sin ϕ
	1923		″	°	′	″	°	′	″	°	′	″		″	″		″	°	′	″	
Seal, Clarence Strait	June 30, July 1, G. D. Cowie	25	±0.42	54	55	57.479	131	35	32.708	105	18	22.26	Ingraham	13.81	−8.45	−0.7020	+5.93	105	18	22.28	+8.47
Ship, Clarence Strait	June 26, 28, D. B. Pheley	16	±.56	55	35	56.541	132	12	05.577	172	34	65.96	Sly	56.39	−9.57	−.6847	+6.55	172	34	67.46	+11.07
Fox, Frederick Sound	July 14, 16, 17, D. B. Pheley	28	±.32	56	53	36.592	132	54	49.068	257	13	15.10	Agassiz south base.	21.56	+6.46	−.6521	−4.21	257	13	16.46	−5.10
Eld 1921, Lynn Canal	Aug. 5, 6, 7, 8, D. B. Pheley	32	±.32	58	58	16.082	135	13	08.969	40	20	59.61	Van	46.18	−13.43	−.6015	+8.08	40	20	61.01	+14.83
Young, Stephens Passage.	Aug. 16, 17, 19, D. B. Pheley	32	±.49	58	11	42.736	134	33	24.111	102	04	14.69	Scull 2	14.35	−0.34	−.6201	+0.21	102	04	16.13	+1.78
Astley Laplace, Stephens Passage.	Aug. 25, Sept. 4, D. B. Pheley.	27	±.29	57	42	59.817	133	39	00.343	157	54	68.13	Tracy	54.33	−13.80	−.6318	+8.72	157	55	09.59	+15.26
Har, Stikine Strait	Sept. 10, 11, D. B. Pheley	21	±.33	56	14	10.947	132	39	28.481	184	08	63.31	Cliff	59.37	−3.94	−.6685	+2.63	184	09	04.64	+5.27

[1] Each new setting of the graduated circle with relation to the direction to the initial station or line is called a position. In any one position two pointings with the telescope are made on each object, one with the telescope direct and the other with it reversed.

The Laplace azimuths computed at these stations are undoubtedly more accurate than the geodetic azimuths computed through the triangulation, and therefore were considered free from error. The discrepancy between the Laplace and the geodetic azimuth was considered as a deviation of the triangulation in azimuth. The differences between the deflections in the prime vertical as derived from longitude observations and from azimuth observations are due to the method of adjustment.

On examination of the list of positions on pages 20–38, it will be found that the geodetic azimuths resulting from the adjustments do not agree with the Laplace azimuths, in one case the difference being as much as 1.″50. These discrepancies may be explained as follows: When the adjustment of the southeast Alaska triangulation was begun the final North American datum of 1927 had not been carried up to Dixon Entrance. As there was a demand to complete the work as quickly as possible, the adjustment of all the first-order and a great part of the third-order triangulation was made using an approximate datum. In these adjustments all the Laplace azimuths were held fixed.

After the North American datum of 1927 reached Alaska, it was found that the geodetic azimuth of the line Chacon-Dundas, the line from which all the southeast Alaska triangulation started, had changed from the value originally furnished by Canada, due to the readjustment of the triangulation in the western part of the United States. Consequently when the geographic positions of the stations were recomputed on the North American datum of 1927, the Laplace azimuths did not check exactly as they had checked in the original adjustment. However, as the greatest discrepancy was only 1.″50, and as it would have taken considerable time and expense to readjust the triangulation to take care of these discrepancies, it was decided to hold all the azimuths as recomputed.

STATEMENT OF ADJUSTMENTS

The first-order triangulation considered in this publication starts from the line Chacon-Dundas, Dixon Entrance, and ends on the line Tai-Skag, Skagway. Chacon-Dundas is a line of the first-order triangulation of the Geodetic Survey of Canada, and is held fixed in length, azimuth, and position in the adjustment. It was determined through the adjustment of the Canadian arc of triangulation, which extends from the northwestern part of the State of Washington to Dixon Entrance, Alaska. The Canadian arc is connected directly with the first-order net of triangulation of the United States in the vicinity of Point Roberts, State of Washington, and its initial position was determined from the readjustment of the first-order triangulation of the western half of the United States made in 1927.

Instead of a single adjustment for the entire arc, the work was divided into 14 sections, which were adjusted separately. This method was due to two causes: First, the field observations were not completed at the time the adjustment was begun; second, to adjust the entire scheme at the same time would have required a great many equations and would have made their solution unusually heavy. The adjustment was not begun with the triangulation in Dixon Entrance, because at that time the final length of the Canadian line Chacon-Dundas was not known.

The lengths of the lines of the arc are fixed by 10 measured bases and the length of the line Chacon-Dundas furnished by the Geodetic Survey of Canada. Seven Laplace azimuths and the azimuth of the line Chacon-Dundas served to fix the arc in azimuth. In order that

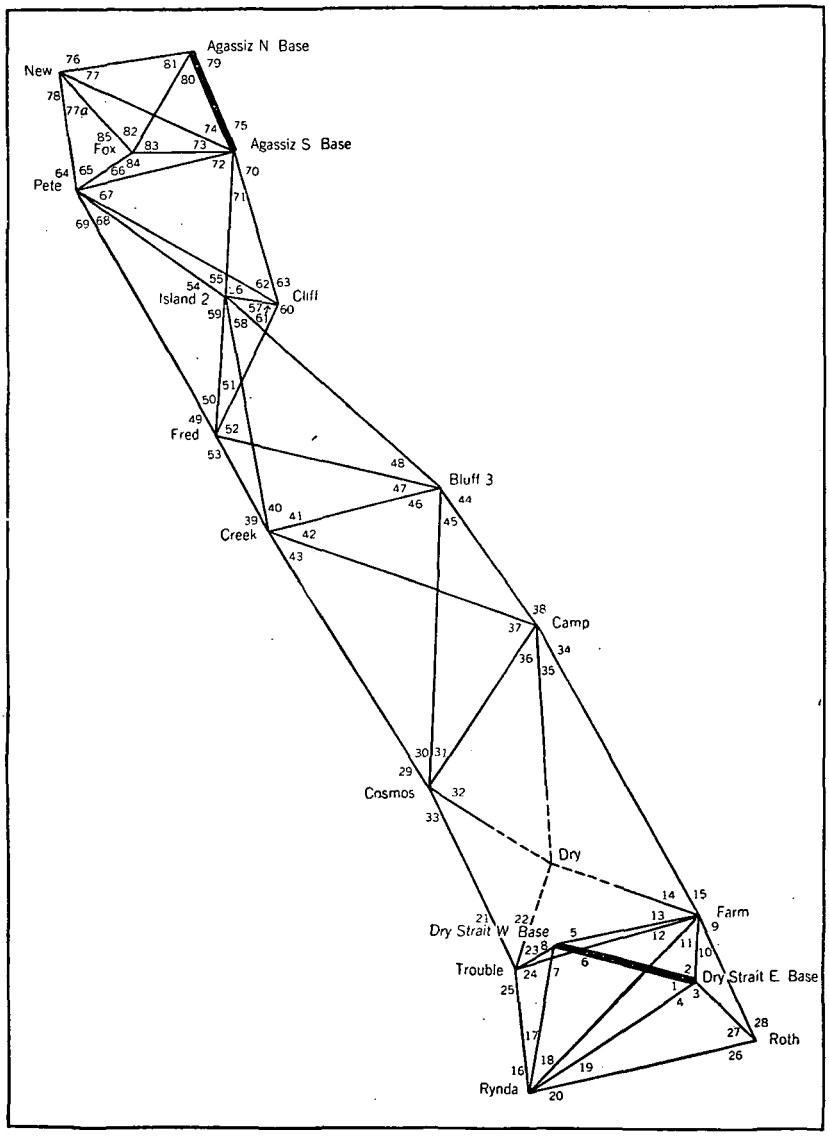

FIGURE 3.—Figure adjustment, section 1

the adjustment could be made in sections and also hold the Laplace azimuths, the discrepancy between each two consecutive azimuths was found, prorated, and distributed in the sections according to the number of angles necessary to turn through in them. There were

no latitude or longitude equations, since the arc does not end on a fixed point or line, but depends solely on the position of the line Chacon-Dundas furnished by the Geodetic Survey of Canada.

A preliminary computation of the geographic positions of all the points was made for the purpose of adjusting the loops of third-order triangulation, which connect with the first-order triangulation at a number of places.

A brief discussion of the adjustment of each of the 14 sections of the arc is given below. For convenience of description, the sections are numbered. They are arranged in the order in which they were adjusted.

Section 1 consists of the triangulation included between the Dry Strait and Agassiz bases. The adjustment required a total of 36 equations, including 24 angle, 10 side, 1 azimuth, and 1 length equations. The length discrepancy developed between the Dry Strait base and the Agassiz base is 7.82 in the sixth place of logarithms, or 1 part in 55,500 before the angle and side equations were satisfied. The measured length of the Agassiz base is longer than the length computed through the triangulation from the Dry Strait base. After the angle and side equations were satisfied, the length discrepancy became 10.06 in the sixth place of logarithms, or 1 part in 43,200. The azimuth discrepancy between the line Roth-Rynda and the line Fox-Agassiz south base is 5″31.

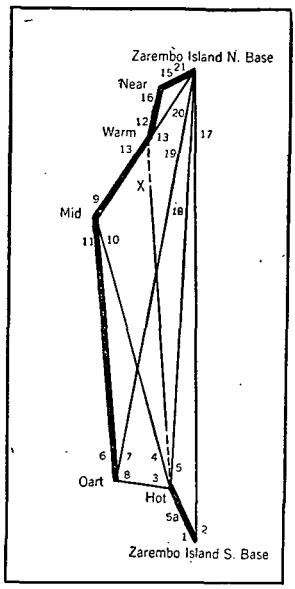

FIGURE 4.—Figure adjustment, section 2

Section 2 consists of the various lines measured to determine the length of the line Zarembo Island north base-Zarembo Island south base. This is a broken base measured in 5 sections which are not consecutive, and so could not be projected onto one line. The adjustment, which was made holding the 5 measured lengths fixed, involved 5 angle and 4 length equations.

Section 3 consists of the triangulation from the line Farm-Roth to the line Har-Granite. This adjustment required 34 equations, including 24 angle, 8 side, 1 azimuth, and 1 length equations. The length of the measured Zarembo Island base and the length of the line Farm-Roth fixed by the adjustment in section 1 were held fixed. The length discrepancy developed between the line Farm-Roth and the Zarembo Island base was 29.22 in the sixth place of logarithms, or 1 part in 14,900, before the angle and side equations were satisfied. The measured length of the Zarembo Island base is longer than the length computed through the triangulation from the line Farm-Roth. After the angle and side equations were satisfied the length discrepancy became 1 part in 17,000. The azimuth discrepancy between the line Farm-Roth and the line Har-Cliff is 5″03. After the line Grey-Lee had been fixed in length by this adjustment, the points Ryn and Kad were adjusted by a simple quadrilateral adjustment shown in sketch 3a.

Section 4 consists of the triangulation between the line Har-Granite and the Luck Point base. The adjustment required 42 equations, including 29 angle, 11 side, 1 azimuth, and 1 length equations. The length of the measured Luck Point base and the length

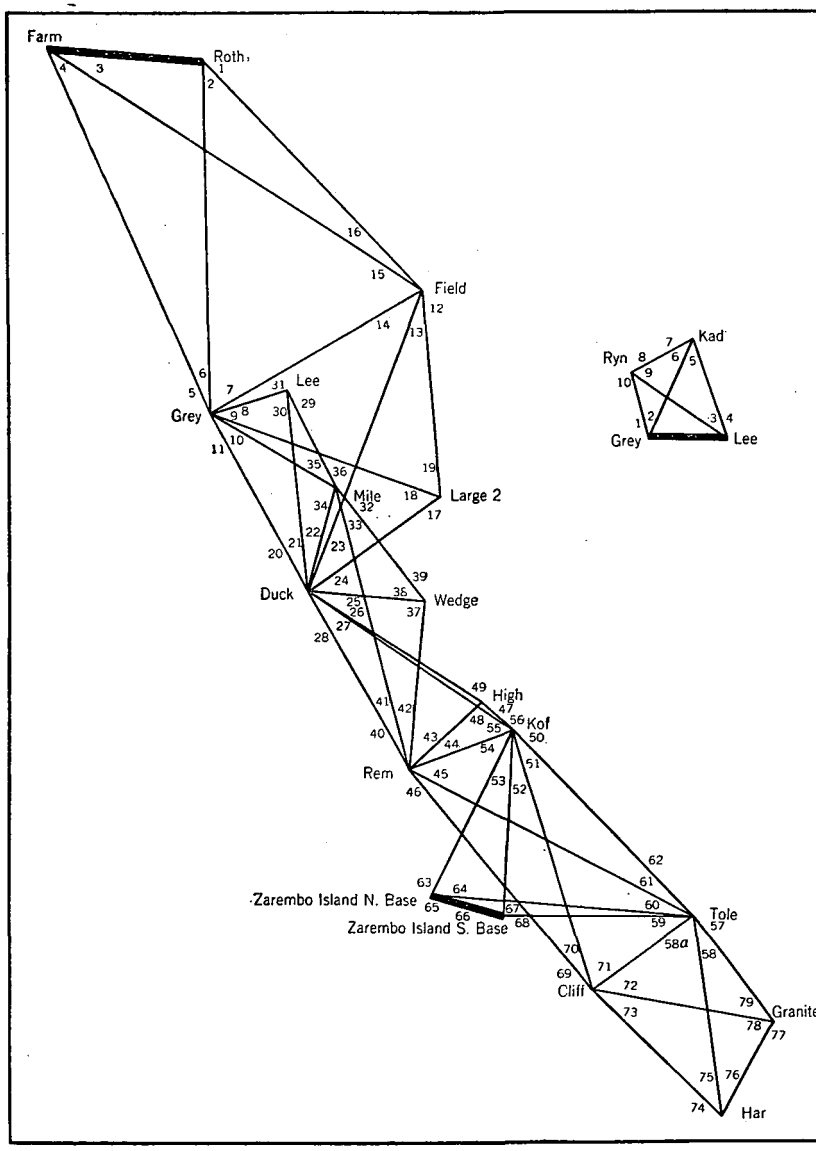

FIGURE 5.—Figure adjustment, section 3

of the line Har-Granite fixed by the adjustment in section 3 were held fixed. The length discrepancy developed between the line Har-Granite, and the Luck Point base was 22.46 in the sixth place of logarithms, or 1 part in 19,300 before the angle and side equations

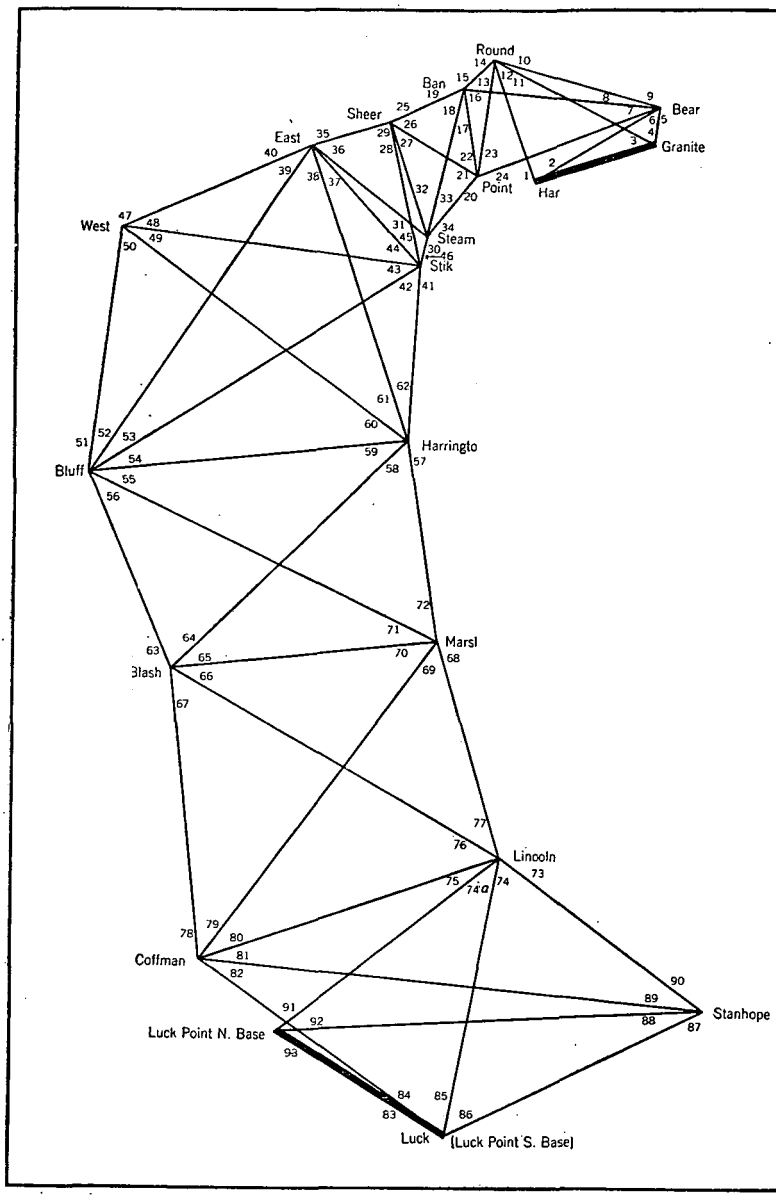

FIGURE 6.—Figure adjustment, section 4

were satisfied. The measured length of the Luck Point base is longer than the length computed through the triangulation from the line Har-Granite. After the angle and side equations were satisfied the length discrepancy was 1 part in 15,000. The azimuth discrepancy between the line Har-Granite and the line Stanhope-Luck (Luck Point south base) is 1.″93.

Section 5 consists of the triangulation included between the lines Luck (Luck Point south base)-Stanhope and Nar-Mis. This adjustment required 13 equations, including 9 angle, 3 side, and 1 azimuth equations. The length of the line Luck (Luck Point south base)-Stanhope fixed by the adjustment in section 4 was held fixed, while the length of the line Nar-Mis was fixed by this adjustment. The azimuth discrepancy between the line Stanhope-Luck (Luck Point south base) and the line Mis-Nar is 1.″15.

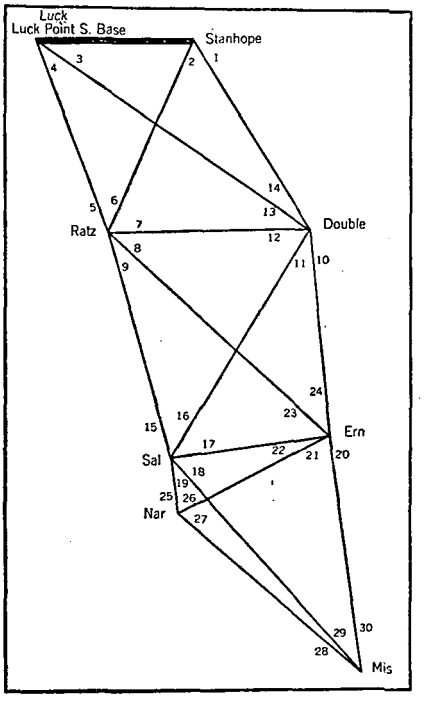

FIGURE 7.—Figure adjustment, section 5

Section 6 consists of the triangulation included between the lines Chacon-Dundas, the line Wedge-Dall, and the Metlakatla base. The adjustment required 32 equations, including 21 angle, 9 side, 1 azimuth, and 1 length equations. The length of the line Chacon-Dundas as determined by the Canadian triangulation and the length of the measured Metlakatla base were held fixed. The length discrepancy developed between the line Chacon-Dundas and the Metlakatla base was 8.94 in the sixth place of logarithms, or 1 part in 48,600 before the angle and side equations were satisfied. The measured length of the Metlakatla base is shorter than the length computed through the triangulation from the line Chacon-Dundas. After the angle and side equations were satisfied, this discrepancy was 1 part in 28,000. The azimuth discrepancy between the line Chacon-Dundas and Seal-Ingraham was 0.″17.

Section 7 consists of the triangulation between the line Mis-Nar and the line Wedge-Dall. The adjustment required 48 equations, including 33 angle, 12 side, 2 azimuth, and 1 length equations. The length of the line Mis-Nar as fixed by the adjustment of section 5 and the length of the line Wedge-Dall as fixed by the adjustment of section 6 were held fixed. The length discrepancy as developed between the line Mis-Nar and the line Wedge-Dall was 16.97 in the sixth place of logarithms, or 1 part in 25,600 before the angle and side equations were satisfied. The line Wedge-Dall as fixed by the adjustment of section 6 is longer than the length computed through the triangulation from the line Mis-Nar. After the angle and side equations were

satisfied the discrepancy was 1 part in 28,000. The azimuth discrepancy between the lines Mis-Nar and Ship-Sly was 0.″14, and between the lines Ship-Sly and Wedge-Dall was 1.″91.

Section 8 consists of the triangulation included between the line Fox-Agassiz north base, the line Coke-Glass, and the Holkham Bay base. The adjustment required 76 equations, including 55 angle, 19 side, 1 azimuth, and 1 length equations. The length of the line Fox-Agassiz

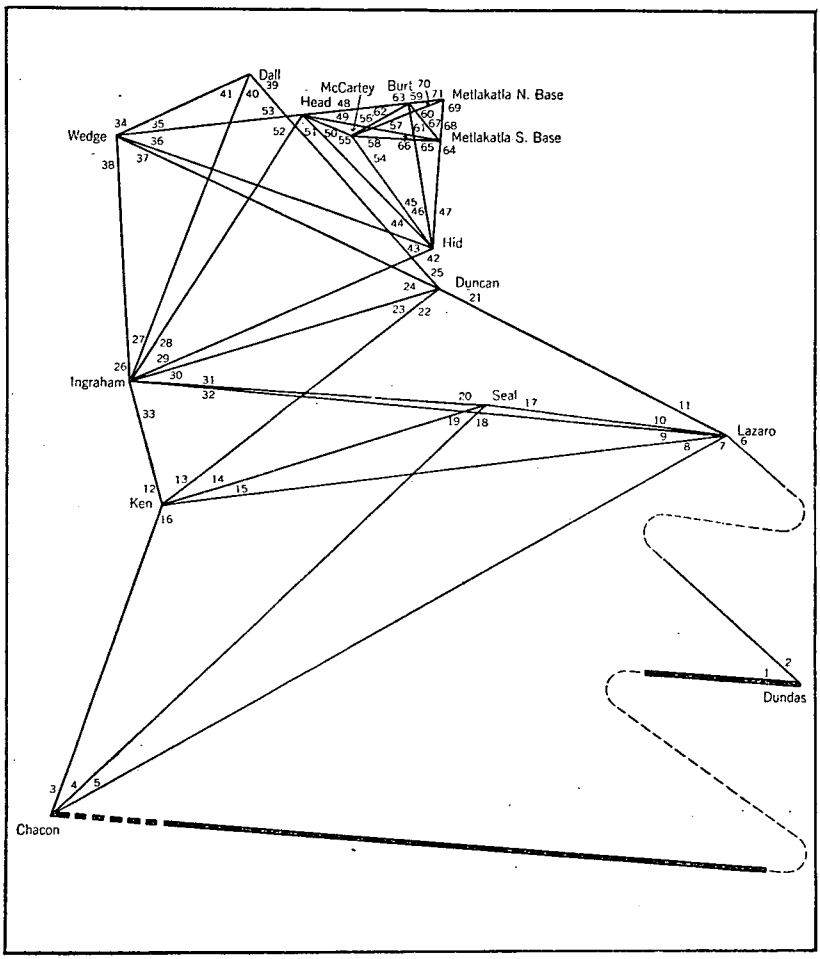

FIGURE 8.—Figure adjustment, section 6

north base as fixed by the adjustment of section 1 and the length of the measured Holkham Bay base were held fixed. The length discrepancy developed between the line Fox-Agassiz north base and the Holkham Bay base was 26.12 in the sixth place of logarithms, or 1 part in 16,600 before the angle and side equations were satisfied. The measured length of the Holkham Bay base is longer than the length computed through the triangulation from the line Fox-Agassiz north base. After the angle and side equations were satisfied the discrepancy was

1 part in 38,800. The azimuth discrepancy between the line Fox-Agassiz north base and the line Astley-Tracy was 9.″05. After the adjustment was completed the length of the line Pean-Bendel was determined from the line Spruce-Top by a quadrilateral adjustment.

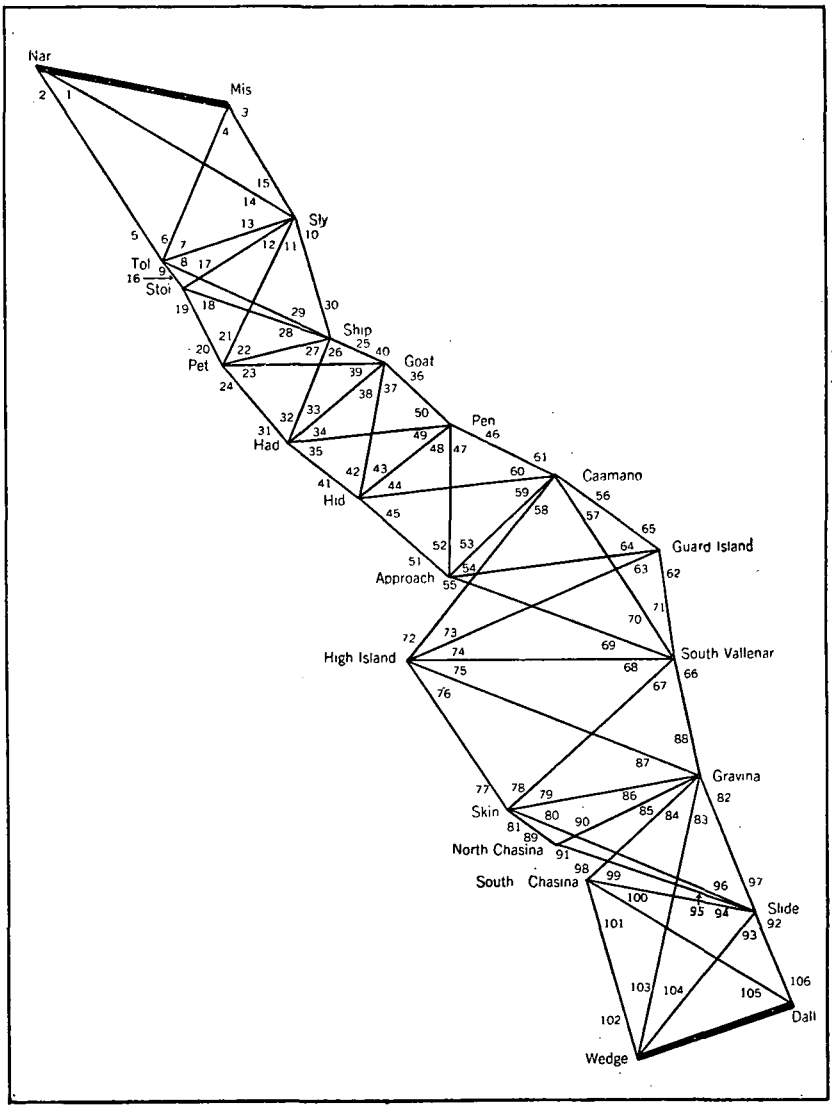

FIGURE 9.—Figure adjustment, section 7

Section 9 consists of the triangulation between the Gastineau Channel base and the line New-Corner. The adjustment required 18 equations, including 12 angle and 6 side equations. The length of the measured Gastineau Channel base was held fixed. The length

and azimuth of the line New-Corner were determined by this adjustment.

Section 10 consists of the triangulation included between the lines of the triangle Tantallon-Salisbury-Corner and the line Glass-Coke. The adjustment required 38 equations, including 27 angle, 9 side, 1 azimuth, and 1 length equations. The length of the line Glass-Coke as determined by the adjustment of section 8 and the lengths of the three sides of the triangle Tantallon-Salisbury-Corner as determined by the adjustment of section 9 were held fixed. The length discrepancy developed between the line Salisbury-Corner and the line Glass-Coke is 0.38 in the sixth place of logarithms, or 1 part in 1,143,000 before the angle and side equations were satisfied. The fixed length of the line Salisbury-Corner is shorter than the length computed through the triangulation from the line Glass-Coke. After the angle and side equations were satisfied the discrepancy was 1 part in 472,000. The discrepancy in azimuth between Coke-Glass and Tantallon-Corner was 2.″97.

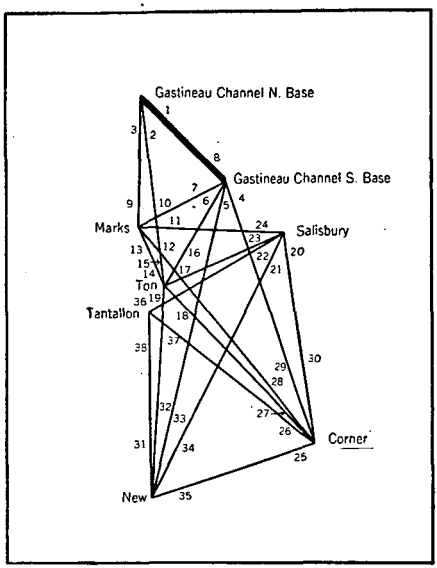

FIGURE 11.—Figure adjustment, section 9

Section 11 consists of the triangulation included between the lines Tantallon-Corner, Horse-Eagle, and the Young Bay base. The adjustment required 36 equations, including 25 angle, 9 side, 1 azimuth, and 1 length equations. The length of the line Tantallon-Corner, as determined by the adjustment of section 9, and the measured length of the Young Bay base were held fixed. The length discrepancy developed between the line Tantallon-Corner and the measured Young Bay base was 19.03 in the sixth place of logarithms, or 1 part in 22,800 before the angle and side equations were satisfied. The measured length of Young Bay base is longer than the length computed through the triangulation from the line Tantallon-Corner. After the side and angle equations were satisfied the length discrepancy was 1 part in 43,000. The azimuth discrepancy between Tantallon-Corner and Young-Scull 2 was 1.″17.

Section 12 consists of the triangulation included between the line Horse-Eagle and the Eagle River base. The adjustment required 42 equations, including 30 angle, 10 side, 1 azimuth, and 1 length equations. The length of the line Horse-Eagle, as determined from the adjustment of section 11, and the length of the measured Eagle River base were held fixed. The length discrepancy developed between the line Eagle-Horse and the Eagle River base was 3.94 in the sixth place of logarithms, or 1 part in 110,000 before the angle and side equations were satisfied. The measured length of the Eagle River base is longer than the length computed through the triangu-

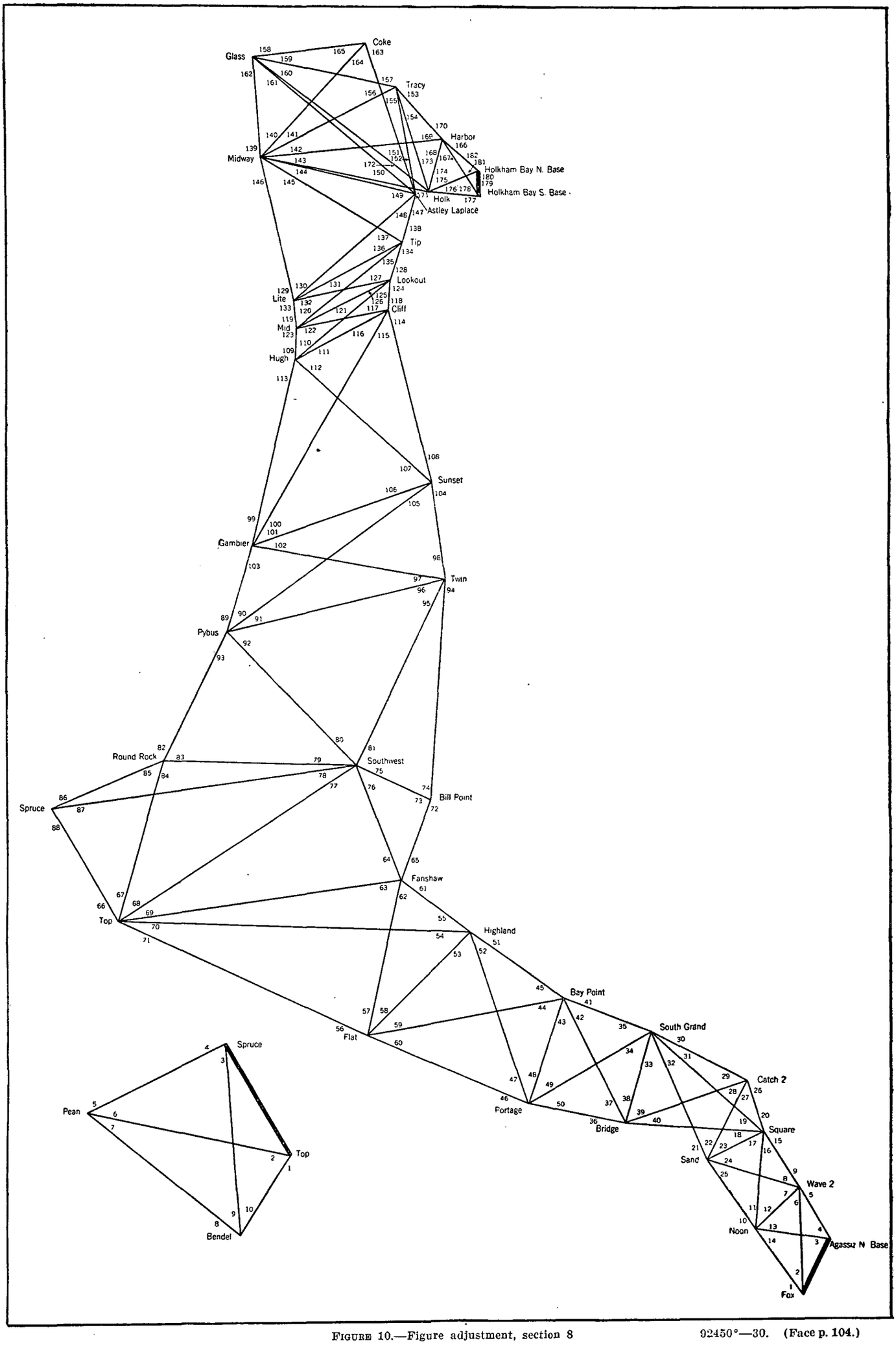

FIGURE 10.—Figure adjustment, section 8

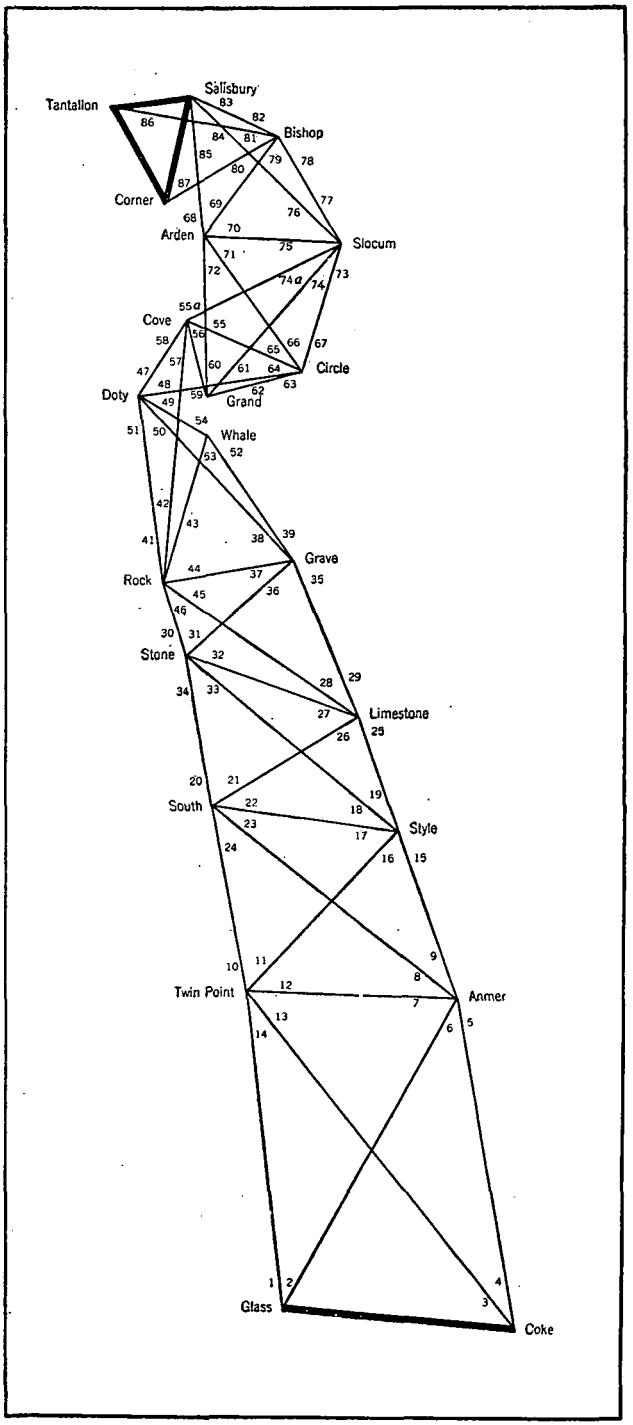

FIGURE 12.—Figure adjustment, section 10

lation from the line Horse-Eagle. After the angle and side equations were satisfied the length discrepancy was 1 part in 98,000. The azimuth discrepancy between the line Eagle-Horse and the line Sentinel-Little was 1″.23.

Section 13 consists of the triangulation included between the line Little-Sentinel and the Glacier Point base. The adjustment required 48 equations, including 34 angle, 12 side, 1 azimuth, and 1 length equations. The length of the line Little-Sentinel determined by the adjustment of section 12 and the measured length of the

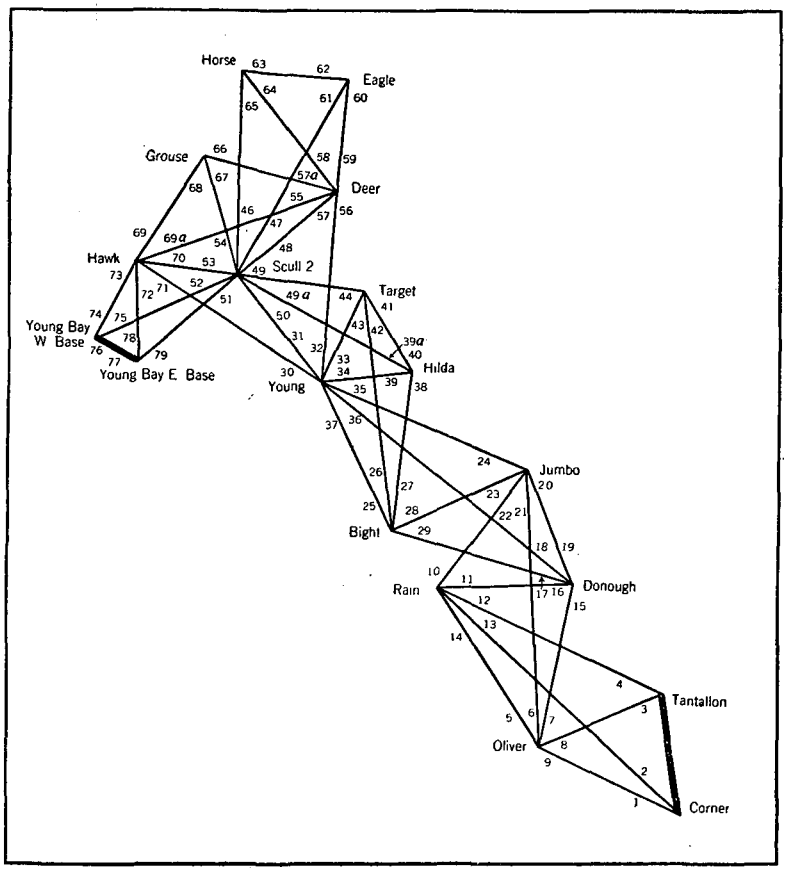

FIGURE 13.—Figure adjustment, section 11

Glacier Point base were held fixed. The length discrepancy developed between the line Little-Sentinel and the Glacier Point base was 12.41 in the sixth place of logarithms, or 1 part in 35,000 before the angle and side equations were satisfied. The measured length of the Glacier Point base is longer than the length computed through the triangulation from the line Little-Sentinel. After the angle and side equations were satisfied the length discrepancy was 1 part in 34,000. The azimuth discrepancy between the lines Sentinel-Little and Eld-Van was 1″.51

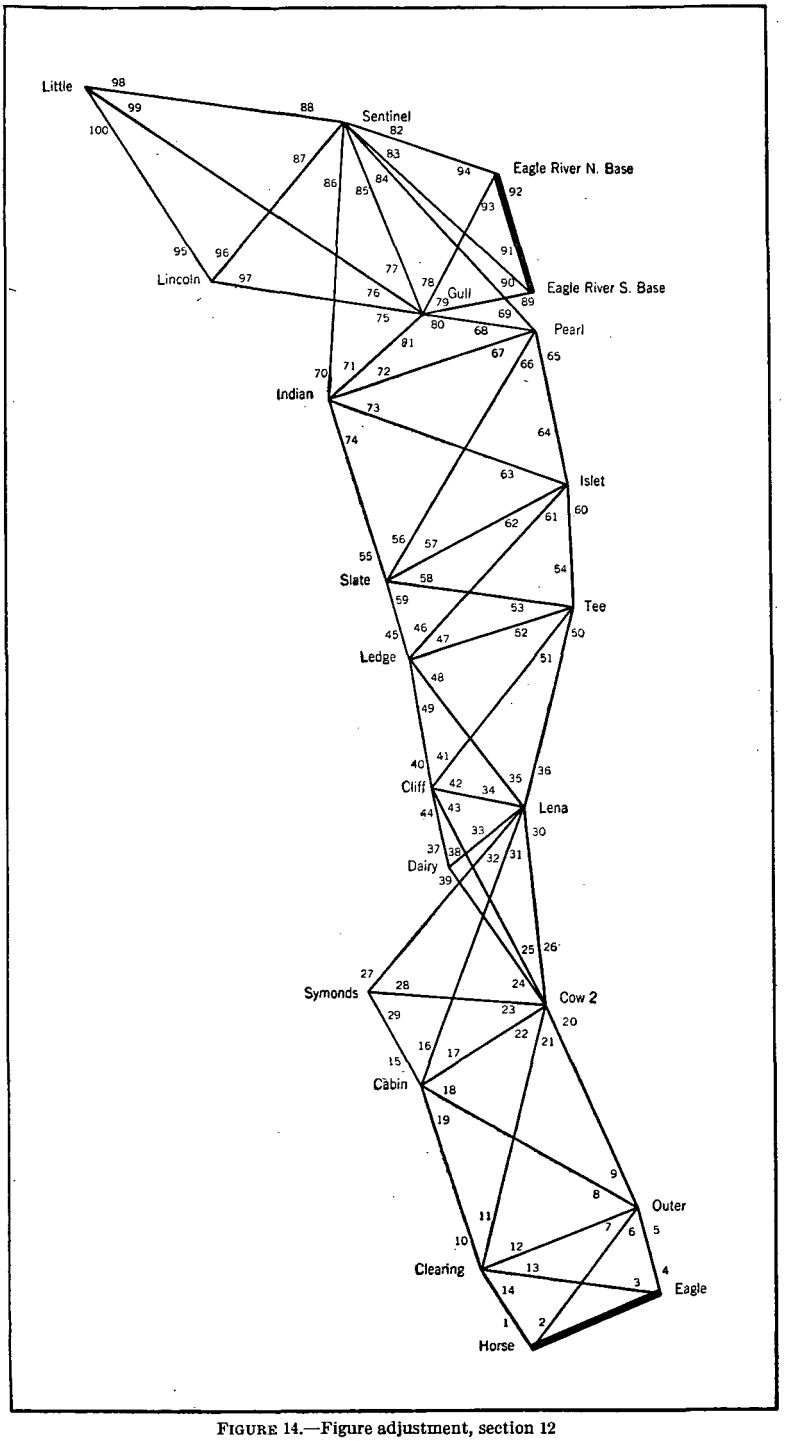

FIGURE 14.—Figure adjustment, section 12

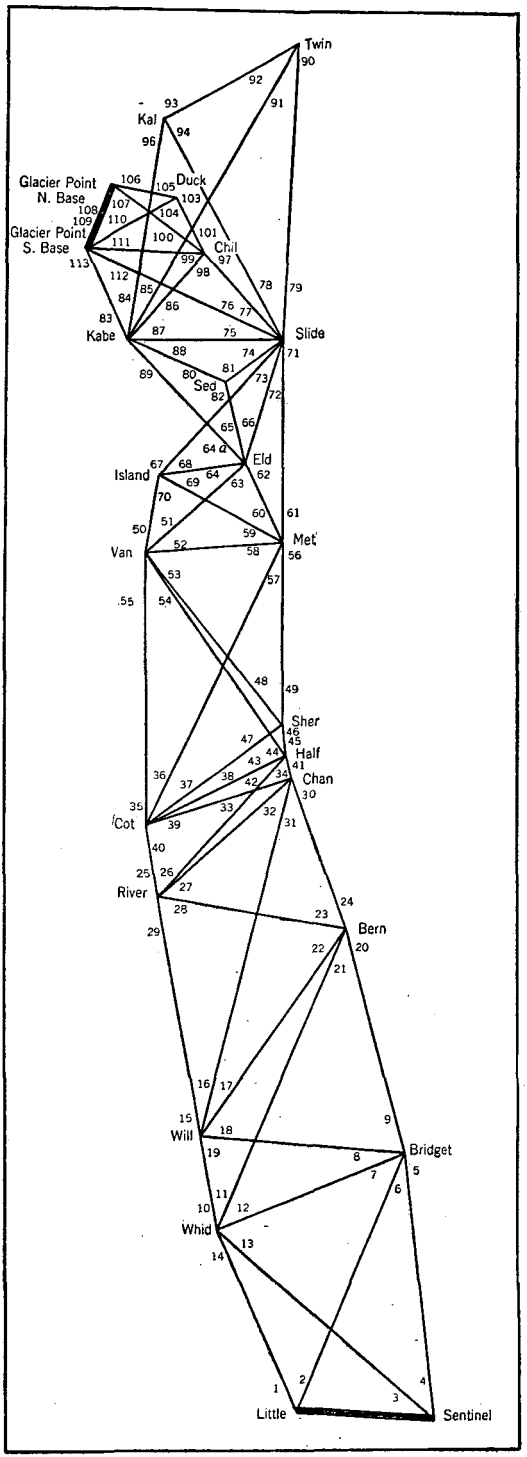

FIGURE 15.—Figure adjustment, section 13

Section 14 consists of the triangulation between the line Kal-Twin and the line Tai-Skag. The adjustment required 15 equations, including 11 angle and 4 side equations. The length of the line Kal-Twin determined by the adjustment of section 13 was held fixed. The length and azimuth of the line Tai-Skag, the northern terminal of the arc, were determined by this adjustment.

After the adjustment of the first-order triangulation and a number of loops of the third-order triangulation had been completed, it was found that the logarithm of the length of the measured Point Agassiz base as used in the adjustment was in error by 100 in the seventh

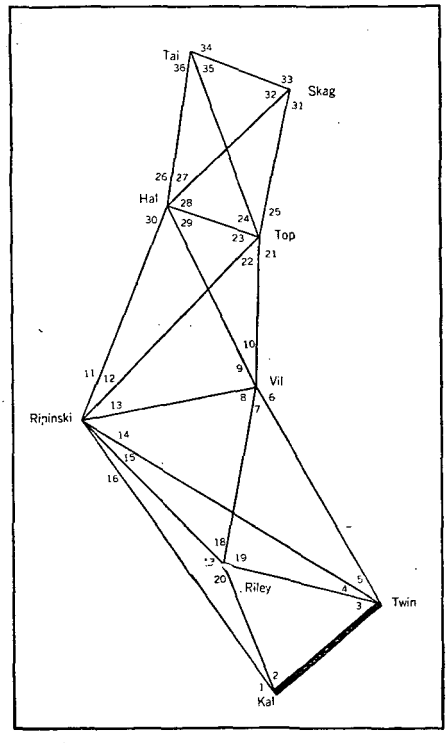

FIGURE 16.—Figure adjustment, section 14

place of logarithms. The correct logarithm is 3.6820281, whereas 3.6820381 was used in the adjustment. In order to avoid the upsetting of a large amount of the work which had been finally adjusted, it was decided to distribute this discrepancy in the triangulation included between the lines Trouble-Farm and Top-Fanshaw. As this triangulation had been rigidly adjusted previously, this adjustment was made the angle method.

Section 15 consists, then, of the triangulation between the lines Trouble-Farm and Top-Fanshaw. The adjustment required 6 equations, including 2 azimuth, 2 length, 1 latitude, and 1 longitude equations. The length and azimuth of the line Trouble-Farm determined by the adjustment of section 1, and the length and azi-

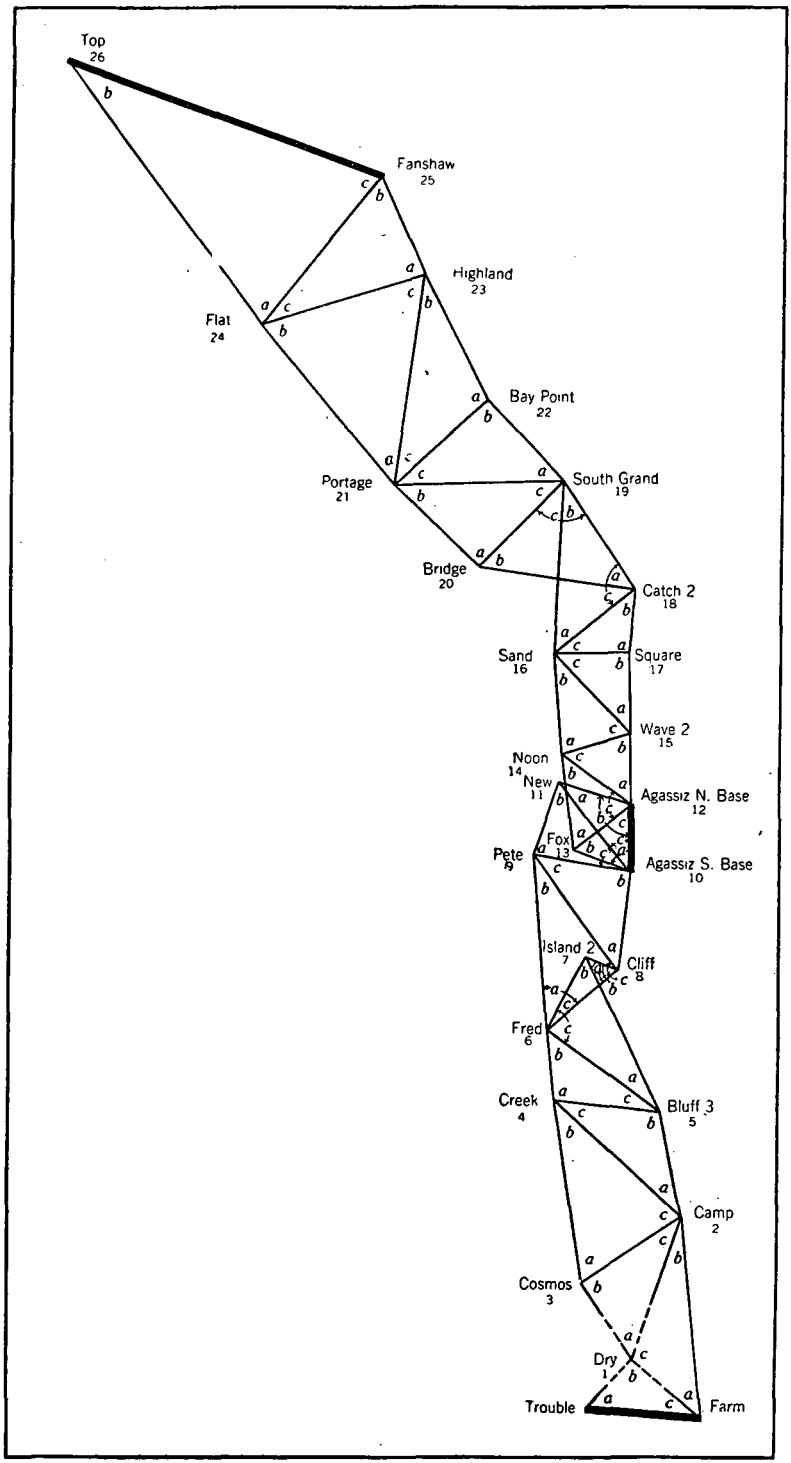

FIGURE 17.—Figure adjustment, section 15

muth of the line Top-Fanshaw determined by the adjustment of section 8, the length of the measured Point Agassiz base and the azimuth of the line Point Agassiz south base-Fox were held fixed. Also the geographic positions of the ends of the lines Trouble-Farm and Top-Fanshaw determined on the North American datum of 1927 were held fixed.

In the table on page 112, the values appearing in the column "Final seconds after figure adjustment" for the stations in the area included between the lines Trouble-Farm and Top-Fanshaw are the combined results due to the adjustments in sections 1, 8, and 15. Also in the table on page 138, the values appearing in the columns headed "Correction to angle from figure adjustment" and "Corrected spherical angle" are the combined results of the adjustments in sections 1, 8, and 15.

In the adjustment of section 15 the absolute terms of the two azimuth and the latitude and longitude equations are zero, since the correct azimuths were used in the original adjustments, and the positions of the terminal lines were held fixed. The absolute term of each of the two length equations is 10.0, since the discrepancy was 100 in the seventh place of logarithms. The details of this adjustment will be found on pages 131 and 137.

Below are given the lists of observed directions and the final seconds after figure adjustment at each occupied station; the condition equations required for each adjustment; the computed corrections to observed directions for each adjustment; the corrections to angles, closures of triangles, and a table of triangles for each adjustment; and a table of statistics showing the accuracy of the observations used in each adjustment. These data are arranged in the order the sections were adjusted.

HORIZONTAL DIRECTIONS AND ELEVATIONS OF TELESCOPE ABOVE THE STATION MARKS

Wherever either the instrument or the object observed was not directly over the center of the station mark, the observed direction was reduced to center. All observed directions on this arc of first-order triangulation were given equal or unit weight, and all are referred to sea level. Due to the low elevations, it was not necessary to reduce any of the directions to sea level.

In the following table are given, for the first-order triangulation stations, the lists of observed directions reduced to sea level, the numbers assigned those directions in the least-squares adjustment, and the adjusted directions. Directions of a secondary character, from or to stations not included in the principal least-squares adjustment, may be obtained from the azimuths listed in the table of geographic positions. (See p. 20.)

Due to the fact that in practically all cases the elevation of the telescope of the theodolite above the station mark was less than 2 meters and that a great many of these elevations were not recorded it was considered best to omit this item in the tables.

ABSTRACT OF HORIZONTAL DIRECTIONS AND ELEVATIONS OF TELESCOPE ABOVE STATION MARKS

SECTION 1. DRY STRAIT BASE TO AGASSIZ BASE

Station occupied	Direction	Object observed	Observed direction reduced to sea level	Final seconds after figure adjustment
			° ′ ″	″
Dry Strait east base.	3	Roth	0 00 00.00	00.49
	4	Rynda	101 39 09.89	09.22
	1	Dry Strait west base.	149 45 37.75	38.28
	2	Farm	229 54 02.80	02.80
Dry Strait west base.	8	Trouble	0 00 00.00	00.05
	5	Farm	198 40 54.39	53.86
	6	Dry Strait east base.	224 14 52.02	53.32
	7	Rynda	309 57 50.94	50.13
Farm	9	Roth	0 00 00.00	58.57
	[1] 3	Field	27 12 58.38	57.72
	10	Dry Strait east base.	28 37 12.28	12.83
	[1] 4	Grey	61 05 19.48	18.43
	11	Rynda	68 23 43.22	44.61
	12	Trouble	98 27 30.25	29.97
	13	Dry Strait west base.	102 54 49.61	48.90
	14	Dry	132 41 16.66	16.35
	15	Camp	175 00 26.22	26.48
Rynda	16	Trouble	0 00 00.00	59.97
	17	Dry Strait west base.	16 44 49.44	49.06
	18	Farm	50 56 46.73	48.60
	19	Dry Strait east base.	62 55 23.39	23.29
	20	Roth	84 01 29.34	27.98
Trouble	23	Dry Strait west base.	0 00 00.00	00.25
	24	Farm	14 13 35.97	35.14
	25	Rynda	113 13 01.04	01.26
	21	Cosmos	275 13 30.18	29.54
	22	Dry	319 42 19.43	19.18
Roth	26	Rynda	0 00 00.00	59.45
	27	Dry Strait east base.	57 14 45.55	46.11
	28	Farm	78 31 34.18	34.18
	[1] 1	Field	298 57 55.57	54.91
	[1] 2	Grey	342 37 35.00	34.88
Cosmos	31	Camp	0 00 00.00	00.13
	32	Dry	89 10 28.99	28.59
	33	Trouble	121 57 47.43	46.19
	29	Creek	293 51 27.98	28.26
	30	Bluff 3	328 49 54.43	53.20
Camp	36	Cosmos	0 00 00.00	00.29
	37	Creek	75 38 42.54	41.93
	38	Bluff 3	111 44 19.24	20.01
	34	Farm	297 30 48.27	48.02
	35	Dry	323 52 46.85	46.67
Creek	39	Fred	0 00 00.00	59.98
	40	Island 2	17 51 01.58	01.66
	41	Bluff 3	105 11 15.86	15.48
	42	Camp	137 58 08.50	08.08
	43	Cosmos	176 10 54.02	54.83
Bluff 3	44	Camp	0 00 00.00	00.16
	45	Cosmos	37 05 34.67	33.65
	46	Creek	111 07 28.97	29.61
	47	Fred	137 56 08.29	08.73
	48	Island 2	166 21 07.91	07.65
Fred	49	Pete	0 00 00.00	00.56
	50	Island 2	33 40 40.99	40.93
	51	Cliff	55 01 08.64	08.15
	52	Bluff 3	134 18 12.66	13.25
	53	Creek	182 18 19.31	18.72
Island 2	59	Fred	0 00 00.00	00.28
	54	Pete	121 18 05.22	05.21
	55	Agassiz south base.	179 25 44.93	45.58
	56	Cliff	274 53 59.78	60.22
	57	Bluff 3	309 02 32.07	31.36
	58	Creek	346 28 38.37	39.71
Pete	64	New	0 00 00.00	59.86
	65	Fox	64 34 16.93	14.19
	66	Agassiz south base.	82 36 01.99	02.44
	67	Cliff	125 24 16.08	16.27
	68	Island 2	131 14 21.52	22.25
	69	Fred	156 15 37.55	37.06
Cliff	60	Fred	0 00 00.00	59.92
	61	Island 2	73 33 32.32	32.68
	62	Pete	94 07 31.60	31.71
	63	Agassiz south base.	138 32 35.18	34.78
Agassiz south base.	75	Agassiz north base.	0 00 00.00	01.92
	70	Cliff	186 05 37.11	35.72
	71	Island 2	205 38 19.55	19.02
	72	Pete	278 52 18.99	18.95
	73	Fox	290 55 42.76	43.32
	74	New	318 05 28.86	27.80
Agassiz north base.	[2] 4	Wave 2	0 00 00.00	00.12
	79	Agassiz south base.	181 41 39.54	38.76
	80	Fox	234 16 50.66	50.53
	81	New	286 33 24.24	24.28
	[2] 3	Noon '87	306 50 27.78	28.54
New	77a	Fox	0 00 00.00	57.76
	78	Pete	33 39 14.56	14.62
	76	Agassiz north base.	302 14 45.04	45.52
	77	Agassiz south base.	335 28 26.49	25.95
Fox	83	Agassiz south base.	0 00 00.00	00.35
	84	Pete	149 54 50.56	47.75
	85	New	231 41 19.71	16.60
	[2] 1	Noon '87	239 20 28.28	27.83
	[2] 2	Wave 2	274 05 35.84	37.21
	82	Agassiz north base.	301 39 30.58	30.67

[1] From adjustment in sec. 3.

[2] From adjustment in sec. 8.

ABSTRACT OF HORIZONTAL DIRECTIONS AND ELEVATIONS OF TELESCOPE ABOVE STATION MARKS—Continued

SECTION 2. ZAREMBO ISLAND BASE

Station occupied	Direction	Object observed	Observed direction reduced to sea level	Final seconds after figure adjustment
			° ′ ″	″
Zarembo Island south base.	[1] 66	Zarembo Island north base.	0 00 00.00	00.46
	2			
	[1] 67	Kof	58 12 27.04	26.76
	[1] 68	Tole	136 21 30.53	30.58
	1	Hot	333 10 26.64	26.18
Zarembo Island north base.	[1] 65	Zarembo Island south base.	0 00 00.00	59.22
	17			
	18	Hot	3 45 44.40	43.97
	19	Oart	10 53 07.62	08.29
	20	Mid and Warm.	34 41 30.82	30.22
	21	Near	65 23 01.43	02.58
	[1] 63	Kof	260 27 36.17	36.44
	[1] 64	Tole	329 03 23.85	22.97
Near	15	Zarembo Island north base.	0 00 00.00	59.80
	16	Warm	129 51 27.68	27.88
Hot	5	Zarembo Island north base.	0 00 00.00	00.30
	5a	Zarembo Island south base.	149 24 40.78	41.27
	3	Oart	275 33 28.16	27.34
	4	Mid	341 35 31.31	31.33
Oart	8	Hot	0 00 00.00	00.80
	6	Mid	255 55 45.88	45.59
	7	Zarembo Island north base.	271 13 58.58	53.08
Mid	10	Hot	0 00 00.00	00.28
	11	Oart	10 13 40.91	41.08
	9	Zarembo Island north base and Warm.	229 20 15.96	15.50
Warm	12	Near	0 00 00.00	01.40
	13	Zarembo Island north base.	19 27 02.36	00.96
	13	Mid	199 27 02.36	00.96
	x	Hot	160 45 03.52	02.78

SECTION 3. FARM-ROTH TO ZAREMBO ISLAND BASE TO HAR-GRANITE

Grey	9	Large 2	0 00 00.00	59.90
	10	Mile	9 13 27.80	26.68
	11	Duck	41 22 59.00	59.03
	[3] 1	Ryn	217 20 11.25	11.11
	5	Farm	227 39 57.80	59.26
	6	Roth	250 40 40.19	40.30
	[3] 2	Kad	255 06 48.15	47.11
	7	Field	310 48 30.58	30.66
	8	Lee	321 06 02.33	01.80
Field	12	Large 2	0 00 00.00	59.25
	13	Duck	26 26 09.01	08.72
	14	Grey	65 05 09.22	08.97
	15	Farm	128 04 15.41	17.22
	16	Roth	141 17 39.42	38.91
Large 2	17	Duck	0 00 00.00	58.98
	18	Grey	53 48 17.77	18.64
	19	Field	119 31 39.69	39.85
Duck	22	Mile	0 00 00.00	00.11
	23	Field	5 30 33.47	34.42
	24	Large 2	39 32 43.71	44.19
	25	Wedge	79 49 35.39	35.36
	26	High	106 51 04.23	02.85
	27	Kof	108 05 45.37	44.66
	28	Rem	134 38 57.75	57.97
	20	Grey	314 44 02.47	02.86
	21	Lee	338 30 56.50	56.47
Mile	32	Wedge	0 00 00.00	59.07
	33	Rem	23 17 25.42	25.25
	34	Duck	53 08 10.74	10.76
	35	Grey	155 42 40.64	41.22
	36	Lee	190 12 47.55	48.05
Lee	31	Grey	0 00 00.00	00.56
	[3] 3	Ryn	34 04 32.41	32.39
	[3] 4	Kad	70 05 20.54	21.36
	29	Mile	262 37 32.64	32.24
	30	Duck	284 03 51.48	51.34
Wedge	39	Mile	0 00 00.00	00.19
	37	Rem	223 44 39.57	38.95
	38	Duck	312 57 46.64	47.08
Rem	43	High	0 00 00.00	00.04
	44	Kof	20 26 39.95	39.72
	45	Tole	70 00 47.17	47.05
	46	Cliff	93 00 35.23	34.15
	40	Duck	284 00 45.75	46.38
	41	Mile	299 31 02.33	03.07
	42	Wedge	319 58 15.69	15.71
High	47	Kof	0 00 00.00	59.21
	48	Rem	95 52 48.52	48.52
	49	Duck	172 05 39.02	39.81
Kof	54	Rem	0 00 00.00	00.20
	55	Duck	57 00 53.07	53.63
	56	High	63 40 30.54	31.22
	50	Tole	248 24 41.26	40.59
	51	Cliff	275 19 40.82	40.43
	52	Zarembo Island south base.	295 33 35.23	34 28
	53	Zarembo Island north base.	317 48 44.68	45.25
Tole	58a	Cliff	0 00 00.00	59.92
	59	Zarembo Island south base.	27 14 04.11	04.15
	60	Zarembo Island north base.	39 55 57.91	57.82
	61	Rem	63 05 32.81	33.64
	62	Kof	81 56 06.25	06.79
	57	Granite	269 55 15.39	15.19
	58	Har	297 50 06.98	05.94

[1] From adjustment in sec. 3.

[3] From adjustment in sec. 3a.

ABSTRACT OF HORIZONTAL DIRECTIONS AND ELEVATIONS OF TELESCOPE ABOVE STATION MARKS—Continued

SECTION 3. FARM-ROTH TO ZAREMBO ISLAND BASE TO HAR-GRANITE—Continued

Station occupied	Direction	Object observed	Observed direction reduced to sea level	Final seconds after figure adjustment	Station occupied	Direction	Object observed	Observed direction reduced to sea level	Final seconds after figure adjustment
			° ′ ″	″				° ′ ″	″
Cliff	71	Tole	0 00 00.00	00.24	Har	[4] 1	Round	0 00 00.00	59.84
	72	Granite	47 20 08.11	07.87		74	Cliff	15 28 13.77	12.57
	73	Har	80 21 01.49	00.02		75	Tole	52 57 18.18	18.89
	69	Rem	266 05 19.47	20.94		[4] 2	Bear	77 12 18.61	18.85
	70	Kof	288 51 06.83	06.84		76	Granite	90 35 23.93	24.42
Granite	77	Har	0 00 00.00	59.61					
	[4] 3	Round	45 12 17.59	17.36					
	78	Cliff	71 51 55.69	55.67					
	79	Tole	114 27 02.97	03.37					
	[4] 4	Bear	116 54 34.03	34.25					

SECTION 3a. GREY-LEE TO RYN-KAD

Kad	7	Ryn	0 00 00.00	00.12	Ryn	10	Grey	0 00 00.00	00.62
	5	Lee	279 45 22.31	21.97		8	Kad	254 05 49.97	50.21
	6	Grey	323 40 46.29	46.51		9	Lee	317 50 23.98	23.12

SECTION 4. HAR-GRANITE TO LUCK POINT BASE

Round	10	Bear	0 00 00.00	00.21	Stik	44	East	0 00 00.00	00.73
	11	Granite	12 08 45.62	45.96		45	Sheer	30 43 51.32	51.93
	12	Har	56 21 04.31	03.67		46	Steam	54 21 20.66	20.41
	13	Point	82 22 57.81	58.04		41	Harrington	226 02 12.14	11.85
	14	Ban	121 45 00.39	00.25		42	Bluff	280 31 01.09	00.55
						43	West	320 27 54.97	54.70
Bear	5	Granite	0 00 00.00	00.06	West	48	Stik	0 00 00.00	59.40
	6	Har	49 42 20.53	19.86		49	Harrington	29 33 22.71	22.47
	7	Point	59 18 41.94	41.02		50	Bluff	89 21 05.74	06.20
	8	Ban	85 22 36.86	37.30		47	East	328 49 56.91	57.28
	9	Round	96 08 56.34	57.43	Harrington	61	East	0 00 00.00	59.95
Point	22	Ban	0 00 00.00	00.65		62	Stik	22 01 37.83	37.73
	23	Round	18 08 32.29	31.81		57	Marsh	190 26 45.71	45.01
	24	Bear	78 55 18.50	17.62		58	Blash	245 55 29.64	30.35
	20	Steam	226 19 58.38	58.32		59	Bluff	283 35 55.00	55.45
	21	Sheer	311 01 27.53	28.30		60	West	326 00 43.84	43.53
Ban	17	Point	0 00 00.00	58.92	Bluff	51	West	0 00 00.00	00.35
	18	Steam	21 48 38.90	39.24		52	East	26 21 52.60	52.27
	19	Sheer	74 06 29.59	29.73		53	Stik	50 41 59.78	59.57
	15	Round	237 30 32.02	32.28		54	Harrington	77 47 29.01	28.72
	16	Bear	284 59 12.04	12.13		55	Marsh	109 07 08.38	08.06
						56	Blash	150 35 02.84	03.65
Sheer	25	Ban	0 00 00.00	00.45	Blash	64	Harrington	0 00 00.00	59.32
	26	Point	56 54 58.11	57.30		65	Marsh	38 07 31.70	31.64
	27	Steam	96 50 34.87	34.21		66	Lincoln	73 29 39.29	39.35
	28	Stik	101 06 04.78	05.41		67	Coffman	127 41 33.68	34.48
	29	East	186 34 40.26	40.65		63	Bluff	290 27 59.34	51.21
					Marsh	68	Lincoln	0 00 00.00	59.89
Steam	31	East	0 00 00.00	00.49		69	Coffman	53 11 39.88	39.64
	32	Sheer	33 41 32.72	32.46		70	Blash	100 50 32.03	32.05
	33	Ban	64 33 07.45	08.23		71	Bluff	131 43 04.36	04.35
	34	Point	89 04 26.57	25.59		72	Harrington	187 14 14.56	14.71
	30	Stik	241 34 32.17	32.14	Coffman	78	Blash	0 00 00.00	00.08
						79	Marsh	42 47 04.71	04.81
East	37	Stik	0 00 00.00	59.38		80	Lincoln	77 22 43.89	43.34
	38	Harrington	24 00 32.58	32.77		81	Stanhope	101 53 14.86	14.30
	39	Bluff	76 10 51.51	52.04		82	Luck (Luck Point south base).	131 27 02.39	03.32
	40	West	109 17 50.69	51.30					
	35	Sheer	296 12 25.66	25.79					
	36	Steam	352 46 48.26	47.40					

[4] From adjustment in sec. 4.

ABSTRACT OF HORIZONTAL DIRECTIONS AND ELEVATIONS OF TELESCOPE ABOVE STATION MARKS—Continued

SECTION 4. HAR-GRANITE TO LUCK POINT BASE—Continued

Station occupied	Direction	Object observed	Observed direction reduced to sea level	Final seconds after figure adjustment
			° ′ ″	″
Lincoln	75	Coffman	0 00 00.00	59.66
	76	Blash	48 25 21.39	21.47
	77	Marsh	92 12 42.11	41.54
	73	Stanhope	235 54 26.51	26.57
	74	Luck (Luck Point south base).	299 49 41.54	40.76
	74a	Luck Point north base.	341 36 29.65	31.19
Luck (Luck Point south base).	85	Lincoln	0 00 00.00	59.22
	86	Stanhope	53 02 38.00	38.53
	[5] 3	Double	88 18 59.18	59.07
	[5] 4	Ratz	122 48 51.71	52.19
	83	Luck Point north base.	291 04 30.76	31.04
	84	Coffman	294 14 37.96	37.93
Stanhope	87	Luck (Luck Point south base).	0 00 00.00	00.13
	88	Luck Point north base.	23 34 24.32	23.23
	89	Coffman	31 38 09.74	10.68
	90	Lincoln	63 02 06.76	06.78
	[5] 1	Double	239 19 12.47	13.04
	[5] 2	Ratz	293 51 36.99	36.85
Luck Point north base.	91	Lincoln	0 00 00.00	00.06
	92	Stanhope	34 50 11.71	12.05
	93	Luck (Luck Point south base).	69 17 41.97	41.57

SECTION 5. LUCK (LUCK POINT SOUTH BASE)-STANHOPE TO NAR-MIS

Ratz	6	Stanhope	0 00 00.00	59.86
	7	Double	65 28 54.18	53.66
	8	Ern	109 40 46.08	47.90
	9	Sal	142 00 29.33	28.38
	5	Luck (Luck Point south base)	315 54 36.79	36.58
Double	12	Ratz	0 00 00.00	59.77
	13	Luck (Luck Point south base)	35 55 50.44	49.85
	14	Stanhope	59 58 42.69	42.44
	10	Ern	265 20.56.89	56.30
	11	Sal	301 51 24.04	25.69
Sal	17	Ern	0 00 00.00	59.42
	18	Mis	57 22 42.77	43.18
	19	Nar	90 52 20.11	20.29
	15	Ratz	263 58 06.91	06.39
	16	Double	309 17 57.41	57.93
Ern	22	Sal	0 00 00.00	59.35
	23	Ratz	51 38 25.32	26.12
	24	Double	92 47 29.56	28.72
	20	Mis	271 09 39.68	39.67
	21	Nar	341 08 11.54	12.25
Nar	26	Ern	0 00 00.00	59.64
	27	Mis	69 05 39.41	40.11
	[6] 1	Sly	86 40 05.12	05.29
	[6] 2	Tol	113 50 05.22	06.20
	25	Sal	289 44 07.87	07.54
Mis	[6] 3	Sly	0 00 00.00	59.83
	[6] 4	Tol	55 56 45.33	45.39
	28	Nar	135 29 53.30	52.87
	29	Sal	142 38 42.69	43.26
	30	Ern	176 25 40.25	40.11

SECTION 6. CHACON-DUNDAS TO WEDGE-DALL TO METLAKATLA BASE

Chacon	3	Ken	0 00 00.00	00.24
	4	Seal	27 51 38.49	38.35
	5	Lazaro	40 27 11.51	11.42
Dundas	1	Lazaro	0 00 00.00	59.75
	2	Chacon	321 33 09.06	09.32
Lazaro	8	Ken	0 00 00.00	00.08
	9	Ingraham	12 47 26.65	27.82
	10	Seal	15 56 21.49	22.04
	11	Duncan	34 37 58.24	57.89
	6	Dundas	229 39 11.92	11.32
	7	Chacon	337 27 02.18	01.32
Ken	14	Seal	0 00 00.00	00.09
	15	Lazaro	9 31 20.49	20.92
	16	Chacon	126 31 12.72	13.16
	12	Ingraham	272 37 49.10	49.12
	13	Duncan	338 49 00.72	59.74
Duncan	25	Dall	0 00 00.00	59.97
	21	Lazaro	157 08 33.00	32.27
	22	Ken	271 48 14.04	14.60
	23	Ingraham	293 52 45.62	46.68
	24	Wedge	336 08 18.59	17.74
Ingraham	27	Dall	0 00 00.00	59.61
	28	Head	11 25 08.51	08.70
	29	Hid	45 34 59.36	59.22
	30	Duncan	51 50 57.42	56.92
	31	Seal	71 27 50.05	50.51
	32	Lazaro	73 16 13.47	13.35
	33	Ken	143 35 14.50	14.78
	26	Wedge	335 28 53.81	54.02
Seal	19	Ken	0 00 00.00	00.38
	20	Ingraham	20 30 25.41	25.76
	17	Lazaro	205 27 43.17	42.73
	18	Chacon	334 22 50.60	50.30

[5] From adjustment in sec. 5

[6] From adjustment in sec. 7

ABSTRACT OF HORIZONTAL DIRECTIONS AND ELEVATIONS OF TELESCOPE ABOVE STATION MARKS—Continued

SECTION 6. CHACON-DUNDAS TO WEDGE-DALL TO METLAKATLA BASE—Continued

Station occupied	Direction	Object observed	Observed direction reduced to sea level	Final seconds after figure adjustment
			° ′ ″	″
Wedge	[6] 102	South Chasina.	0 00 00.00	00.99
	[6] 103	Gravina	28 32 31.67	31.88
	[6] 104	Slide	55 24 33.95	34.48
	34	Dall	86 58 31.82	32.25
	35	Head	107 32 51.60	51.89
	36	Hid	133 46 16.25	15.66
	37	Duncan	137 51 37.08	36.41
	38	Ingraham	199 14 02.91	03.46
Dall	41	Wedge	0 00 00.00	59.59
	[6] 105	South Chasina.	49 24 08.19	07.85
	[6] 106	Slide	85 07 37.53	36.61
	39	Duncan	254 44 45.38	45.44
	40	Ingraham	316 46 35.59	35.94
Head	52	Ingraham	0 00 00.00	59.98
	53	Wedge	52 22 33.60	34.32
	48	Burt	230 11 58.97	59.81
	49	Metlakatla south base.	249 30 27.55	26.06
	50	McCartey	259 44 49.13	48.54
	51	Hid	284 21 55.07	55.61
Hid	44	Head	0 00 00.00	01.71
	45	McCartey	8 50 47.99	47.81
	46	Burt	35 19 21.26	21.02
	47	Metlakatla south base.	47 33 25.74	25.75
	42	Ingraham	289 47 57.08	55.87
	43	Wedge	334 14 03.92	03.84
Burt	61	Hid	0 00 00.00	00.01
	62	McCartey	68 13 40.93	40.82
	63	Head	90 30 43.98	45.11
	59	Metlakatla north base.	274 18 25.25	24.87
	60	Metlakatla south base.	333 42 05.85	05.21
McCartey	56	Burt	0 00 00.00	00.04
	57	Metlakatla north base.	8 36 21.36	22.78
	58	Metlakatla south base.	35 34 15.63	15.03
	54	Hid	85 17 46.62	46.14
	55	Head	231 49 53.39	53.02
Metlakatla south base.	64	Hid	0 00 00.00	59.43
	65	McCartey	91 33 51.48	50.50
	66	Head	97 35 04.92	06.03
	67	Burt	141 27 59.26	59.94
	68	Metlakatla north base.	181 43 02.99	02.75
Metlakatla north base.	69	Metlakatla south base.	0 00 00.00	00.03
	70	McCartey	62 52 56.55	55.58
	71	Burt	80 21 15.97	16.90

SECTION 7. NAR-MIS TO WEDGE-DALL

Tol	6	Mis	0 00 00.00	59.82
	7	Sly	49 05 19.23	19.25
	8	Ship	90 59 52.09	52.69
	9	Stoi	118 00 13.09	12.78
	5	Nar	304 17 33.13	33.01
Sly	12	Stoi	0 00 00.00	59.78
	13	Tol	13 22 41.98	41.84
	14	Nar	61 24 55.62	55.07
	15	Mis	88 20 37.18	37.06
	10	Ship	284 59 25.62	25.52
	11	Pet	328 50 27.29	28.42
Ship	27	Pet	0 00 00.00	59.54
	28	Stoi	32 04 22.78	23.58
	29	Tol	37 33 57.01	56.84
	30	Sly	87 16 07.01	07.29
	25	Goat	213 09 37.81	37.26
	26	Had	304 47 31.28	31.37
Stoi	17	Sly	0 00 00.00	59.54
	18	Ship	49 47 41.38	41.76
	19	Pet	94 57 32.61	32.31
	16	Tol	262 17 34.71	35.08
Pet	21	Sly	0 00 00.00	00.60
	22	Ship	48 52 51.21	50.12
	23	Goat	60 10 17.15	17.64
	24	Had	109 07 30.01	30.07
	20	Stoi	306 07 04.66	04.60
Had	31	Pet	0 00 00.00	00.29
	32	Ship	64 32 52.38	52.29
	33	Goat	92 49 56.68	55.85
	34	Pen	125 21 16.71	17.69
	35	Hid	169 35 34.37	34.02
Goat	38	Had	0 00 00.00	59.92
	39	Pet	38 12 51.89	52.09
	40	Ship	60 05 02.19	02.33
	36	Pen	233 17 59.46	59.06
	37	Hid	321 12 51.60	51.75
Hid	43	Pen	0 00 00.00	58.84
	44	Caamano	32 15 53.09	53.60
	45	Approach	80 34 17.19	16.66
	41	Had	255 55 32.61	32.83
	42	Goat	320 22 45.66	46.62
Pen	47	Approach	0 00 00.00	00.17
	48	Hid	49 25 50.28	50.18
	49	Had	81 07 07.46	07.96
	50	Goat	131 53 45.74	45.39
	46	Caamano	294 34 35.46	35.22
Approach	53	Caamano	0 00 00.00	59.30
	54	Guard Island.	35 13 53.23	52.99
	55	South Vallenar.	61 30 24.51	24.59
	51	Hid	264 30 14.51	15.18
	52	Pen	314 30 07.32	07.51
Caamano	56	Guard Island.	0 00 00.00	59.74
	57	South Vallenar.	21 28 04.70	05.02
	58	High Island	92 24 53.90	53.83
	59	Approach	103 11 30.31	30.39
	60	Hid	139 23 23.02	23.41
	61	Pen	172 16 14.30	13.84

[6] From adjustment in sec. 7.

ABSTRACT OF HORIZONTAL DIRECTIONS AND ELEVATIONS OF TELESCOPE ABOVE STATION MARK—Continued

SECTION 7. NAR-MIS TO WEDGE-DALL—Continued

Station occupied	Direction	Object observed	Observed direction reduced to sea level	Final seconds after figure adjustment
			° ′ ″	″
Guard Island.	62	South Vallenar.	0 00 00.00	59.60
	63	High Island.	73 18 23.92	23.83
	64	Approach	91 11 35.96	36.64
	65	Caamano	132 46 12.71	12.52
South Vallenar.	67	Skin	0 00 00.00	59.88
	68	High Island.	41 10 05.01	04.77
	69	Approach	62 05 07.89	08.30
	70	Caamano	98 51 18.30	18.01
	71	Guard Island.	124 36 59.81	59.93
	66	Gravina	299 11 20.88	20.99
High Island.	72	Caamano	0 00 00.00	00.48
	73	Guard Island.	28 07 17.79	18.05
	74	South Vallenar.	51 21 59.12	58.99
	75	Gravina	72 26 15.00	14.29
	76	Skin	107 30 05.25	05.33
Skin	79	Gravina	0 00 00.00	59.34
	80	Slide	31 27 49.80	50.17
	81	North Chasina.	42 45 09.93	09.84
	77	High Island.	246 29 41.42	41.84
	78	South Vallenar.	329 11 31.10	31.06
Gravina	86	Skin	0 00 00.00	00.35
	87	High Island.	31 25 52.08	52.17
	88	South Vallenar.	88 22 53.68	53.43
	82	Slide	257 36 18.59	18.48
	83	Wedge	292 36 30.79	30.00
	84	South Chasina.	327 43 32.78	33.19
	85	North Chasina.	343 46 25.50	25.81
Slide	92	Dall	0 00 00.00	00.68
	93	Wedge	63 18 26.50	26.06
	94	South Chasina.	124 52 52.18	51.74
	95	North Chasina.	131 45 57.71	57.70
	96	Skin	135 17 44.10	44.58
	97	Gravina	181 26 12.46	12.19
North Chasina.	90	Gravina	0 00 00.00	59.64
	91	Slide	44 09 37.85	38.07
	89	Skin	238 58 44.43	44.58
South Chasina.	98	Gravina	0 00 00.00	00.26
	99	Slide	53 19 25.59	25.32
	100	Dall	72 43 05.38	05.64
	101	Wedge	116 20 26.69	26.44

SECTION 8. FOX-AGASSIZ NORTH BASE TO GLASS-COKE TO HOLKHAM BAY BASE

Station occupied	Direction	Object observed	Observed direction reduced to sea level	Final seconds after figure adjustment
Noon	10	Sand	0 00 00.00	00.18
	11	Square	38 47 52.61	53.95
	12	Wave 2	79 48 40.24	40.00
	13	Agassiz north base.	132 17 38.76	39.07
	14	Fox	177 24 58.57	58.31
Wave 2	5	Agassiz north base.	0 00 00.00	59.96
	6	Fox	26 42 57.63	56.97
	7	Noon	74 21 29.98	29.38
	8	Sand	135 25 25.44	26.12
	9	Square	176 14 53.72	53.67
Square	17	Sand	0 00 00.00	59.70
	18	Bridge	30 07 10.25	09.68
	19	South Grand	69 51 20.51	20.55
	20	Catch 2	99 55 34.24	34.29
	15	Wave 2	264 49 25.12	25.36
	16	Noon	301 55 14.99	15.10
Sand	25	Noon	0 00 00.00	58.85
	21	South Grand	191 30 27.67	27.30
	22	Catch 2	240 55 47.78	47.70
	23	Square	276 52 36.28	37.11
	24	Wave 2	320 52 34.52	35.31
Catch 2	27	Sand	0 00 00.00	59.54
	28	Bridge	43 27 58.42	58.69
	29	South Grand	91 25 54.18	54.10
	26	Square	315 52 23.22	23.47
South Grand	33	Bridge	0 00 00.00	00.16
	34	Portage	43 21 31.78	32.24
	35	Bay Point	93 58 19.33	19.35
	30	Catch 2	281 56 19.92	19.76
	31	Square	296 18 35.22	35.47
	32	Sand	321 05 05.46	04.99
Bridge	37	Bay Point	0 00 00.00	58.90
	38	South Grand	41 50 25.89	25.71
	39	Catch 2	95 48 50.48	50.10
	40	Square	118 24 51.11	50.41
	36	Portage	307 55 46.32	46.87
Bay Point	43	Portage	0 00 00.00	00.00
	44	Flat	60 43 40.22	39.20
	45	Highland	106 18 15.19	14.60
	41	South Grand	271 12 44.87	45.45
	42	Bridge	315 23 59.92	59.64
Portage	47	Highland	0 00 00.00	59.54
	48	Bay Point	37 32 04.37	05.11
	49	South Grand	78 08 03.59	03.66
	50	Bridge	120 51 53.14	52.94
	46	Flat	311 38 47.31	47.93
Highland	51	Bay Point	0 00 00.00	00.84
	52	Portage	36 09 41.66	40.92
	53	Flat	100 20 35.89	36.17
	54	Top	147 38 52.26	51.35
	55	Fanshaw	182 19 43.63	43.25
Flat	57	Fanshaw	0.00 00.00	59.76
	58	Highland	32 22 54.32	54.91
	59	Bay Point	66 27 43.63	44.51
	60	Portage	99 50 48.37	48.53
	56	Top	283 14 13.60	13.98
Fanshaw	64	Southwest	0 00 00.00	59.75
	65	Bill Point	41 22 14.85	14.59
	61	Highland	147 31 27.26	28.02
	62	Flat	213 09 25.56	26.04
	63	Top	282 45 27.39	27.74

ABSTRACT OF HORIZONTAL DIRECTIONS AND ELEVATIONS OF TELESCOPE ABOVE STATION MARKS—Continued

SECTION 8. FOX-AGASSIZ NORTH BASE TO GLASS-COKE TO HOLKHAM BAY BASE—Continued

Station occupied	Direction	Object observed	Observed direction reduced to sea level	Final seconds after figure adjustment
			° ′ ″	″
Top	68	Southwest	0 00 00.00	59.48
	69	Fanshaw	25 13 02.30	12.53
	70	Highland	35 18 11.07	11.25
	71	Flat	58 51 15.68	15.90
	[7] 1	Bendel	154 35 04.80	05.63
	[7] 2	Pean	224 39 37.52	36.50
	66	Spruce	273 17 29.68	29.93
	67	Round Rock	318 51 08.44	08.96
Southwest	75	Bill Point	0 00 00.00	59.79
	76	Fanshaw	43 27 09.87	09.98
	77	Top	120 59 35.45	35.60
	78	Spruce	146 10 46.28	46.82
	79	Round Rock	155 52 38.65	38.68
	80	Pybus	200 52 39.34	39.07
	81	Twin	270 28 11.68	11.34
Round Rock	82	Pybus	0 00 00.00	01.25
	83	Southwest	64 32 16.15	16.08
	84	Top	168 30 23.51	23.09
	85	Spruce	219 11 10.78	10.02
Spruce	86	Round Rock	0 00 00.00	00.74
	87	Southwest	15 39 15.62	15.13
	88	Top	83 45 35.34	35.09
	[7] 3	Bendel	109 10 50.56	49.34
	[7] 4	Pean	176 49 14.38	14.80
Bill Point	72	Fanshaw	0 00 00.00	00.38
	73	Southwest	95 10 35.32	35.49
	74	Twin	163 47 10.68	10.13
Pybus	92	Southwest	0 00 00.00	00.17
	93	Round Rock	70 27 46.61	45.44
	89	Gambier	240 10 29.53	30.07
	90	Sunset	277 59 23.90	23.86
	91	Twin	300 17 04.62	05.13
Twin	94	Bill Point	0 00 00.00	00.89
	95	Southwest	21 51 38.15	38.13
	96	Pybus	72 33 11.95	11.52
	97	Gambier	95 53 17.24	17.58
	98	Sunset	168 03 42.49	41.71
Gambier	103	Pybus	0 00 00.00	59.43
	99	Hugh	177 38 24.45	25.35
	100	Cliff	194 33 23.79	23.79
	101	Sunset	234 36 08.59	08.55
	102	Twin	263 26 40.49	40.21
Sunset	104	Twin	0 00 00.00	00.77
	105	Pybus	62 11 49.56	49.73
	106	Gambier	78 59 05.34	05.33
	107	Hugh	140 24 52.02	51.34
	108	Cliff	174 08 29.08	28.82
Hugh	109	Mid	0 00 00.00	59.74
	110	Lookout	47 16 50.85	50.87
	111	Cliff	59 10 58.03	58.53
	112	Sunset	128 17 41.86	42.47
	113	Gambier	189 54 14.72	13.85
Cliff	116	Hugh	0 00 00.00	59.27
	117	Mid	14 28 03.55	03.49
	118	Lookout	119 50 40.25	40.80
	114	Sunset	282 50 20.01	20.35
	115	Gambier	327 38 12.84	12.74
Mid	122	Cliff	0 00 00.00	00.28
	123	Hugh	106 20 57.08	57.32
	119	Lite	279 56 40.86	40.97
	120	Tip	353 20 00.26	00.00
	121	Lookout	344 36 36.64	36.27
Lookout	125	Hugh	0 00 00.00	00.35
	126	Mid	10 58 47.76	48.22
	127	Lite	26 32 21.68	22.15
	128	Tip	146 17 56.53	55.83
	124	Cliff	311 44 50.06	49.49
Lite	133	Mid	0 00 00.00	59.91
	129	Midway	169 45 19.09	19.26
	130	Astley	231 44 49.02	49.85
	131	Tip	244 28 35.56	35.38
	132	Lookout	260 13 29.83	29.09
Tip	134	Lookout	0 00 00.00	00.76
	135	Mid	33 24 17.20	16.93
	136	Lite	44 29 34.09	33.43
	137	Midway	104 00 21.16	21.55
	138	Astley	179 10 53.89	53.68
Midway	141	Tracy	0 00 00.00	00.34
	142	Harbor	25 46 50.43	50.03
	143	Holk	43 40 27.06	28.07
	144	Astley	44 02 21.75	22.04
	145	Tip	61 42 35.00	35.81
	146	Lite	107 28 32.44	31.88
	139	Glass	295 48 43.06	43.03
	140	Coke	343 25 28.13	26.67
Astley	147	Tip	0 00 00.00	59.79
	148	Lite	32 34 53.21	54.09
	149	Midway	87 09 14.68	14.04
	150	Glass	113 29 10.27	10.23
	151	Coke	145 14 39.97	41.04
	152	Tracy	147 00 11.92	10.86
Coke	165	Glass	0 00 00.00	00.23
	[8] 3	Twin Point	45 39 40.27	41.42
	[8] 4	Anmer	74 52 59.70	58.55
	163	Astley	258 42 53.75	53.95
	164	Midway	320 00 32.39	31.97
Glass	158	Coke	0 00 00.00	01.02
	159	Tracy	18 42 40.16	39.92
	160	Holk	46 13 23.08	22.81
	161	Astley	46 57 25.52	24.25
	162	Midway	92 23 48.55	49.32
	[8] 1	Twin Point	257 51 21.08	20.41
	[8] 2	Anmer	294 42 30.77	31.95
Tracy	154	Holk	0 00 00.00	59.02
	155	Astley	2 01 49.11	49.66
	156	Midway	78 08 30.38	31.42
	157	Glass	120 16 05.45	04.94
	153	Harbor	337 03 56.67	56.57
Holk	174	Harbor	0 00 00.00	00.45
	175	Holkham Bay north base.	51 22 19.16	18.31
	176	Holkham Bay south base.	80 24 44.75	45.20
	171	Midway	267 39 05.00	05.28
	172	Glass	293 36 54.07	54.01
	173	Tracy	325 50 05.71	05.44

[7] From adjustment of quadrilateral Top-Spruce-Pean-Bendel.
[8] From adjustment in sec. 10.

ABSTRACT OF HORIZONTAL DIRECTIONS AND ELEVATIONS OF TELESCOPE ABOVE STATION MARKS—Continued

SECTION 8. FOX-AGASSIZ NORTH BASE TO GLASS-COKE TO HOLKHAM BAY BASE—Continued

Station occupied	Direction	Object observed	Observed direction reduced to sea level	Final seconds after figure adjustment	Station occupied	Direction	Object observed	Observed direction reduced to sea level	Final seconds after figure adjustment
			° ′ ″	″				° ′ ″	″
Harbor	168	Holk	0 00 00.00	00.70	Holkham Bay north base.	182	Harbor	0 00 00.00	00.57
	169	Midway	69 45 29.12	27.65		180	Holkham Bay south base.	228 43 13.42	13.28
	170	Tracy	122 54 02.31	03.30					
	166	Holkham Bay north base.	295 43 11.32	12.06		181	Holk	295 39 07.46	07.03
	167	Holkham Bay south base.	312 51 46.55	47.50	Pean	[7] 5	Spruce	0 00 00.00	00.14
						[7] 6	Top	38 18 27.88	27.40
						[7] 7	Bendel	65 08 36.08	36.42
Holkham Bay south base.	178	Harbor	0 00 00.00	58.61	Bendel	[7] 10	Top	0 00 00.00	59.75
	179	Holkham Bay north base.	31 34 36.91	37.79		[7] 8	Pean	276 54 38.64	39.27
						[7] 9	Spruce	324 07 38.48	38.09
	177	Holk	307 32 57.90	58.41					

SECTION 9.—GASTINEAU CHANNEL BASE TO NEW-CORNER

Gastineau Channel north base.	3	Marks	0 00 00.00	00.12	Salisbury	24	Marks	0 00 00.00	59.45
	1	Gastineau Channel south base.	313 31 08.93	08.87		[8] 83	Bishop	182 39 59.01	59.00
						[8] 84	Slocum	202 12 31.41	32.52
						[8] 85	Arden	242 07 38.56	38.31
	2	Ton	351 57 53.17	53.11		20	Corner	260 03 38.66	38.58
						21	New	295 33 46.36	45.25
Gastineau Channel south base.	7	Marks	0 00 00.00	59.81		22	Tantallon	330 58 07.21	07.20
	8	Gastineau Channel north base.	73 25 38.70	38.89		23	Ton	335 14 01.21	02.96
					Corner	27	Ton	0 00 00.00	59.72
	4	Corner	278 39 05.66	06.63		28	Marks	4 33 20.30	19.36
	5	New	311 29 59.98	60.57		29	Gastineau Channel south base.	24 32 41.12	42.48
	6	Ton	328 52 50.53	49.46					
Marks	9	Gastineau Channel north base.	0 00 00.00	00.51		30	Salisbury	35 57 05.61	05.29
						[8] 87	Bishop	84 40 12.60	12.05
						25	New	296 11 38.42	38.56
	10	Gastineau Channel south base.	60 05 29.01	30.19		[9] 1	Oliver	297 02 28.76	28.02
						[9] 2	Rain	313 58 41.63	41.40
						26	Tantallon	353 25 19.34	19.38
	11	Salisbury	90 05 21.74	20.68	New	31	Tantallon	0 00 00.00	59.88
	12	Corner	138 45 15.49	13.91		32	Ton	4 24 07.17	07.34
	13	Ton	155 12 18.42	19.37		33	Gastineau Channel south base.	14 02 04.65	04.54
Ton	14	Marks	0 00 00.00	00.23					
	15	Gastineau Channel north base.	16 45 35.39	34.36		34	Salisbury	28 05 40.72	40.59
						35	Corner	72 50 07.06	07 23
	16	Gastineau Channel south base.	53 46 01.30	00.70	Tantallon	37	Corner	0 00 00.00	00.12
						38	New	49 56 12.02	11.99
						[9] 3	Oliver	75 24 06.82	07.08
						[9] 4	Rain	123 09 04.45	04.42
	17	Salisbury	90 07 04.92	05.06		36	Salisbury	293 26 14.71	14.62
	18	Corner	158 59 34.56	35.14		[8] 86	Bishop	311 10 22.95	23.61
	19	New	206 45 13.45	14.12					

SECTION 10. TANTALLON-SALISBURY-CORNER TO GLASS-COKE

Anmer	7	Twin Point	0 00 00.00	00.53	Twin Point	12	Anmer	0 00 00.00	59.46
	8	South	35 16 27.39	26.17		13	Coke	49 14 01.46	03.78
	9	Style	67 29 17.75	18.11		14	Glass	81 25 43.54	42.29
	5	Coke	258 27 22.52	21.68		10	South	258 07 02.13	01.80
	6	Glass	298 16 53.44	54.61		11	Style	311 57 07.52	07.32

[7] From adjustment of quadrilateral Top-Spruce-Pean-Bendel.
[8] From adjustment in sec. 10.
[9] From adjustment in sec. 11.

ABSTRACT OF HORIZONTAL DIRECTIONS AND ELEVATIONS OF TELESCOPE ABOVE STATION MARKS—Continued

SECTION 10. TANTALLON-SALISBURY-CORNER TO GLASS-COKE—Continued

Station occupied	Direction	Object observed	Observed direction reduced to sea level	Final seconds after figure adjustment
			° ′ ″	″
Style	19	Limestone	0 00 00.00	59.52
	15	Anmer	181 29 10.68	11.13
	16	Twin Point	245 57 02.52	01.56
	17	South	298 37 51.69	51.77
	18	Stone	330 11 43.19	44.09
South	20	Stone	0 00 00.00	59.67
	21	Limestone	68 43 51.75	51.85
	22	Style	106 26 38.63	38.88
	23	Anmer	137 05 07.53	06.43
	24	Twin Point	179 55 42.22	43.29
Limestone	29	Grave	0 00 00.00	59.75
	25	Style	180 13 35.94	35.99
	26	South	261 08 40.80	41.29
	27	Stone	311 27 32.10	31.13
	28	Rock	326 20 03.44	04.10
Stone	31	Grave	0 00 00.00	00.20
	32	Limestone	60 14 10.64	10.12
	33	Style	79 11 58.86	59.61
	34	South	121 11 28.20	28.19
	30	Rock	294 14 52.78	52.36
Grave	37	Rock	0 00 00.00	00.08
	38	Doty	54 59 02.12	01.99
	39	Whale	59 36 39.66	39.48
	35	Limestone	258 04 25.28	25.24
	36	Stone	329 17 46.53	46.79
Rock	44	Grave	0 00 00.00	59.51
	45	Limestone	44 24 28.65	29.11
	46	Stone	83 32 38.24	38.42
	40	Doty	271 38 34.38	34.27
	41	Cove	285 35 08.06	07.82
	42	Whale	296 02 05.31	05.52
Doty	47	Cove	0 00 00.00	59.73
	48	Circle	48 00 53.62	53.64
	49	Whale	92 41 50.91	50.75
	50	Grave	100 57 28.19	28.46
	51	Rock	137 37 01.27	01.40
Whale	54	Doty	0 00 00.00	00.11
	52	Grave	192 53 15.22	15.30
	53	Rock	249 18 42.15	41.97
Cove	55a	Slocum	0 00 00.00	59.86
	55	Circle	50 36 20.25	20.13
	56	Grand	102 51 00.44	00.21
	57	Rock	122 00 11.94	12.13
	58	Doty	150 26 36.66	36.95
Circle	63	Grand	0 00 00.00	00.00
	64	Doty	3 48 52.71	52.67
	65	Cove	35 57 41.92	41.99
	66	Arden	65 07 57.67	57.54
	67	Slocum	118 02 48.31	48.40
Grand	59	Cove	0 00 00.00	00.25
	60	Arden	12 37 44.67	44.58
	61	Slocum	55 58 05.98	05.59
	62	Circle	91 47 37.98	38.21
Arden	70	Slocum	0 00 00.00	59.80
	71	Circle	50 15 37.64	37.44
	72	Grand	85 57 46.00	46.33
	68	Salisbury	261 09 57.94	57.86
	69	Bishop	304 15 03.31	03.45
Slocum	75	Arden	0 00 00.00	00.08
	76	Salisbury	41 14 52.21	52.43
	77	Bishop	56 49 59.12	58.65
	73	Circle	283 10 28.31	28.51
	74	Grand	309 18 07.77	07.54
	74a	Cove	330 29 01.69	01.90
Bishop	82	Salisbury	0 00 00.00	59.82
	78	Slocum	215 07 40.08	39.93
	79	Arden	282 32 44.86	45.07
	80	Corner	306 06 45.94	46.48
	81	Tantallon	346 02 17.82	17.40

SECTION 11. TANTALLON-CORNER TO HORSE-EAGLE TO YOUNG BAY BASE

Oliver	5	Rain	0 00 00.00	59.62
	6	Jumbo	31 07 00.99	00.94
	7	Donough	45 51 32.95	33.09
	8	Tantallon	101 12 05.11	04.84
	9	Corner	149 25 05.96	06.53
Rain	11	Donough	0 00 00.00	59.67
	12	Tantallon	26 49 14.69	15.10
	13	Corner	44 13 32.63	32.87
	14	Oliver	57 52 12.64	12.63
	10	Jumbo	309 01 17.01	16.69
Donough	15	Oliver	0 00 00.00	59.99
	16	Rain	76 16 13.21	13.64
	17	Bight	94 23 25.56	24.73
	18	Young	116 16 48.95	49.30
	19	Jumbo	145 48 28.59	28.63
Jumbo	20	Donough	0 00 00.00	59.90
	21	Oliver	19 26 58.99	59.15
	22	Rain	59 29 01.89	01.99
	23	Bight	87 56 51.19	51.13
	24	Young	134 24 45.74	45.65
Bight	25	Young	0 00 00.00	59.36
	26	Target	19 50 32.55	32.84
	27	Hilda	34 49 26.59	26.48
	28	Jumbo	91 11 11.69	12.04
	29	Donough	131 49 16.88	16.98
Young	31	Scull 2	0 00 00.00	59.63
	32	Deer	43 14 38.82	38.51
	33	Target	63 28 52.56	52.69
	34	Hilda	121 56 33.21	33.36
	35	Jumbo	148 40 58.17	58.02
	36	Donough	164 44 32.19	33.01
	37	Bight	191 01 51.04	50.90
	30	Hawk	341 38 09.94	09.81
Hilda	39a	Scull 2	0 00 00.00	59.73
	40	Target	29 12 04.61	04.79
	38	Bight	248 51 17.37	17.50
	39	Young	324 56 32.93	32.89
Target	44	Scull 2	0 00 00.00	00.24
	41	Hilda	230 12 07.77	07.75
	42	Bight	254 52 26.56	26.85
	43	Young	287 28 55.72	55.21

ABSTRACT OF HORIZONTAL DIRECTIONS AND ELEVATIONS OF TELESCOPE ABOVE STATION MARKS—Continued

SECTION 11. TANTALLON-CORNER TO HORSE-EAGLE TO YOUNG BAY BASE—Continued

Station occupied	Direction	Object observed	Observed direction reduced to sea level	Final seconds after figure adjustment
			° ′ ″	″
Scull 2	48	Deer	0 00 00.00	00.28
	49	Target	46 16 29.30	29.43
	49a	Hilda	67 16 32.14	31.91
	50	Young	90 16 32.40	31.38
	51	Young Bay east base.	179 17 05.27	05.42
	52	Young Bay west base.	196 14 06.28	05.87
	53	Hawk	226 47 03.14	03.54
	54	Grouse	293 07 19.35	19.64
	46	Horse	309 25 19.53	19.84
	47	Eagle	338 38 43.33	43.42
Deer	57	Scull 2	0 00 00.00	59.49
	55	Hawk	20 24 50.47	50.27
	57a	Grouse	53 11 53.86	54.14
	58	Horse	90 07 00.25	00.15
	59	Eagle	133 45 32.95	32.62
	56	Young	313 31 08.54	09.40
Grouse	67	Scull 2	0 00 00.00	59.19
	68	Hawk	49 41 35.15	35.75
	66	Deer	300 04 34.22	34.43
Hawk	70	Scull 2	0 00 00.00	59.54
	71	Young	25 07 36.81	37.59
	72	Young Bay east base.	82 10 16.12	15.95
	73	Young Bay west base.	110 54 11.81	12.05
	69	Grouse	296 01 52.27	52.16
	69a	Deer	333 37 47.29	47.02
Young Bay east base.	78	Hawk	0 00 00.00	59.91
	79	Scull 2	50 19 45.68	45.42
	77	Young Bay west base.	301 44 49.48	49.82
Young Bay west base.	74	Hawk	0 00 00.00	00.12
	75	Scull 2	38 32 49.81	49.97
	76	Young Bay east base.	93 00 54.23	53.94
Horse	[10] 1	Clearing	0 00 00.00	00.15
	[10] 2	Outer	71 02 55.30	55.85
	63	Eagle	99 45 58.04	58.25
	64	Deer	144 57 15.99	16.06
	65	Scull 2	184 15 35.32	35.04
Eagle	62	Horse	0 00 00.00	59.81
	[10] 3	Clearing	29 44 48.06	48.67
	[10] 4	Outer	96 49 24.63	24.20
	60	Deer	268 49 49.68	50.05
	61	Scull 2	293 43 00.28	00.10

SECTION 12. HORSE-EAGLE TO LITTLE-SENTINEL TO EAGLE RIVER BASE

Outer	5	Eagle	0 00 00.00	59.98
	6	Horse	54 27 32.14	33.22
	7	Clearing	85 29 01.02	00.35
	8	Cabin	136 09 31.02	30.74
	9	Cow	171 05 46.33	46.21
Clearing	10	Cabin	0 00 00.00	00.04
	11	Cow	31 27 59.41	59.26
	12	Outer	86 30 24.52	24.00
	13	Eagle	113 56 47.01	48.13
	14	Horse	164 26 01.70	01.20
Cow	22	Cabin	0 00 00.00	00.11
	23	Symonds	35 03 08.87	08.49
	24	Dairy	86 07 46.09	45.61
	25	Cliff	92 54 22.51	23.49
	26	Lena	115 47 33.36	33.12
	20	Outer	276 01 26.26	26.41
	21	Clearing	315 22 16.03	15.89
Cabin	17	Cow	0 00 00.00	00.17
	18	Outer	61 05 11.01	11.07
	19	Clearing	103 54 16.56	16.79
	15	Symonds	271 51 34.26	34.38
	16	Lena	322 32 23.96	23.38
Symonds	27	Lena	0 00 00.00	59.91
	28	Cow	53 46 49.34	49.39
	29	Cabin	110 35 15.21	15.25
Lena	32	Symonds	0 00 00.00	00.49
	33	Dairy	9 39 35.27	34.91
	34	Cliff	56 16 39.23	39.11
	35	Ledge	98 30 12.56	12.60
	36	Tee	152 48 19.23	19.20
	30	Cow	314 31 14.68	14.53
	31	Cabin	341 16 04.67	04.78
Cliff	41	Tee	0 00 00.00	59.61
	42	Lena	58 52 56.71	56.52
	43	Cow	114 14 21.89	22.35
	44	Dairy	128 53 38.96	38.99
	40	Ledge	311 18 24.96	25.05
Dairy	37	Cliff	0 00 00.00	59.64
	38	Lena	63 22 12.48	12.99
	39	Cow	158 34 05.28	05.13
Tee	50	Lena	0 00 00.00	59.65
	51	Cliff	24 35 21.84	22.69
	52	Ledge	58 16 37.21	37.20
	53	Slate	82 43 49.48	49.11
	54	Islet	162 42 16.46	16.35
Ledge	47	Tee	0 00 00.00	59.78
	48	Lena	87 25 15.46	15.69
	49	Cliff	97 37 10.95	10.75
	45	Slate	273 19 12.31	12.77
	46	Islet	330 45 47.78	47.50

[10] From adjustment in sec. 12.

ABSTRACT OF HORIZONTAL DIRECTIONS AND ELEVATIONS OF TELESCOPE ABOVE STATION MARKS—Continued

SECTION 12. HORSE-EAGLE TO LITTLE-SENTINEL TO EAGLE RIVER BASE—Continued

Station occupied	Direction	Object observed	Observed direction reduced to sea level	Final seconds after figure adjustment
			° ′ ″	″
Slate	58	Tee	0 00 00.00	00.46
	59	Ledge	68 52 02.02	01.57
	55	Indian	245 34 11.54	11.89
	56	Pearl	294 17 49.83	49.55
	57	Islet	325 05 30.28	30.20
Islet	64	Pearl	0 00 00.00	59.91
	60	Tee	188 41 20.65	20.67
	61	Ledge	235 01 28.84	29.28
	62	Slate	253 48 23.31	23.21
	63	Indian	301 00 19.51	19.23
Pearl	65	Islet	0 00 00.00	59.97
	66	Slate	43 00 42.23	42.68
	67	Indian	83 33 55.69	55.55
	68	Gull	109 02 36.08	36.34
	69	Sentinel	148 39 32.67	32.13
Indian	70	Sentinel	0 00 00.00	59.94
	71	Gull	45 26 24.53	25.19
	72	Pearl	68 19 34.09	33.44
	73	Islet	105 45 56.84	57.24
	74	Slate	159 02 43.31	42.98
Sentinel	87	Lincoln	0 00 00.00	59.75
	88	Little	56 16 37.06	36.78
	[11] 3	Whid	93 19 17.92	18.68
	[11] 4	Bridget	136 36 50.50	50.62
	82	Eagle River north base.	249 32 28.63	28.46
	83	Eagle River south base.	272 54 05.79	06.82
	84	Pearl	276 05 02.78	02.55
	85	Gull	296 46 21.10	21.26
	86	Indian	322 39 52.84	52.57
Gull	77	Sentinel	0 00 00.00	00.05
	78	Eagle River north base.	49 57 51.74	51.88
	79	Eagle River south base.	102 32 35.01	34.60
	80	Pearl	119 41 45.29	45.59
	81	Indian	251 19 56.72	56.57
	75	Lincoln	300 36 09.81	09.82
	76	Little	325 19 15.72	15.78
Eagle River south base	89	Gull	0 00 00.00	00.08
	90	Sentinel	53 35 11.01	11.13
	91	Eagle River north base.	84 49 30.92	30.72
Eagle River north base	92	Eagle River south base.	0 00 00.00	59.76
	93	Gull	42 35 46.03	46.42
	94	Sentinel	125 24 01.98	01.84
Lincoln	95	Little	0 00 00.00	59.74
	96	Sentinel	74 43 56.63	56.82
	97	Gull	132 06 28.11	28.17
Little	98	Sentinel	0 00 00.00	59.94
	99	Gull	25 49 00.51	00.24
	100	Lincoln	48 59 25.59	25.92
	[11] 1	Whid	242 35 36.21	35.86
	[11] 2	Bridget	289 53 05.93	05.88

SECTION 13. LITTLE-SENTINEL TO KAL-TWIN TO GLACIER POINT BASE

Bridget	7	Whid	0 00 00.00	59.91
	8	Will	26 06 36.24	36.02
	9	Bern	96 32 46.08	46.02
	5	Sentinel	286 08 37.32	37.55
	6	Little	315 41 29.77	29.90
Whid	12	Bridget	0 00 00.00	59.75
	13	Sentinel	62 51 06.16	05.81
	14	Little	88 24 00.18	59.99
	10	Will	281 38 34.84	34.59
	11	Bern	315 16 08.44	09.47
Will	17	Bern	0 00 00.00	59.92
	18	Bridget	59 05 12.96	13.45
	19	Whid	134 37 12.36	12.31
	15	River	314 35 11.66	11.62
	16	Chan	339 01 05.11	04.77
Bern	23	River	0 00 00.00	00.25
	24	Chan	60 09 30.31	30.48
	20	Bridget	244 58 16.07	16.33
	21	Whid	283 41 40.52	40.26
	22	Will	295 26 53.54	53.11
River	25	Cot	0 00 00.00	59.94
	26	Half	51 22 20.00	20.39
	27	Chan	57 04 45.86	46.23
	28	Bern	108 22 17.47	17.21
	29	Will	178 24 22.49	22.07
Chan	33	Cot	0 00 00.00	59.77
	34	Half	94 22 32.16	32.20
	30	Bern	268 45 09.10	09.18
	31	Will	303 03 36.41	36.89
	32	River	337 18 08.54	08.16
Cot	37	Sher	0 00 00.00	59.95
	38	Half	9 59 12.27	12.31
	39	Chan	17 46 38.64	38.88
	40	River	118 00 01.13	01.05
	35	Van	306 14 07.40	07.04
	36	Met	332 34 20.89	21.13
Half	43	Cot	0 00 00.00	59.90
	44	Van	82 06 06.35	06.51
	45	Sher	110 04 19.51	19.79
	41	Chan	282 09 58.88	58.88
	42	River	339 23 09.36	09.02
Sher	47	Cot	0 00 00.00	00.19
	48	Van	88 18 17.10	16.70
	49	Met	127 25 39.34	39.78
	46	Half	300 03 32.65	32.41
Van	51	Eld	0 00 00.00	59.98
	52	Met	36 54 34.24	34.45
	53	Sher	92 21 01.41	01.63
	54	Half	96 08 04.01	04.09
	55	Cot	130 16 52.74	52.47
	50	Island	320 56 14.45	14.24

[11] From adjustment in sec. 13.

ABSTRACT OF HORIZONTAL DIRECTIONS AND ELEVATIONS OF TELESCOPE ABOVE STATION MARKS—Continued

SECTION 13. LITTLE-SENTINEL TO KAL-TWIN TO GLACIER POINT BASE—Continued

Station occupied	Direction	Object observed	Observed direction reduced to sea level	Final seconds after figure adjustment
			° ′ ″	″
Met	60	Eld	0 00 00.00	58.93
	61	Slide	26 27 37.94	39.07
	56	Sher	207 24 31.35	31.30
	57	Cot	232 33 13.30	13.06
	58	Van	292 50 40.88	41.21
	59	Island	324 12 24.05	23.94
Eld	62	Met	0 00 00.00	00.72
	63	Van	75 56 09.02	08.61
	64	Island	109 03 06.66	06.85
	64	a Kabe	162 19 47.35	47.17
	65	Sed	193 04 01.76	00.66
	66	Slide	224 10 51.26	52.05
Island	67	Slide	0 00 00.00	59.90
	68	Eld	38 59 19.23	19.27
	69	Met	74 08 38.42	38.20
	70	Van	146 48 35.04	35.33
Slide	74	Sed	0 00 00.00	59.46
	75	Kabe	36 25 14.73	15.08
	76	Glacier Point south base.	60 33 50.15	51.08
	77	Chil	84 25 30.66	30.33
	78	Kal	97 49 39.66	40.04
	79	Twin	128 55 16.55	16.28
	71	Met	306 28 04.25	04.55
	72	Eld	324 11 16.63	15.79
	73	Island	350 04 11.27	11.29
Kabe	87	Slide	0 00 00.00	59.66
	88	Sed	23 16 04.45	03.94
	89	Eld	45 54 55.08	55.62
	83	Glacier Point south base.	244 06 18.95	18.81
	84	Kal	279 30 27.79	27.51
	85	Twin	300 12 45.41	45.75
	86	Chil	310 27 08.08	08.46
Sed	81	Slide	0 00 00.00	00.00
	82	Eld	113 04 24.54	24.98
	80	Kabe	239 41 20.30	19.86
Chil	101	Duck	0 00 00.00	00.30
	97	Slide	164 52 06.57	06.78
	98	Kabe	247 19 00.30	00.42
	99	Glacier Point south base.	297 02 41.84	41.93
	100	Glacier Point north base.	332 52 13.67	12.94
Glacier Point south base.	111	Chil	0 00 00.00	59.73
	112	Slide	23 57 44.87	45.39
	113	Kabe	63 55 29.08	28.64
	109	Glacier Point north base.	292 58 04.33	04.79
	110	Duck	330 02 42.38	42.09
Glacier Point north base.	106	Duck	0 00 00.00	00.21
	107	Chil	24 32 08.92	08.91
	108	Glacier Point south base.	101 40 43.21	43.01
Duck	103	Chil	0 00 00.00	00.12
	104	Glacier Point south base.	87 05 24.77	24.15
	105	Glacier Point north base.	128 20 03.59	04.08
Kal	93	Twin	0 00 00.00	00.17
	94	Slide	89 34 40.21	40.37
	96	Kabe	127 40 43.81	43.49
	[12] 1	Ripinski	275 17 52.13	51.11
	[12] 2	Riley	289 34 05.02	04.88
Twin	90	Slide	0 00 00.00	59.72
	91	Kabe	27 42 44.23	44.92
	92	Kal	59 19 43.96	43.54
	[12] 3	Riley	113 47 57.66	59.07
	[12] 4	Ripinski	131 03 53.51	52.82
	[12] 5	Vil	159 32 38.49	39.10

SECTION 14. KAL-TWIN TO TAI-SKAG

Riley	17	Ripinski	0 00 00.00	00.22
	18	Vil	54 47 00.15	00.16
	19	Twin	148 59 18.84	18.16
	20	Kal	204 05 07.02	07.48
Ripinski	11	Hal	0 00 00.00	00.45
	12	Top	23 06 43.08	42.13
	13	Vil	57 36 22.45	22.67
	14	Twin	100 08 02.90	01.59
	15	Riley	113 52 48.84	50.03
	16	Kal	123 41 43.21	43.61
Vil	9	Hal	0 00 00.00	59.37
	10	Top	27 29 30.72	31.46
	6	Twin	175 45 16.06	15.89
	7	Riley	215 48 18.40	18.08
	8	Ripinski	284 44 50.62	51.01
Top	23	Hal	0 00 00.00	59.87
	24	Tai	50 32 12.08	11.81
	25	Skag	82 15 55.28	56.02
	21	Vil	250 33 32.83	32.78
	22	Ripinski	293 19 12.26	11.99
Hal	26	Tai	0 00 00.00	59.58
	27	Skag	37 58 14.48	14.54
	28	Top	100 46 01.42	01.80
	29	Vil	143 50 03.06	02.73
	30	Ripinski	190 58 32.12	32.42
Tai	34	Skag	0 00 00.00	59.15
	35	Top	48 24 07.91	08.58
	36	Hal	77 05 54.36	54.54
Skag	31	Top	0 00 00.00	59.03
	32	Hal	34 56 15.51	15.74
	33	Tai	99 52 04.78	05.52

[12] From adjustment in sec. 14.

CONDITION EQUATIONS

SECTION 1.—*Dry Strait base to Agassiz base*

No.

1. 0=+ 0.30−(1)+(2)−(5)+(6)−(10)+(13).
2. 0=+ 0.13−(5)+(7)−(11)+(13)−(17)+(18).
3. 0=+ 0.63+(1)−(4)−(6)+(7)−(17)+(19).
4. 0=− 0.48−(7)+(8)−(16)+(17)−(23)+(25).
5. 0=− 1.28−(11)+(12)−(16)+(18)−(24)+(25).
6. 0=− 0.14−(9)+(11)−(18)+(20)−(26)+(28).
7. 0=+ 1.31−(3)+(4)−(19)+(20)−(26)+(27).
8. 0=+ 0.48−(12)+(15)−(21)+(24)−(31)+(33)−(34)+(36).
9. 0=− 0.18−(29)+(31)−(36)+(37)−(42)+(43).
10. 0=− 0.66−(30)+(31)−(36)+(38)−(44)+(45).
11. 0=− 1.34−(29)+(30)−(41)+(43)−(45)+(46).
12. 0=+ 1.75−(39)+(41)−(46)+(47)−(52)+(53).
13. 0=− 0.69−(40)+(41)−(46)+(48)−(57)+(58).
14. 0=− 0.95−(47)+(48)−(50)+(52)−(57)+(59).
15. 0=+ 0.15−(50)+(51)−(56)+(59)−(60)+(61).
16. 0=+ 1.54−(49)+(51)−(60)+(62)−(67)+(69).
17. 0=+ 2.13−(49)+(50)+(54)−(59)−(68)+(69).
18. 0=− 0.58−(62)+(63)−(66)+(67)−(70)+(72).
19. 0=+ 0.11−(55)+(56)−(61)+(63)−(70)+(71).
20. 0=− 0.17−(64)+(66)−(72)+(74)−(77)+(78).
21. 0=− 2.78−(74)+(75)−(76)+(77)−(79)+(81).
22. 0=− 0.65−(76)+(77a)−(80)+(81)+(82)−(85).
23. 0=− 2.27−(73)+(75)−(79)+(80)−(82)+(83).
24. 0=+ 0.90−(64)+(65)−(77a)+(78)−(84)+(85).
25. 0=+31.34+4.40(5)−4.55(6)+0.15(7)+1.93(10)−2.53(11)+0.60(13)+2.02(17)−9.92(18)+7.90(19).
26. 0=−13.37+3.06(11)−27.02(12)+23.96(13)+7.00(16)−10.10(17)+3.10(18)+9.20(23)−8.30(24)−0.90(25).
27. 0=− 2.33+3.86(9)−6.39(10)+2.53(11)+9.92(18)−15.83(19)+5.46(20)+1.35(26)−6.75(27)+5.40(28).
28. 0=+ 1.98+3.09(12)−5.40(14)+2.31(15)+2.15(21)−3.65(22)+1.50(24)+0.03(31)−3.30(32)+3.27(33)
+4.25(34)−7.14(35)+2.89(36).
29. 0=−14.70+3.01(29)−6.49(30)+3.48(31)−0.84(36)−2.89(37)+3.73(38)+2.55(41)−3.27(42)+0.72(43).
30. 0=+13.24+7.11(39)−6.54(40)−0.57(41)+4.17(46)−8.07(47)+3.90(48)+1.71(57)−8.76(58)+7.05(59).
31. 0=+18.88+3.16(49)−8.55(50)+5.39(51)+0.62(60)−6.24(61)+5.62(62)+20.60(67)−25.11(68)+4.51(69).
32. 0=+12.24+3.16(49)−8.55(50)+5.39(51)+0.62(60)−1.60(61)+0.98(63)+1.85(66)−6.36(68)+4.51(69)
+5.93(70)−6.57(71)+0.64(72).
33. 0=−25.82+1.00(64)−7.47(65)+6.47(66)+9.86(72)−13.96(73)+4.10(74)+4.61(77)−7.77(77a)+3.16(78).
34. 0=− 2.75+3.30(73)−4.10(74)+0.80(75)+1.33(76)−4.61(77)+3.28(77a)+1.61(79)−3.24(80)+1.63(81).
35. 0=− 5.31−(9)+(15)−(26)+(28)−(34)+(38)−(44)+(48)+(55)−(57)−(71)+(73).
36. 0=+17.82+0.37(1)−0.37(2)−6.23(5)+6.23(8)−0.60(10)+3.04(12)+0.60(13)−3.04(14)+2.15(21)−2.20(22)
−8.30(23)+8.35(24)+0.93(29)−2.42(31)−1.78(32)+3.27(33)−4.38(35)+4.38(36)+2.89(37)
−2.89(38)−0.57(39)+0.57(41)−2.68(42)+2.68(43)+0.81(44)−0.81(46)+3.90(47)−3.90(48)
+3.16(49)−3.16(50)−1.89(52)+1.89(53)+1.31(54)−1.31(55)−1.71(57)+1.71(59)+0.28(64)
−0.28(66)−4.51(68)+4.51(69)−0.64(71)+0.64(72)+3.21(76)−4.52(77)+1.31(78)+0.56(79)
−0.56(81).

SECTION 2.—*Zarembo Island base*

No.

1. 0=− 1.46−(1)+(2)−(5)+(5a)−(17)+(18).
2. 0=− 0.85−(4)+(5)−(9)+(10)−(18)+(20).
3. 0=− 1.82−(3)+(4)−(6)+(8)−(10)+(11).
4. 0=+ 0.85−(6)+(7)−(9)+(11)−(19)+(20).
5. 0=+ 0.65−(12)+(13)−(15)+(16)−(20)+(21).
6. 0=− 5.1+4.16(1)−4.16(2)+0.95(3)−0.95(4)+0.53(6)−0.53(8)+1.81(9)−1.81(10)−32.02(17)+35.53(18)
−3.51(20).
7. 0=+21.51+25.30(3)−25.30(4)+14.11(6)−14.11(8)+168.43(9)−168.43(10)−24.36(15)+24.36(16)
+261.99(18)−311.12(20)+49.13(21).

7a. 0=+ 0.6+ 0.95(3)−0.95(4)+0.53(6)−0.53(8)+11.21(9)−11.21(10)−13.84(13)+13.84(x).

7b. 0=+ 0.4− 9.40(9)+9.40(10)+26.63(13)−1.76(15)+1.76(16)+18.93(18)−22.48(20)+3.55(21)−26.63(x).

8. 0=+22.9− 5.96(12)+5.96(13)+3.55(20)−3.55(21).
9. 0=+22.1+ 0.95(3)−7.28(4)+6.33(5)+7.69(6)−7.74(7)+0.05(8)−1.81(9)−9.86(10)+11.67(11)+16.84(18)
−21.61(19)+4.77(20).

SECTION 3.—*Farm-Roth to Zarembo Island base to Har-Granite*

No.

1. 0=+ 2.28−(2)+(4)−(5)+(6).
2. 0=+ 2.32−(1)+(3)−(15)+(16).
3. 0=− 0.29−(3)+(4)−(5)+(7)−(14)+(15).
4. 0=+ 0.39−(7)+(9)−(12)+(14)−(18)+(19).
5. 0=− 0.55−(7)+(11)−(13)+(14)−(20)+(23).
6. 0=− 2.11−(9)+(11)−(17)+(18)−(20)+(24).
7. 0=− 1.43−(10)+(11)−(20)+(22)−(34)+(35).
8. 0=− 0.29−(8)+(10)−(29)+(31)−(35)+(36).
9. 0=− 0.84−(8)+(11)−(20)+(21)−(30)+(31).
10. 0=− 0.56−(22)+(25)−(32)+(34)−(38)+(39).
11. 0=− 0.41−(22)+(28)−(33)+(34)−(40)+(41).
12. 0=− 0.70−(25)+(28)−(37)+(38)−(40)+(42).
13. 0=− 1.80−(26)+(28)−(40)+(43)−(48)+(49).
14. 0=− 0.43−(27)+(28)−(40)+(44)−(54)+(55).
15. 0=− 1.00−(43)+(44)−(47)+(48)−(54)+(56).
16. 0=− 0.69−(44)+(45)−(50)+(54)−(61)+(62).
17. 0=+ 1.72−(44)+(46)−(51)+(54)−(69)+(70).
18. 0=+ 1.28−(45)+(46)−(58a)+(61)−(69)+(71).

SECTION 3.—*Farm-Roth to Zarembo Island base to Har-Granite*—Continued

No.

19. 0=− 0.72−(50)+(53)−(60)+(62)−(63)+(64).
20. 0=− 0.97−(52)+(53)−(63)+(65)−(66)+(67).
21. 0=− 0.55−(50)+(52)−(59)+(62)−(67)+(68).
22. 0=− 0.06−(57)+(58a)−(71)+(72)−(78)+(79).
23. 0=− 1.16−(58)+(58a)−(71)+(73)−(74)+(75).
24. 0=− 0.83−(72)+(73)−(74)+(76)−(77)+(78).
25. 0=+12.88−4.10(3)+1.16(4)+4.96(5)−6.17(6)+1.21(7)+0.52(14)−8.96(15)+8.44(16).
26. 0=+ 2.36+1.82(7)−4.21(9)+2.39(11)+3.26(12)−4.24(13)+0.98(14)+0.19(20)−3.12(23)+2.93(24).
27. 0=− 4.62+1.89(8)−5.24(10)+3.35(11)+2.09(20)−5.35(21)+3.26(22)+5.36(29)−5.36(30)−0.27(31).
28. 0=+ 3.71+2.46(22)−0.38(25)−2.08(28)−2.20(37)−1.96(38)+4.16(39)+7.59(40)−13.23(41)+5.64(42).
29. 0=+57.07+92.90(26)−96.89(27)+3.99(28)+0.53(40)−6.18(43)+5.65(44)+1.04(54)−18.03(55)+16.99(56).
30. 0=− 4.79+1.13(44)−1.79(45)+0.66(46)+0.30(58a)−6.18(61)+5.88(62)+5.02(69)−5.74(70)+0.72(71).
31. 0=−13.34+1.96(50)−7.10(52)+5.14(53)+7.85(59)−9.34(60)+1.49(62)−0.36(63)−3.51(64)+3.87(65).
32. 0=+ 1.26+3.97(57)−3.97(58)+1.94(71)−5.18(72)+3.24(73)+0.56(74)−2.73(75)+2.17(76).
33. 0=+ 5.03+(2)−(6)+(11)−(20)+(28)−(40)+(46)−(69)+(73).
34. 0=+29.22+2.20(1)−2.20(2)−1.16(4)−4.96(5)+4.96(6)+3.35(10)−3.35(11)+2.63(13)−3.15(14)+0.52(16)
−1.71(20)+1.71(23)+3.99(26)−3.99(28)+1.58(32)−1.11(34)−0.47(35)+0.03(37)−1.99(38)
+1.96(39)−2.90(40)+2.90(42)+1.79(44)−1.79(45)−0.22(47)−0.30(48)+0.52(49)+5.14(52)
−5.14(53)−1.04(54)+1.04(56)+1.49(59)−6.18(61)+4.69(62)+0.36(63)−0.36(65)−0.44(67)
+0.44(68).

SECTION 3a.—*Grey-Lee to Ryn-Kad*

No.

1. 0=−2.42−(2)+(4)−(5)+(6).
2. 0=−1.60−(1)+(3)−(9)+(10).
3. 0=−0.20−(3)+(4)−(5)+(7)−(8)+(9).
4. 0=−4.41+3.23(1)−2.72(2)−6.00(3)+2.89(4)+0.36(5)−2.87(6)+2.51(7).

SECTION 4.—*Har-Granite to Luck Point base*

No.

1. 0=+ 1.05−(1)+(3)−(11)+(12).
2. 0=+ 0.75−(2)+(4)−(5)+(6).
3. 0=− 1.31−(1)+(2)−(6)+(9)−(10)+(12).
4. 0=− 1.63−(7)+(9)−(10)+(13)−(23)+(24).
5. 0=+ 1.34−(7)+(8)−(16)+(17)−(22)+(24).
6. 0=− 0.13−(8)+(9)−(10)+(14)−(15)+(16).
7. 0=+ 0.16−(17)+(19)−(21)+(22)−(25)+(26).
8. 0=+ 0.27−(18)+(19)−(25)+(27)−(32)+(33).
9. 0=− 0.37−(17)+(18)−(20)+(22)−(33)+(34).
10. 0=+ 0.69−(27)+(29)−(31)+(32)−(35)+(36).
11. 0=+ 1.11−(28)+(29)−(35)+(37)−(44)+(45).
12. 0=+ 0.22−(30)+(31)−(36)+(37)−(44)+(46).
13. 0=− 1.26−(37)+(40)−(43)+(44)−(47)+(48).
14. 0=− 0.07−(38)+(40)−(47)+(49)−(60)+(61).
15. 0=− 0.59−(41)+(43)−(48)+(49)−(60)+(62).
16. 0=+ 0.51−(39)+(40)−(47)+(50)−(51)+(52).
17. 0=− 0.77−(42)+(43)−(48)+(50)−(51)+(53).
18. 0=+ 0.70−(49)+(50)−(51)+(54)−(59)+(60).
19. 0=− 0.29−(54)+(56)−(58)+(59)−(63)+(64).
20. 0=− 0.97−(55)+(56)−(63)+(65)−(70)+(71).
21. 0=− 1.28−(54)+(55)−(57)+(59)−(71)+(72).
22. 0=− 1.34−(65)+(67)−(69)+(70)−(78)+(79).
23. 0=− 0.53−(66)+(67)−(75)+(76)−(78)+(80).
24. 0=+ 1.01−(68)+(69)−(75)+(77)−(79)+(80).
25. 0=− 1.71−(74)+(75)−(80)+(82)−(84)+(85).
26. 0=− 2.86−(81)+(82)−(84)+(86)−(87)+(89).
27. 0=− 0.36−(73)+(74)−(85)+(86)−(87)+(90).
28. 0=− 2.87−(73)+(74a)−(88)+(90)−(91)+(92).
29. 0=− 0.80−(74)+(74a)−(83)+(85)−(91)+(93).
30. 0=+ 4.37−0.02(1)−8.85(2)+2.05(5)−1.79(6)−0.23(9)+9.78(10)−11.94(11)+2.16(12).
31. 0=− 6.61+4.30(7)−15.37(8)+11.07(9)−1.30(10)−2.56(13)+3.86(14)+6.02(22)−6.43(23)+0.41(24).
32. 0=+11.81+4.66(17)−5.26(18)+0.60(19)+1.37(25)−3.88(26)+2.51(27)+1.45(32)−4.62(33)+3.17(34).
33. 0=+34.10+28.27(27)−28.28(28)+0.01(29)+1.39(35)−18.01(36)+16.62(37)+1.51(44)−4.81(45)+3.30(46).
34. 0=+ 0.62+5.47(37)−4.73(38)−0.74(40)+3.49(47)−7.20(48)+3.71(49)+1.42(60)−5.20(61)+3.78(62).
35. 0=− 4.95−0.74(37)−3.23(39)+3.97(40)+2.51(42)−5.06(43)+2.55(44)+2.53(51)−4.25(52)+1.72(53).
36. 0=+ 4.57+4.21(37)−4.73(38)+0.52(39)+4.66(52)−8.78(53)+4.12(54)−0.31(59)−5.20(61)+5.51(62).
37. 0=− 0.03+0.65(54)−2.38(55)+1.73(56)+1.44(57)−4.17(58)+2.73(59)+3.39(70)−3.52(71)+0.13(72).
38. 0=+ 3.86+2.95(65)−2.97(66)+0.02(67)−0.08(75)−2.20(76)+2.28(77)+2.27(78)−5.33(79)+3.06(80).
39. 0=− 9.76+2.46(73)−1.03(74)−1.43(75)+4.62(80)−8.33(81)+3.71(82)−1.16(84)−1.58(85)+2.74(86).
40. 0=−10.21+1.03(73)−3.39(74)+2.36(74a)+3.76(87)−4.83(88)+1.07(90)+0.80(91)−3.07(92)+2.27(93).
41. 0=− 1.93+(1)−(12)+(13)+(20)−(23)+(30)−(34)+(41)−(46)+(57)−(62)+(68)−(72)+(73)−(77)
+(87)−(90).
42. 0=+22.46+0.48(1)−0.48(2)−2.09(3)−2.01(6)+4.30(7)−4.30(8)+2.01(9)+0.28(10)−2.16(11)+2.16(12)
−0.28(13)−0.56(16)+1.16(17)−0.60(19)+0.20(20)−0.20(21)−1.18(23)+1.18(24)−1.37(25)
+1.37(26)+0.01(27)−0.01(29)−1.14(30)+1.14(31)−1.45(32)+1.45(34)−1.39(35)+1.39(36)
+0.52(37)−0.52(39)+1.50(41)−1.50(42)−1.51(44)+1.51(46)−4.66(52)+4.66(53)+0.65(54)
−0.65(56)+1.44(57)−1.44(58)+0.31(59)−0.31(62)−0.78(63)+0.78(64)+0.02(65)−0.02(67)
+1.57(68)−1.57(69)−0.13(70)+0.13(72)+2.36(74)−2.36(74a)+0.08(75)−0.08(77)−2.27(78)
+2.27(79)+1.53(80)−1.53(82)−0.95(84)+0.95(85)−0.80(91)+0.80(93).

SECTION 5.—*Luck (Luck Point south base)-Stanhope to Nar-Mis*

No.

1. 0=− 0.69−(2)+(4)−(5)+(6).
2. 0=+ 0.34−(1)+(3)−(13)+(14).
3. 0=+ 1.11−(1)+(2)−(6)+(7)−(12)+(14).
4. 0=+ 1.27−(7)+(9)−(11)+(12)−(15)+(16).
5. 0=− 0.95−(10)+(11)−(16)+(17)−(22)+(24).
6. 0=− 1.06−(7)+(8)−(10)+(12)−(23)+(24).
7. 0=+ 0.63−(17)+(19)−(21)+(22)−(25)+(26).
8. 0=− 2.07−(20)+(21)−(26)+(27)−(28)+(30).
9. 0=+ 0.36−(17)+(18)−(20)+(22)−(29)+(30).
10. 0=− 1.83−2.98(3)+0.78(4)+2.17(5)−3.14(6)+0.97(7)+1.22(12)−4.72(13)+3.50(14).
11. 0=+20.22+0.50(7)−3.33(8)+2.83(9)+2.84(10)−4.15(11)+1.31(12)+1.77(22)−1.67(23)−0.10(24).
12. 0=+25.75−0.04(17)−3.18(18)+3.22(19)+0.76(20)−6.92(21)+6.16(22)+14.37(28)−16.79(29)+2.42(30).
13. 0=− 0.77+(1)+(10)−(14)+(20)−(24)+(28)−(30).

SECTION 6.—*Chacon-Dundas to Wedge-Dall to Metlakatla base*

No.

1. 0=− 0.62−(3)+(5)−(7)+(8)−(15)+(16).
2. 0=− 1.60−(4)+(5)−(7)+(10)−(17)+(18).
3. 0=− 0.65−(3)+(4)−(14)+(16)−(18)+(19).
4. 0=+ 0.14−(12)+(14)−(19)+(20)−(31)+(33).
5. 0=− 2.27−(8)+(11)−(13)+(15)−(21)+(22).
6. 0=− 0.65−(9)+(11)−(21)+(23)−(30)+(32).
7. 0=− 0.28−(12)+(13)−(22)+(23)−(30)+(33).
8. 0=+ 1.40−(23)+(24)−(26)+(30)−(37)+(38).
9. 0=+ 0.91−(23)+(25)−(27)+(30)−(39)+(40).
10. 0=+ 1.24−(26)+(27)−(34)+(38)−(40)+(41).
11. 0=− 0.98−(26)+(28)−(35)+(38)−(52)+(53).
12. 0=− 1.92−(26)+(29)−(36)+(38)−(42)+(43).
13. 0=− 2.03−(28)+(29)−(42)+(44)−(51)+(52).
14. 0=+ 1.13−(44)+(46)−(48)+(51)−(61)+(63).
15. 0=+ 0.70−(45)+(46)+(54)−(56)−(61)+(62).
16. 0=− 0.22−(48)+(50)−(55)+(56)−(62)+(63).
17. 0=+ 0.10−(45)+(47)+(54)−(58)−(64)+(65).
18. 0=− 2.01−(44)+(47)−(49)+(51)−(64)+(66).
19. 0=− 2.15−(46)+(47)−(60)+(61)−(64)+(67).
20. 0=+ 2.28−(57)+(58)−(65)+(68)−(69)+(70).
21. 0=+ 0.29−(59)+(60)−(67)+(68)−(69)+(71).
22. 0=+ 0.17−(1)+(2)+(4)−(5)−(6)+(7)−(18)+(20).
23. 0=+ 3.21+3.99(3)−13.41(4)+9.42(5)+2.65(7)−7.37(8)+4.72(10)+14.11(14)−12.55(15)−1.56(16).
24. 0=+12.85−9.28(8)+47.56(9)−38.28(10)−0.10(12)+12.65(14)−12.55(15)+4.42(17)+1.21(19)−5.63(20)
−66.76(31)+67.51(32)−0.75(33).
25. 0=+ 7.82+6.24(8)−9.28(9)+3.04(11)+0.25(12)+3.55(13)−3.80(15)−2.24(21)−5.19(22)+7.43(23)
−5.43(30)+5.37(32)+0.06(33).
26. 0=− 8.79+2.32(23)−7.08(24)+4.76(25)+4.10(26)−4.61(27)+0.51(30)−0.57(39)−2.24(40)+2.81(41).
27. 0=− 8.36+2.91(26)−6.01(28)+3.10(29)+4.34(35)−4.28(36)−0.06(38)+0.76(42)−4.36(43)+3.60(44).
28. 0=−41.97+13.53(44)−17.75(45)+4.22(46)+3.71(48)−8.31(50)+4.60(51)+0.85(61)−5.99(62)+5.14(63).
29. 0=+16.33+3.71(48)−11.66(49)+7.95(50)−0.17(60)−4.97(62)+5.14(63)+18.18(65)−19.96(66)+1.78(67).
30. 0=−62.13+13.53(44)−16.16(45)+2.63(47)+11.66(49)−16.26(50)+4.60(51)−0.05(64)−19.91(65)+19.96(66
31. 0=+13.99+10.97(56)−13.91(57)+2.94(58)+1. 78(65)−4.27(67)+2.49(68)+0.36(69)−6.69(70)+6.33(71).
32. 0=− 8.94+2.65(1)−2.65(2)+2.47(3)−2.47(5)+0.67(6)−0.67(7)+3.04(8)−3.04(11)+0.93(12)−0.93(13)
+1.08(15)−1.08(16)+0.97(21)−0.97(22)+2.32(23)−2.32(24)+3.10(28)−3.10(29)+0.06(30)
−0.06 (32)−0.06(35)−1.15(37)+1.21(38)−0.76(42)+0.76(44)+9.71(46)−9.71(47)+1.52(48)
−1.52(51)−1.62(52)+1.62(53)+1.25(59)−1.25(60)+0.02(61)−0.02(63)+2. 64(64)−2.64(67)
−0.36(69)+0.36(71).

SECTION 7.—*Nar-Mis to Wedge-Dall*

No.

1. 0=− 0.86+(2)−(4)−(5)+(6).
2. 0=− 0.77+(1)−(3)−(14)+(15).
3. 0=− 0.45−(3)+(4)−(6)+(7)−(13)+(15).
4. 0=− 0.99−(7)+(8)−(10)+(13)−(29)+(30).
5. 0=+ 1.08−(7)+(9)−(12)+(13)−(16)+(17).
6. 0=+ 0.45−(18)+(19)−(20)+(22)−(27)+(28).
7. 0=+ 0.53−(11)+(12)−(17)+(19)−(20)+(21).
8. 0=− 0.28−(10)+(11)−(21)+(22)−(27)+(30).
9. 0=− 0.22−(22)+(24)−(26)+(27)−(31)+(32).
10. 0=+ 1.27−(23)+(24)−(31)+(33)−(38)+(39).
11. 0=− 0.12−(25)+(26)−(32)+(33)−(38)+(40).
12. 0=+ 2.11−(34)+(35)−(41)+(43)−(48)+(49).
13. 0=+ 1.82−(36)+(37)−(42)+(43)−(48)+(50).
14. 0=− 1.28−(33)+(34)−(36)+(38)−(49)+(50).
15. 0=+ 0.12−(43)+(45)−(47)+(48)−(51)+(52).
16. 0=+ 2.10−(44)+(45)−(51)+(53)−(59)+(60).
17. 0=+ 1.02−(46)+(47)−(52)+(53)−(59)+(61).
18. 0=+ 0.07−(53)+(54)−(56)+(59)−(64)+(65).
19. 0=+ 0.16−(53)+(55)−(57)+(59)−(69)+(70).
20. 0=− 1.11−(54)+(55)−(62)+(64)−(69)+(71).
21. 0=+ 0.13−(56)+(58)−(63)+(65)−(72)+(73).
22. 0=+ 1.05−(57)+(58)−(68)+(70)−(72)+(74).
23. 0=+ 0.37−(67)+(68)−(74)+(76)−(77)+(78).
24. 0=+ 1.45−(66)+(67)−(78)+(79)−(86)+(88).
25. 0=+ 0.55−(75)+(76)−(77)+(79)−(86)+(87).
26. 0=− 0. 74−(79)+(80)−(82)+(86)−(96)+(97).
27. 0=− 0.10−(79)+(81)−(85)+(86)−(89)+(90).

SECTION 7.—*Nar-Mis to Wedge-Dall*—Continued

No,

28. 0=− 0.74−(82)+(85)−(90)+(91)−(95)+(97).
29. 0=− 0.16−(82)+(84)−(94)+(97)−(98)+(99).
30. 0=+ 0.09−(83)+(84)−(98)+(101)−(102)+(103).
31. 0=+ 0.44−(93)+(94)−(99)+(101)−(102)+(104).
32. 0=+ 1.84−(100)+(101)−(102)+(105).
33. 0=+ 2.57−(92)+(93)−(104)+(106).
34. 0=+ 0.14+(3)+(10)−(15).
35. 0=− 3.13−6.65(1)+2.12(2)+1.43(5)−3.25(6)+1.82(7)+0.57(13)−4.15(14)+3.58(15).
36. 0=−17.71+0.81(7)−4.13(8)+3.32(9)+0.57(10)−9.43(12)+8.86(13)+20.43(28)
−21.90(29)+1.47(30).
37. 0=+12.92+2.19(10)−5.67(11)+3.48(12)−0.18(17)−2.09(18)+2.27(19)+3.26(27)−3.36(28)+0.10(30).
38. 0=+18.32+9.35(22)−10.55(23)+1.20(24)+1.00(31)−4.91(32)+3.91(33)+1.21(38)−5.25(39)+4.04(40).
39. 0=+ 6.53+0.50(33)−2.16(34)+1.66(35)+1.32(36)−3.94(37)+2.62(38)+3.15(48)−3.42(49)+0.27(50).
40. 0=+ 8.68+2.98(43)−3.33(44)+0.35(45)+1.77(51)−3.84(52)+2.07(53)+0.80(59)−3.26(60)+2.46(61).
41. 0=+ 1.16+2.98(53)−7.24(54)+4.26(55)+5.84(56)−5.35(57)−0.49(59)+1.10(69)−4.36(70)+3.26(71).
42. 0=+ 2.44+5.44(56)−5.35(57)−0.09(58)+0.24(68)−4.36(70)+4.12(71)+3.94(72)−8.85(73)+4.91(74).
43. 0=− 1.00+4.05(74)−5.47(75)+1.42(76)+0.27(77)−3.80(78)+3.53(79)+0.06(86)−1.37(87)+1.31(88).
44. 0=+23.19+2.28(79)−10.54(80)+8.86(81)+0.14(82)−7.38(85)+7.24(86)+32.35(95)−34.14(96)+1.79(97).
45. 0=− 6.17−1.12(93)−1.39(94)+2.51(97)+2.62(98)−1.57(99)−1.05(101)+3.87(102)−8.03(103)+4.16(104).
46. 0=+ 5.86+4.91(99)−5.98(100)+1.07(101)+1.46(102)−4.88(104)−2.92(105)+2.74(106).
47. 0=− 1.91+(25)−(30)+(36)−(40)+(46)−(50)+(57)−(61)+(66)−(70)+82−(88)+(92)−(97)−(106).
48. 0=+16.97−2.12(2)+1.43(3)−1.43(4)−1.43(5)+1.43(6)+2.34(7)−2.34(8)+2.19(10)−2.19(11)−0.57(13)
+0.57(15)−1.84(21)+3.04(22)−1.20(24)−0.06(25)+0.06(26)−1.79(29)+1.79(30)
−1.00(31)+1.00(32)+0.50(33)−0.50(35)+1.32(36)−1.32(37)−1.21(38)+1.21(40)
−1.01(41)+1.01(42)+0.35(43)−0.35(45)+0.96(46)−0.96(47)−0.27(48)+0.27(50)
−1.77(51)+1.77(52)+1.14(53)−1.14(55)+0.73(57)−0.73(58)−0.80(59)+0.80(61)+1.18(66)
−1.18(67)−2.82(69)+2.82(70)−1.68(72)+3.10(74)−1.42(76)−0.27(77)+0.27(78)+3.44(79)
−3.44(80)+3.00(82)−3.00(83)−0.06(86)+0.06(88)+1.06(92)−1.06(93)−2.03(96)
+2.03(97)−4.16(103)+4.16(104)+0.18(106).

SECTION 8.—*Fox-Agassiz north base to Glass-Coke to Holkham Bay base*

No,

1. 0=− 1.02−(1)+(3)−(13)+(14).
2. 0=+ 1.49−(2)+(4)−(5)+(6).
3. 0=+ 0.65−(3)+(4)−(5)+(7)−(12)+(13).
4. 0=+ 1.16−(7)+(9)−(11)+(12)−(15)+(16).
5. 0=+ 1.31−(8)+(9)−(15)+(17)−(23)+(24).
6. 0=+ 1.08−(7)+(8)−(10)+(12)−(24)+(25).
7. 0=− 0.55−(17)+(20)−(22)+(23)−(26)+(27).
8. 0=− 0.36−(21)+(22)−(27)+(29)−(30)+(32).
9. 0=− 0.82−(17)+(19)−(21)+(23)−(31)+(32).
10. 0=+ 0.23−(28)+(29)−(30)+(33)−(38)+(39).
11. 0= 0.00−(18)+(19)−(31)+(33)−(38)+40).
12. 0=+ 0.08−(33)+(35)−(37)−(38)−(41)+(42).
13. 0=+ 1.69−(34)+(35)−(41)+(43)−(48)+(49).
14. 0=+ 2.31−(36)+(37)−(42)+(43)−(48)+(50).
15. 0=+ 0.97−(43)+(45)−(47)+(48)−(51)+(52).
16. 0=− 0.16−(44)+(45)−(51)+(53)−(58)+(59).
17. 0=+ 0.49−(46)+(47)−(52)+(53)−(58)+(60).
18. 0=+ 0.11−(53)+(55)−(57)+(58)−(61)+(62).
19. 0=+ 0.76−(56)+(57)−(62)+(63)−(69)+(71).
20. 0=+ 0.94−(53)+(54)−(56)+(58)−(70)+(71).
21. 0=− 0.19−(63)+(64)−(68)+(69)−(76)+(77).
22. 0=+ 1.51−(67)+(68)−(77)+(79)−(83)+(84).
23. 0=+ 1.06−(66)+(67)−(84)+(85)−(86)+(88).
24. 0=+ 0.14−(66)+(68)−(77)+(78)−(87)+(88).
25. 0=− 0.10−(64)+(65)−(72)+(73)−(75)+(76).
26. 0=+ 2.96−(79)+(80)−(82)+(83)−(92)+(93).
27. 0=+ 1.50−(73)+(74)+(75)−(81)−(94)+(95).
28. 0=+ 0.82−(80)+(81)−(91)+(92)−(95)+(96).
29. 0=− 0.45−(89)+(91)−(96)+(97)−(102)+(103).
30. 0=+ 0.40−(90)+(91)−(96)+(98)−(104)+(105).
31. 0=+ 2.14−(97)+(98)−(101)+(102)−(104)+(106).
32. 0=+ 3.09−(99)+(101)−(106)+(107)−(112)+(113).
33. 0=+ 0.73−(100)+(101)−(106)+(108)−(114)+(115).
34. 0=+ 0.54−(107)+(108)−(111)+(112)−(114)+(116).
35. 0=− 1.39−(109)+(111)−(116)+(117)−(122)+(123).
36. 0=− 2.68−(110)+(111)−(116)+(118)−(124)+(125).
37. 0=− 2.29−(117)+(118)−(121)+(122)−(124)+(126).
38. 0=− 0.18−(119)+(121)−(126)+(127)−(132)+(133).
39. 0=+ 2.30−(120)+(121)−(126)+(128)−(134)+(135).
40. 0=+ 3.15−(127)+(128)−(131)+(132)−(134)+(136).
41. 0=+ 0.67−(129)+(131)−(136)+(137)−(145)+(146).
42. 0=+ 0.51−(137)+(138)−(144)+(145)−(147)+(149).
43. 0=+ 1.71−(129)+(130)−(144)+(146)−(148)+(149).
44. 0=− 2.84−(140)+(144)−(149)+(151)−(163)+(164).
45. 0=+ 1.15−(150)+(151)−(158)+(161)−(163)+(165).
46. 0=+ 1.03−(139)+(140)−(158)+(162)−(164)+(165).
47. 0=− 0.02−(141)+(144)−(149)+(152)−(155)+(156).
48. 0=+ 0.17−(139)+(141)−(156)+(157)−(159)+(162).
49. 0=− 2.14−(141)+(143)−(154)+(156)−(171)+(173).
50. 0=− 0.23−(154)+(157)−(159)+(160)−(172)+(173).
51. 0=− 0.13−(153)+(154)−(168)+(170)−(173)+(174).
52. 0=− 2.86−(141)+(142)−(153)+(156)−(169)+(170).
53. 0=+ 0.25−(167)+(168)−(174)+(176)−(177)+(178).

SECTION 8.—*Fox-Agassiz north base to Glass-Coke to Holkham Bay base*—Con.

No.

54. 0=− 1.38−(175)+(176)−(177)+(179)−(180)+(181).
55. 0=+ 0.34−(166)+(168)−(174)+(175)−(181)+(182).
56. 0=− 4.44−1.11(1)+4.03(2)−3.59(5)+4.18(6)−0.59(7)−1.62(12)+3.72(13)−2.10(14).
57. 0=− 8.02−0.38(10)+2.42(11)−2.04(12)−2.97(15)+2.78(16)+0.19(17)−2.18(23)+4.77(24)−2.59(25).
58. 0=− 2.10−0.17(21)+2.91(22)−2.74(23)−4.32(26)+2.17(27)+2.15(29)−8.21(30)+12.77(31)−4.56(32).
59. 0=− 5.06−0.77(18)+3.63(19)−2.86(20)−7.77(30)+8.21(31)−0.44(33)−1.53(38)+6.59(39)−5.06(40).
60. 0=+ 5.00+0.14(36)+2.35(37)−2.49(38)−2.13(41)+2.17(42)−0.04(43)−2.46(48)+4.74(49)−2.28(50).
61. 0=+ 4.98−0.15(46)+2.74(47)−2.59(48)−3.26(51)+2.88(52)+0.38(53)−3.11(58)+6.30(59)−3.19(60).
62. 0=+ 4.81+0.73(56)+3.32(57)−4.05(58)−3.07(61)+0.95(62)+2.12(63)−11.84(69)+16.67(70)−4.83(71).
63. 0=+ 0.04−2.07(66)+4.48(67)−2.41(68)−3.02(77)+12.32(78)−9.30(79)−7.29(86)+7.52(87)−0.23(88).
64. 0=+10.47−0.48(63)+2.87(64)−2.39(65)−2.41(67)+6.88(68)−4.47(69)+0.19(72)+0.63(73)−0.82(74)
−1.00(82)+0.47(83)+0.53(84)−1.23(91)+1.97(92)−0.74(93)−5.25(94)+6.98(95)−1.73(96).
65. 0=+ 0.12−2.72(89)+7.86(90)−5.14(91)−4.88(96)+5.56(97)−0.68(98)−3.82(101)+3.58(102)+0.24(103)
−1.11(104)+8.09(105)−6.98(106).
66. 0=+ 5.49−5.56(99)+6.93(100)−1.37(101)−1.15(106)+4.31(107)−3.16(108)−0.48(114)+3.33(115)
−2.85(116).
67. 0=− 7.06−1.94(109)+11.93(110)−9.99(111)−8.16(116)+7.58(117)+0.58(118)−7.65(121)+7.03(122)
+0.62(123)−1.88(124)+12.73(125)−10.85(126).
68. 0=− 3.89+1.56(119)−12.12(120)+10.56(121)+7.56(126)−6.36(127)−1.20(128)+7.47(131)−7.11(132)
−0.36(133)+3.19(134)−13.93(135)+10.74(136).
69. 0=+19.06+0.58(129)−9.32(130)+8.74(131)+6.61(144)−8.66(145)+2.05(146)+3.20(147)−3.30(148)
+0.10(149).
70. 0=+ 5.41−2.61(139)+1.92(140)+0.69(144)−4.26(149)+7.66(150)−3.40(151)+0.42(163)+2.51(164)
−2.93(165).
71. 0=+ 1.45−1.02(139)+3.20(141)−2.18(144)−1.22(149)+3.18(150)−1.96(152)−3.30(159)+3.92(161)
−0.62(162).
72. 0=+ 0.44+1.02(139)−3.22(141)+2.20(143)+0.44(154)−2.77(156)+2.33(157)+4.04(159)−6.06(160)
+2.02(162)+4.32(171)−7.66(172)+3.34(173).
73. 0=+18.60−4.34(141)+10.86(142)−6.52(143)−5.39(153)+4.98(154)+0.41(156)+0.08(171)+3.10(173)
−3.18(174).
74. 0=+26.37−5.82(166)+6.83(167)−1.01(168)−1.68(174)+5.47(175)−3.79(176)−0.22(177)+3.42(178)
−3.20(179).
75. 0=+ 9.05+(4)−(5)+(8)+(21)−(24)−(32)+(35)−(41)+(45)−(51)+(55)−(61)+(64)−(76)+(81)−(95)
+(98)−(104)+(107)+(110)−(112)−(125)+(128)−(134)+(138)−(147)+(152).
76. 0=+16.62+1.11(1)+1.58(3)−1.58(4)−0.59(5)+0.59(7)+2.43(8)−2.43(9)+0.38(10)−0.38(12)−2.10(13)
+2.10(14)+0.19(15)−0.19(17)+2.53(18)−2.53(19)+0.17(21)−0.17(23)−2.59(24)+2.59(25)
−4.56(31)+4.56(32)−0.14(33)+0.14(35)+1.64(36)−1.64(37)−0.51(38)+0.51(40)−2.17(41)
+2.17(42)−0.61(43)+0.61(45)+1.87(46)−1.87(47)−0.25(48)+0.25(50)−2.88(51)+2.88(52)
+0.30(53)−0.30(55)+0.50(56)−0.50(57)−0.87(58)+0.87(60)−0.95(61)+0.95(62)+0.48(63)
−0.48(64)+2.41(67)−2.41(68)−3.17(69)+3.17(71)−0.47(76)+0.47(77)+0.78(80)−0.78(81)
+1.00(82)−0.47(83)−0.53(84)+1.21(89)−1.21(91)−0.74(92)+0.74(93)−1.73(95)+1.73(96)
+0.68(97)−0.68(98)+1.37(99)−1.37(100)+0.24(102)−0.24(103)−0.41(104)+0.41(106)
+3.16(107)−3.16(108)+1.26(109)−1.26(111)−1.14(112)+1.14(113)−0.48(114)+0.48(116)
−0.58(117)+0.58(118)+1.00(119)−1.00(121)+0.62(122)−0.62(123)−1.26(124)+1.26(126)
−1.20(127)+1.20(128)+0.58(129)−0.58(131)+0.37(132)−0.37(133)−2.14(134)+2.14(136)
+0.56(137)−0.56(138)+2.20(141)−2.20(143)−2.05(145)+2.05(146)−0.10(147)+1.32(149)
−1.22(152)+4.98(153)−4.98(154)−0.52(155)+0.52(156)+1.96(167)−0.60(168)−1.36(170)
−1.31(171)+1.31(173)+3.79(175)−3.79(176)−1.62(177)+1.62(178)−0.90(180)+0.90(181).

SECTION 8a.—*Top-Spruce-Pean Bendel*

No.

1. 0=+ 1.91−(1)+(3)−(9)+(10).
2. 0=− 0.82−(2)+(4)−(5)+(6).
3. 0=− 0.82−(3)+(4)−(5)+(7)−(8)+(9).
4. 0=−11.04−4.43(3)−0.12(4)+2.67(5)−6.83(6)+4.16(7)+0.26(8)−2.91(9)+2.65(10).

SECTION 9.—*Gastineau Channel base to New Corner*

No.

1. 0=− 1.23−( )+(3)−(7)+(8)−(9)+(10).
2. 0=+ 0.18−(6)+(7)−(10)+(13)−(14)+(16).
3. 0=− 1.69−(1)+(2)−(6)+(8)−(15)+(16).
4. 0=+ 0.38−(11)+(13)−(14)+(17)−(23)+(24).
5. 0=− 2.23−(17)+(18)−(20)+(23)−(27)+(30).
6. 0=+ 1.62−(4)+(7)−(10)+(12)−(28)+(29).
7. 0=+ 0.37−(11)+(12)−(20)+(24)−(28)+(30).
8. 0=− 3.09−(17)+(19)−(21)+(23)−(32)+(34).
9. 0=+ 0.33−(18)+(19)−(25)+(27)−(32)+(35).
10. 0=− 0.62−(4)+(5)−(25)+(29)−(33)+(35).
11. 0=+ 0.08−(20)+(22)−(26)+(30)−(36)+(37).
12. 0=− 0.04−(25)+(26)−(31)+(35)−(37)+(38).
13. 0=− 7.08+2.00(1)−14.91(2)+12.91(3)+3.49(6)−4.11(7)+0.62(8)+5.44(14)−6.99(15)+1.55(16).
14. 0=− 7.57+0.60(10)−0.42(12)−0.18(13)+1.55(14)−0.97(16)−0.58(18)+4.61(27)−5.79(28).
15. 0=−21.95+0.98(11)−7.13(12)+6.15(13)+0.56(20)−5.12(23)+4.56(24)+23.52(27)−26.43(28)+2.91(30).
16. 0=− 7.32+1.75(4)−6.73(5)+4.98(6)+1.04(25)−5.65(27)+4.61(29)+11.58(32)−12.41(33)+0.83(35).
17. 0=− 8.00+0.56(20)−2.54(21)+1.98(23)+1.04(25)−3.95(27)+2.91(30)+3.97(32)−4.80(34)+0.83(35).
18. 0=− 2.73+0.73(20)−2.96(21)+2.23(22)+1.36(25)−3.66(26)+2.30(30)+3.28(31)−3.94(34)+0.66(35).

SECTION 10.—*Tantallon-Salisbury-Corner to Glass-Coke*

No.

1. 0=+ 0.32−(2)+(4)−(5)+(6).
2. 0=+ 1.75−(1)+(3)−(13)+(14).
3. 0=− 0.50−(1)+(2)−(6)+(7)−(12)+(14).
4. 0=− 0.21−(7)+(8)−(10)+(12)−(23)+(24).
5. 0=+ 1.92−(7)+(9)−(11)+(12)−(15)+(16).
6. 0=− 1.99−(10)+(11)−(16)+(17)−(22)+(24).
7. 0=− 0.03−(17)+(19)−(21)+(22)−(25)+(26).
8. 0=+ 0.52−(20)+(21)−(26)+(27)−(32)+(34).
9. 0=− 0.64−(17)+(18)−(20)+(22)−(33)+(34).
10. 0=− 0.30−(27)+(29)−(35)+(36)−(31)+(32).
11. 0=− 0.16−(28)+(29)−(35)+(37)−(44)+(45).
12. 0=− 1.11−(30)+(31)−(36)+(37)−(44)+(46).
13. 0=+ 0.73−(37)+(38)−(41)+(44)−(50)+(51).
14. 0=+ 1.22−(37)+(39)−(43)+(44)−(52)+(53).
15. 0=− 0.90−(41)+(43)−(49)+(51)−(53)+(54).
16. 0=− 0.37−(41)+(42)−(47)+(51)−(57)+(58).
17. 0=− 0.81−(47)+(48)−(55)+(58)−(64)+(65).
18. 0=+ 0.06−(55)+(56)−(59)+(62)−(63)+(65).
19. 0=− 0.72−(60)+(62)−(63)+(66)−(71)+(72).
20. 0=− 0.10−(66)+(67)−(70)+(71)−(73)+(75).
21. 0=− 0.54−(60)+(61)−(70)+(72)−(74)+(75).
22. 0=+ 0.29−(55a)+(56)−(59)+(61)−(74)+(74a).
23. 0=+ 0.53−(69)+(70)−(75)+(77)−(78)+(79).
24. 0=+ 0.01−(68)+(69)−(79)+(82)−(83)+(85).
25. 0=+ 1.34−(68)+(70)−(75)+(76)−(84)+(85).
26. 0=+ 0.90−(80)+(82)−(83)+(87).
27. 0=+ 2.21−(80)+(81)−(86)+(87).
28. 0=+19.74+2.80(1)−3.77(2)−3.76(3)+3.19(4)+1.50(12)−1.82(13)+0.32(14).
29. 0=− 9.90+0.88(7)−3.34(8)+2.46(9)+1.54(10)−3.43(11)+1.89(12)+2.94(22)−3.56(23)+0.62(24).
30. 0=+11.55+1.15(17)−3.68(18)+2.53(19)+0.82(20)−3.54(21)+2.72(22)+4.96(32)−6.13(33)+1.17(34).
31. 0=+13.47+6.06(27)−7.92(28)+1.86(29)+0.71(35)−4.26(36)+3.55(37)+0.23(44)−2.58(45)+2.35(46).
32. 0=+ 8.80+1.24(37)−26.02(38)+24.78(39)+4.64(41)−5.67(43)+1.03(44)+12.39(49)−14.50(50)+2.11(51).
33. 0=− 4.98+1.75(70)−4.68(71)+2.93(72)+0.41(60)−2.92(61)+2.51(62)+3.81(73)−4.30(74)+0.49(75).
34. 0=− 3.66−1.63(55)−0.48(55a)+2.11(56)+4.02(63)−2.90(65)−1.12(67)+4.30(73)−9.73(74)+5.43(74a).
35. 0=+14.29+2.25(68)−3.68(69)+1.43(70)+1.37(75)−7.55(76)+6.18(77)+4.69(83)−5.93(84)+1.24(85).
36. 0=− 2.24−1.54(80)+8.47(81)−6.93(82)+6.59(86)−1.85(87).
37. 0=+ 2.97+(4)−(5)+(9)−(15)+(19)−(25)+(29)−(35)+(38)+(48)−(50)−(64)+(67)−(73)+(77)−(78)
+(81)−(86).
38. 0=− 0.38+2.80(1)−2.80(2)−0.57(4)−2.52(5)+2.52(6)+0.88(7)−0.88(9)+1.54(10)−1.54(11)−0.32(12)
+0.32(14)−1.01(15)+1.01(16)+1.15(17)−1.15(19)+0.82(20)−0.82(21)−0.62(22)+0.62(24)
−0.33(25)+0.33(26)+1.86(27)−1.86(29)+0.95(30)−0.95(31)−1.17(32)+1.17(34)−0.71(35)
+0.71(36)+1.48(37)−1.48(38)+8.48(41)−8.48(42)−0.23(44)+0.23(46)+1.90(47)−1.90(48)
−2.83(50)+2.83(51)+1.73(55a)−1.73(55)−3.89(57)+3.89(58)−3.35(64)+3.35(65)+1.60(66)
−1.60(67)+2.25(68)−2.25(69)−1.75(70)+1.75(71)−1.94(73)+1.94(74a)+1.37(75)−1.37(77)
−0.88(78)+0.88(79)+1.54(80)−1.54(82)−1.24(83)+1.24(85)+1.85(87).

SECTION 11.—*Tantallon-Corner to Horse-Eagle to Young Bay base*

No.

1. 0=− 1.88−(1)+(3)−(8)+(9).
2. 0=− 0.07−(2)+(4)−(12)+(13).
3. 0=+ 0.60−(3)+(4)−(5)+(8)−(12)+(14).
4. 0=− 1.28−(5)+(7)−(11)+(14)−(15)+(16).
5. 0=+ 0.20−(10)+(11)−(16)+(19)−(20)+(22).
6. 0=− 0.58−(5)+(6)−(10)+(14)−(21)+(22).
7. 0=− 0.66−(17)+(19)−(20)+(23)−(28)+(29).
8. 0=− 0.96−(17)+(18)−(25)+(29)−(36)+(37).
9. 0=− 0.97−(23)+(24)−(25)+(28)−(35)+(37).
10. 0=+ 0.14−(25)+(26)−(33)+(37)−(42)+(43).
11. 0=− 0.07−(25)+(27)−(34)+(37)−(38)+(39).
12. 0=+ 0.25−(33)+(34)−(39)+(40)−(41)+(43).
13. 0=− 0.10−(31)+(33)−(43)+(44)−(49)+(50).
14. 0=− 0.35−(39a)+(40)−(41)+(44)−(49)+(49a).
15. 0=+ 2.61−(31)+(32)−(48)+(50)−(56)+(57).
16. 0=− 0.03−(46)+(48)−(57)+(58)−(64)+(65).
17. 0=+ 0.93−(58)+(59)−(60)+(62)−(63)+(64).
18. 0=+ 0.72−(46)+(47)−(61)+(62)−(63)+(65).
19. 0=+ 0.24+(48)−(54)−(57)+(57a)−(66)+(67).
20. 0=− 0.95−(53)+(54)−(67)+(68)−(69)+(70).
21. 0= 0.00+(48)−(53)+(55)−(57)−(69a)+(70).
22. 0=+ 0.19−(30)+(32)+(55a)−(56)−(69a)+(71).
23. 0=− 0.37−(51)+(53)−(70)+(72)−(78)+(79).
24. 0=− 1.55−(52)+(53)−(70)+(73)−(74)+(75).
25. 0=+ 0.43−(72)+(73)−(77)+(78)−(74)+(76).
26. 0=− 2.91−6.91(1)+9.47(2)+2.46(3)−1.91(4)+0.42(5)+1.46(8)−1.88(9)−6.71(12)+15.38(13)−8.67(14).
27. 0=+ 0.42+2.04(5)−8.01(6)+5.97(7)+1.71(10)−3.03(11)+1.32(14)+4.72(20)−5.96(21)+1.24(22).
28. 0=−19.20−5.24(17)+8.95(18)−3.71(19)−0.07(20)+2.07(23)−2.00(24)+0.04(25)+2.41(28)−2.45(29)
−7.31(35)+11.57(36)−4.26(37).
29. 0=+12.56+5.84(25)−13.70(26)+7.86(27)+1.29(33)−2.10(34)+0.81(37)+0.53(38)−1.55(39)+1.02(40)
+4.58(41)−7.87(42)+3.29(43).
30. 0=− 1.07+1.05(31)−2.34(33)+1.29(34)+3.01(39)−6.77(39a)+3.76(40)+1.36(41)−2.02(43)+0.66(44)
+5.49(49)−10.45(49a)+4.96(50).
31. 0=+ 3.19−3.77(46)+9.16(47)−5.39(48)+2.20(58)−2.20(59)−4.54(60)+5.47(61)−0.93(62)−2.09(63)
+4.66(64)−2.57(65).
32. 0=−12.51+6.34(30)−8.58(31)+2.24(32)+5.66(55)+2.00(56)−7.66(57)+4.25(69a)−8.74(70)+4.49(71).
33. 0=− 2.81−5.66(55)+4.09(57)+1.57(57a)+1.22(66)−3.00(67)+1.78(68).

SECTION 11.—*Tantallon-Corner to Horse-Eagle to Young Bay base*—Continued

No.

34. 0=− 5.11+4.98(51)−6.91(52)+1.93(53)+0.29(70)−4.13(72)+3.84(73)−0.11(74)−1.51(75)+1.62(76).
35. 0=+ 1.17+(4)+(10)−(12)−(22)+(24)+(31)−(35).
36. 0=+19.03+1.40(1)+1.91(3)−1.91(4)+2.04(5)−2.04(7)−1.88(8)+1.88(9)+1.71(10)−1.71(11)−3.50(12)
+3.50(14)−0.52(15)+0.52(16)+1.68(17)−1.68(19)−1.24(20)+1.24(22)+2.00(23)−2.00(24)
+3.03(25)−3.03(27)−2.45(28)+2.45(29)+2.24(31)−2.24(32)−2.31(35)+2.31(37)−0.53(38)
+1.55(39)−1.02(40)−1.36(41)+2.02(43)−0.66(44)−2.18(49)+2.18(50)+1.93(51)−1.93(53)
−2.00(56)+3.57(57)−1.57(57a)−1.22(66)+3.00(67)−1.78(68)−1.03(69)+1.03(70)+3.84(72)
−3.84(73)+0.11(74)−0.11(76)−1.75(78)+1.75(79).

SECTION 12.—*Horse-Eagle to Little-Sentinel to Eagle River base*

No.

1. 0=− 0.12−(2)+(4)−(5)+(6).
2. 0=+ 1.16−(1)+(3)−(13)+(14).
3. 0=+ 0.05−(3)+(4)−(5)+(7)−(12)+(13)
4. 0=+ 0.11−(7)+(9)−(11)+(12)−(20)+(21).
5. 0=− 0.01−(8)+(9)−(17)+(18)−(20)+(22).
6. 0= 0.00−(7)+(8)−(10)+(12)−(18)+(19).
7. 0=+ 0.45−(15)+(17)−(22)+(23)−(28)+(29).
8. 0=− 0.66−(16)+(17)−(22)+(26)−(30)+(31).
9. 0=+ 0.19−(15)+(16)−(27)+(29)−(31)+(32).
10. 0=+ 0.54−(25)+(26)−(30)+(34)−(42)+(43).
11. 0=+ 0.63−(24)+(26)−(30)+(33)−(38)+(39).
12. 0=− 1.33−(33)+(34)−(37)+(38)−(42)+(44).
13. 0=− 0.72−(35)+(36)−(47)+(48)−(50)+(52).
14. 0=+ 0.55−(34)+(35)−(40)+(42)−(48)+(49).
15. 0=+ 1.32−(40)+(41)−(47)+(49)−(51)+(52).
16. 0=+ 1.95−(45)+(47)−(52)+(53)−(58)+(59).
17. 0=− 0.38−(46)+(47)−(52)+(54)−(60)+(61).
18. 0=− 0.68−(53)+(54)−(57)+(58)−(60)+(62).
19. 0=+ 0.90−(55)+(56)−(66)+(67)−(72)+(74).
20. 0=+ 1.34−(55)+(57)−(62)+(63)−(73)+(74).
21. 0=− 0.69−(56)+(57)−(62)+(64)−(65)+(66).
22. 0=+ 1.03−(67)+(69)−(70)+(72)−(84)+(86).
23. 0=+ 1.36−(67)+(68)−(71)+(72)−(80)+(81).
24. 0=− 0.49−(70)+(71)+(77)−(81)−(85)+(86).
25. 0=+ 1.29−(77)+(79)−(83)+(85)−(89)+(90).
26. 0=+ 0.20−(78)+(79)−(89)+(91)−(92)+(93).
27. 0=+ 0.11−(77)+(78)−(82)+(85)−(93)+(94).
28. 0=+ 0.50−(75)+(77)−(85)+(87)−(96)+(97).
29. 0=+ 0.66−(76)+(77)−(85)+(88)−(98)+(99).
30. 0=− 0.97−(75)+(76)−(95)+(97)−(99)+(100).
31. 0=−22.85−0.73(1)+4.57(2)+4.58(3)−0.89(4)−1.50(5)+5.01(6)−3.51(7)−4.06(12)+5.79(13)−1.73(14).
32. 0=− 0.94+1.72(7)−4.74(8)+3.02(9)+3.32(10)−3.45(11)+0.13(12)+0.22(20)−2.13(21)+1.91(22).
33. 0=− 3.19+4.02(22)−3.00(23)−1.02(26)−0.79(27)−1.38(28)+2.17(29)+4.18(30)−10.39(31)+6.21(32).
34. 0=+36.39+17.72(24)−22.71(25)+4.99(26)+1.47(30)−3.46(33)+1.99(34)+1.06(37)−0.87(38)−0.19(39)
+1.46(42)−9.51(43)+8.05(44).
35. 0=+10.18+2.56(34)−2.32(35)−0.24(36)−0.28(47)−3.62(48)+3.90(49)+4.60(50)−7.75(51)+3.15(52).
36. 0=+ 3.68+1.35(45)−5.11(46)+3.76(47)+4.63(52)−5.00(53)+0.37(54)+3.02(57)−3.83(58)+0.81(59)
+2.01(60)−8.02(61)+6.19(62).
37. 0=+ 4.39+0.39(55)−3.53(56)+3.14(57)+2.02(65)−2.26(66)+0.24(67)+2.75(72)−4.32(73)+1.57(74).
38. 0=+15.97+4.42(67)−6.97(68)+2.55(69)+2.08(70)−7.06(71)+4.98(72)+5.58(84)−9.91(85)+4.33(86).
39. 0=+13.86+1.77(77)−3.38(78)+1.61(79)+4.88(82)−9.64(33)+4.76(85)+1.55(89)−5.02(90)+3.47(91)
+2.29(92)−2.55(93)+0.26(94).
40. 0=− 3.62+4.57(75)−7.62(76)+3.05(77)+1.06(85)−2.46(87)+1.40(88)+0.57(95)−1.92(96)+1.35(97)
+4.35(98)−9.27(99)+4.92(100).
41 0=+ 1.23+(4)−(5)+(9)−(20)+(26)−(30)+(36)−(50)+(54)−(60)+(64)−(65)+(69)−(84)+(88).
42. 0=+ 3.94+0.73(1)−0.73(2)+0.25(4)−1.50(5)+1.50(6)+0.16(7)−0.16(9)+3.45(10)−3.45(11)−0.45(12)
+0.45(14)+0.06(15)+0.47(17)−0.53(19)−2.57(20)+2.57(21)+3.70(24)−3.70(26)+1.55(27)
−2.93(28)+1.38(29)−2.07(30)+2.07(32)+1.51(35)−1.51(36)+1.06(37)−0.87(38)−0.19(39)
−0.66(40)−0.11(42)+0.77(44)+0.12(45)−0.12(47)−3.62(48)+3.62(49)−1.30(50)+1.30(52)
+0.37(53)−0.37(54)+0.39(55)−0.39(57)−0.81(58)+0.81(59)−0.98(60)+0.98(62)+1.27(63)
−1.27(64)−0.24(65)+1.21(67)−0.97(69)+2.08(70)−2.08(71)−1.57(73)+1.57(74)−0.71(77)
+1.61(78)−1.61(79)+0.71(81)+1.94(82)−1.99(84)−1.94(85)+1.99(86)−0.19(89)+0.19(91)
−0.26(93)+0.26(94).

SECTION 13.—*Little-Sentinel to Kal-Twin to Glacier Point base*

No.

1. 0=− 0.07−(2)+(4)−(5)+(6).
2. 0=− 1.27−(1)+(3)−(13)+(14).
3. 0=− 0.14−(1)+(2)−(6)+(7)−(12)+(14).
4. 0=+ 0.67−(7)+(8)−(10)+(12)−(18)+(19).
5. 0=− 0.04−(8)+(9)−(17)+(18)−(20)+(22).
6. 0=+ 1.77−(7)+(9)−(11)+(12)−(20)+(21).
7. 0=− 0.47−(15)+(17)−(22)+(23)−(28)+(29).
8. 0=+ 1.98−(15)+(16)−(27)+(29)−(31)+(32).
9. 0=+ 1.19−(23)+(24)−(27)+(28)−(30)+(32).
10. 0=− 0.26−(25)+(27)−(32)+(33)−(39)+(40).
11. 0=− 0.57−(25)+(26)−(38)+(40)−(42)+(43).
12. 0=− 0.37−(33)+(34)−(38)+(39)−(41)+(43).
13. 0=− 0.90−(37)+(38)−(43)+(45)−(46)+(47).
14. 0=+ 0.77−(35)+(37)−(47)+(48)−(53)+(55).
15. 0=− 0.31−(35)+(38)−(43)+(44)−(54)+(55).
16. 0=− 1.23−(48)+(49)−(52)+(53)−(56)+(58).
17. 0=− 0.69−(35)+(36)−(52)+(55)−(57)+(58).
18. 0=+ 2.30−(51)+(52)−(58)+(60)−(62)+(63).

SECTION 13.—*Little-Sentinel to Kal-Twin to Glacier Point base*—Continued

No.

19. 0=+ 1.75−(59)+(60)−(62)+(64)−(68)+(69).
20. 0=− 0.49−(50)+(52)−(58)+(59)−(69)+(70).
21. 0=− 0.84−(59)+(61)−(67)+(69)−(71)+(73).
22. 0=− 0.99−(60)+(61)+(62)−(66)−(71)+(72).
23. 0=− 3.04−(64a)+(66)−(72)+(75)−(87)+(89).
24. 0=− 2.63−(65)+(66)−(72)+(74)−(81)+(82).
25. 0=− 1.16−(74)+(75)−(80)+(81)−(87)+(88).
26. 0=+ 0.51−(75)+(78)−(84)+(87)−(94)+(96).
27. 0=+ 0.33−(75)+(79)−(85)+(87)−(90)+(91).
28. 0=+ 0.80−(78)+(79)−(90)+(92)−(93)+(94).
29. 0=+ 1.49−(75)+(77)−(86)+(87)−(97)+(98).
30. 0=+ 0.59−(76)+(77)−(97)+(99)−(111)+(112).
31. 0=− 0.32−(83)+(86)−(98)+(99)−(111)+(113).
32. 0=+ 1.74−(99)+(100)−(107)+(108)−(109)+(111).
33. 0=+ 0.51−(99)+(101)−(103)+(104)−(110)+(111).
34. 0=+ 0.05−(104)+(105)−(106)+(108)−(109)+(110).
35. 0=+ 1.45−2.79(3)+0.36(4)+3.71(5)−5.87(6)+2.16(7)+0.06(12)−4.40(13)+4.34(14).
36. 0=+ 3.89+4.30(7)−5.05(8)+0.75(9)+2.73(10)−3.17(11)+0.44(12)+1.73(20)−10.12(21)+8.39(22).
37. 0=− 5.70+4.64(15)−10.13(16)+5.49(17)−1.46(22)−1.21(23)+2.67(24)+2.97(27)−1.69(28)−1.28(29).
38. 0=+ 3.08+1.69(25)−22.76(26)+21.07(27)+5.03(32)−4.87(33)−0.16(34)+15.39(38)−15.01(39)−0.38(40)
+1.36(41)−6.95(42)+5.59(43).
39. 0=− 4.53+1.54(35)−13.50(37)+11.96(38)+29.14(53)−31.84(54)+2.70(35)−0.76(43)−3.96(44)+4.72(45).
40. 0=+ 2.04+1.54(35)−4.06(36)+2.52(37)+1.45(52)−4.16(53)+2.71(55)+4.32(56)−4.49(57)+0.17(58).
41. 0=− 0.03+2.07(50)−2.60(51)+0.53(52)+3.46(58)−6.38(59)+2.92(60)−0.73(62)−3.23(63)+3.96(64).
42. 0=−22.20+2.92(59)−7.15(60)+4.23(61)+2.60(67)−5.58(68)+2.98(69)+6.59(71)−10.93(72)+4.34(73).
43. 0=−17.70+3.54(64a)−7.03(65)+3.49(66)+2.92(72)−5.77(74)+2.85(75)+4.90(87)−9.95(88)+5.05(89).
44. 0=+ 9.42+1.15(75)−4.64(78)+3.49(79)+5.21(84)−5.57(85)+0.36(87)+1.25(90)−3.42(91)+2.17(92).
45. 0=+10.00+1.90(75)−4.76(76)+2.86(77)+0.92(83)−2.72(86)+1.80(87)+3.71(111)−4.74(112)+1.03(113).
46. 0=− 7.34+1.07(99)−4.11(100)+3.04(101)+5.05(106)−4.62(107)−0.43(108)+2.79(109)−6.45(110)
+3.66(111).
47. 0=+ 1.51+(4)−(5)+(9)−(20)+(24)−(30)+(34)−(41)+(45)−(46)+(49)−(56)+(60)−(62)+(63).
48. 0=+12.41+1.95(1)−1.95(2)−0.36(4)−3.71(5)+3.71(6)+0.75(8)−0.75(9)+0.44(10)−0.50(12)+0.06(14)
+2.08(15)−2.08(17)−0.55(18)+0.55(19)−1.73(20)+1.73(22)+1.21(23)−1.21(24)+1.36(25)
−1.36(27)−0.76(28)+0.76(29)−0.83(30)+0.83(32)−0.16(33)+0.16(34)+1.54(35)−1.54(37)
+0.38(39)−0.38(40)−0.46(41)−0.30(43)+0.76(45)−1.21(46)+1.21(47)+2.59(48)−2.59(49)
+0.53(50)−0.53(52)−2.71(53)+2.71(55)−0.17(56)+0.17(58)+4.23(60)−4.23(61)−2.17(62)
+1.13(64a)+1.04(66)+0.60(67)−1.26(69)+0.66(70)−2.21(71)+2.21(73)+1.90(75)−1.90(77)
+0.92(83)−0.92(86)−2.04(87)+2.04(89)−0.28(97)+0.28(98)+2.92(99)−2.92(100)−0.48(107)
+0.48(108)−1.03(111)+1.03(113).

SECTION 14.—*Kal-Twin to Tai-Skag*

No.

1. 0=− 2.69−(2)+(3)−(19)+(20).
2. 0=− 2.14−(1)+(4)−(14)+(16).
3. 0=+ 0.05−(1)+(2)−(15)+(16)+(17)−(20).
4. 0=+ 1.64−(3)+(5)−(6)+(7)−(18)+(19).
5. 0=− 0.33−(4)+(5)−(6)+(8)−(13)+(14).
6. 0=+ 0.62−(8)+(9)−(11)+(13)−(29)+(30).
7. 0=− 1.30−(8)+(10)−(12)+(13)−(21)+(22).
8. 0=+ 1.34−(11)+(12)−(22)+(23)−(28)+(30).
9. 0=− 0.17−(23)+(24)−(26)+(28)−(35)+(36).
10. 0=− 4.24−(24)+(25)−(31)+(33)−(34)+(35).
11. 0=− 2.02−(26)+(27)−(32)+(33)−(34)+(36).
12. 0=−55.78−8.28(1)+9.03(2)+8.28(3)−6.78(4)+20.78(15)−12.17(16).
13. 0=+12.05−2.05(3)+3.89(4)−1.84(5)−0.90(13)+2.30(14)−1.40(15)−1.49(17)+1.33(18)+0.16(19).
14. 0=+12.71−0.56(8)+4.60(9)−4.04(10)−3.60(11)+4.93(12)−1.33(13)+0.74(21)+0.91(22)−1.65(23).
15. 0=+ 8.30−0.40(26)−1.08(27)+1.48(28)+3.39(31)−3.02(32)−0.37(33)+1.87(34)−5.72(35)+3.85(36).

SECTION 15.—*Trouble-Farm to Top-Fanshaw*

No.

1. 0= 0.00−(1a)−(1b)+(2a)+(2b)−(3a)−(3b)−(4a)−(4b)+(5a)+(5b)−(6a)−(6b)+(7a)+(7b)−(8a)
−(8b)−(9a)−(9b)+(10a)+(10b)−(11a)−(11b)−(12a)−(12b)−(13a).
2. 0= 0.00−(13b)−(14a)−(14b)+(15a)+(15b)−(16a)−(16b)+(17a)+(17b)+(18a)+(18b)−(19a)−(19b)
−(20a)−(20b)−(21a)−(21b)+(22a)+(22b)+(23a)+(23b)−(24a)−(24b)+(25a)+(25b)
−(26a)−(26b).
3. 0=+10.00+1.50(1a)+0.05(1b)+2.31(2a)−4.25(2b)+1.49(3a)−0.03(3b)+0.93(4a)−2.67(4b)+2.89(5a)
+0.81(5b)−0.57(6a)−1.90(6b)+3.89(7a)−1.71(7b)+0.18(8a)−0.62(8b)+1.47(9a)−3.52(9b)
+2.15(10a)+0.10(10b)+0.27(11a)−1.31(11b)+3.21(12a)+0.56(12b).
4. 0=−10.00+0.81(13a)−1.30(13b)+1.10(14a)−2.10(14b)+1.58(15a)−0.59(15b)+0.38(16a)−2.59(16b)
+2.44(17a)+0.19(17b)−0.37(18a)−2.17(18b)+1.80(19a)−2.59(19b)+1.90(20a)−1.53(20b)
−0.14(21a)−2.28(21b)+1.73(22a)−0.04(22b)−0.62(23a)−2.88(23b)+1.87(24a)−0.87(24b)
+0.30(25a)−0.95(25b)+0.50(26a)−3.16(26b).
5. 0= 0.00−29.61(1a)−77.25(1b)+145.94(2a)−65.75(2b)−28.93(3a)−69.75(3b)−43.97(4a)−140.63(4b)
+129.69(5a)+76.08(5b)−77.00(6a)−109.02(6b)+144.30(7a)+11.24(7b)−47.59(8a)−66.60(8b)
−23.69(9a)−125.33(9b)+82.65(10a)+44.43(10b)−45.38(11a)−72.24(11b)+4.60(12a)−40.45(12b)
−34.96(13a)−66.27(13b)−30.66(14a)−78.14(14b)+62.87(15a)+30.87(15b)−38.70(16a)
−75.68(16b)+62.41(17a)+36.18(17b)+29.65(18a)+8.66(18b)−23.27(19a)−56.81(19b)
−16.02(20a)−35.81(20b)−27.79(21a)−40.14(21b)+32.71(22a)+15.04(22b)+9.24(23a)−13.30(23b)
−3.59(24a)−9.35(24b)+0.60(25a)−8.95(25b).
6. 0= 0.00+231.26(1a)+130.92(1b)+19.47(2a)−391.39(2b)+194.28(3a)+102.37(3b)+160.42(4a)−57.27(4b)
+39.97(5a)−60.76(5b)+61.79(6a)−12.02(6b)+84.81(7a)−169.99(7b)+100.38(8a)+63.98(8b)
+148.19(9a)−86.54(9b)+7.96(10a)−68.59(10b)+77.79(11a)+8.54(11b)+206.55(12a)+90.50(12b)
+90.96(13a)+4.01(13b)+102.91(14a)−28.96(14b)−2.39(15a)−77.71(15b)+62.79(16a)
−50.37(16b)+27.45(17a)−39.58(17b)−56.26(18a)−109.88(18b)+88.09(19a)−54.46(19b)
+67.36(20a)−13.83(20b)+19.08(21a)−31.58(21b)−15.30(22a)−39.26(22b)−47.11(23a)
−77.72(23b)+20.49(24a)+2.41(25b)−30.08(25a)−28.23(25b).

COMPUTED CORRECTIONS TO OBSERVED DIRECTIONS

A least-squares solution of the preceding condition equations resulted in the following corrections to the observed directions:

CORRECTIONS TO OBSERVED DIRECTIONS

SECTION 1. DRY STRAIT BASE TO AGASSIZ BASE

Number of direction	Correction to direction	Number of direction	Correction to direction	Number of direction	Correction to direction	Number of direction	Correction to direction
	″		″		″		″
1	+0.527	26	−0.554	51	−0.250	76	−0.145
2	−0.343	27	+0.562	52	+0.478	77	−0.099
3	+0.492	28	−0.008	53	−0.736	77a	−0.154
4	−0.675	29	+0.493	54	−0.469	78	+0.398
5	−0.532	30	−0.558	55	+0.610	79	−0.484
						80	−0.232
6	+1.296	31	+0.428	56	−0.072		
7	−0.809	32	−0.016	57	−0.839	81	+0.717
8	+0.045	33	−0.348	58	+0.941	82	−0.391
9	−1.432	34	−0.464	59	−0.171	83	+0.282
10	+0.553	35	−0.034	60	−0.232	84	+0.211
						85	−0.101
11	−1.395	36	+0.265	61	+0.132		
12	−0.278	37	−0.770	62	+0.035		
13	−0.705	38	+1.004	63	+0.065		
14	−0.026	39	+0.039	64	+0.078		
15	+0.493	40	+0.562	65	−1.063		
16	−0.028	41	−0.255	66	+0.981		
17	−0.377	42	−0.813	67	+0.259		
18	+1.870	43	+0.468	68	+0.698		
19	−0.103	44	−0.046	69	−0.953		
20	−1.362	45	−1.111	70	−0.626		
21	+0.375	46	+0.557	71	+0.012		
22	−0.018	47	+0.316	72	+0.647		
23	+0.249	48	+0.284	73	−0.396		
24	−0.831	49	+0.345	74	−0.585		
25	+0.224	50	+0.164	75	+0.949		

SECTION 2. ZAREMBO ISLAND BASE

1	−0.459	6	−0.294	11	+0.173	17	−0.776
2	+0.460	7	−0.505	12	+1.401	18	−0.434
3	−0.815	8	+0.800	13	−1.401	19	+0.670
4	+0.021	9	−0.459	15	−0.202	20	−0.603
5	+0.297	10	+0.285	16	+0.202	21	+1.144
5a	+0.496					x	−0.74

SECTION 3. FARM-ROTH TO ZAREMBO ISLAND BASE TO HAR-GRANITE

1	−0.658	21	−0.030	41	+0.740	60	−0.091
2	−0.059	22	+0.106	42	+0.023	61	+0.831
3	−0.656	23	+0.957	43	+0.043	62	+0.540
4	−1.045	24	+0.485	44	−0.233	63	+0.469
5	+1.464	25	−0.027	45	−0.123	64	−0.677
6	+0.171	26	−1.377	46	−1.083	65	+0.207
7	+0.083	27	−0.717	47	−0.792	66	+0.080
8	−0.529	28	+0.217	48	−0.004	67	−0.207
9	−0.095	29	−0.407	49	+0.791	68	+0.127
10	−1.119	30	−0.148	50	−0.669	69	+1.469
11	+0.025	31	+0.556	51	−0.391	70	+0.003
12	−0.753	32	−0.923	52	−0.954	71	+0.240
13	−0.288	33	−0.176	53	+0.567	72	−0.241
14	−0.255	34	+0.017	54	+0.201	73	−1.471
15	+1.809	35	+0.581	55	+0.563	74	−1.200
16	−0.514	36	+0.501	56	+0.686	75	+0.708
17	−1.022	37	−0.619	57	−0.203	76	+0.492
18	+0.867	38	+0.438	58	−1.041	77	−0.384
19	+0.155	39	+0.191	58a	−0.075	78	−0.016
20	+0.386	40	+0.634	59	+0.039	79	+0.400

CORRECTIONS TO OBSERVED DIRECTIONS—Continued

SECTION 3a.—GREY-LEE TO RYN-KAD

Number of direction	Correction to direction	Number of direction	Correction to direction	Number of direction	Correction to direction	Number of direction	Correction to direction
	″		″		″		″
1	−0.142	4	+0.820	7	+0.124	10	+0.616
2	−1.039	5	−0.343	8	+0.244		
3	−0.020	6	+0.219	9	−0.860		

SECTION 4. HAR-GRANITE TO LUCK POINT BASE

1	−0.157	26	−0.813	51	+0.352	75	−0.340
2	+0.236	27	−0.663	52	−0.332	76	+0.083
3	−0.231	28	+0.637	53	−0.212	77	−0.567
4	+0.220	29	+0.391	54	−0.296	78	+0.079
5	+0.061	30	−0.028	55	−0.324	79	+0.101
6	−0.672	31	+0.494	56	+0.812	80	−0.553
7	−0.923	32	−0.265	57	−0.702	81	−0.560
8	+0.441	33	+0.783	58	+0.711	82	+0.933
9	+1.093	34	−0.984	59	+0.446	83	+0.284
10	+0.213	35	+0.133	60	−0.310	84	−0.027
11	+0.340	36	−0.856	61	−0.050	85	−0.783
12	−0.635	37	−0.617	62	−0.096	86	+0.527
13	+0.225	38	+0.194	63	−0.124	87	+0.126
14	−0.143	39	+0.534	64	−0.677	88	−1.086
15	+0.262	40	+0.613	65	−0.061	89	+0.938
16	+0.086	41	−0.289	66	+0.063	90	+0.023
17	−1.084	42	−0.539	67	+0.789	91	+0.057
18	+0.346	43	−0.264	68	−0.111	92	+0.341
19	+0.139	44	+0.729	69	−0.238	93	−0.399
20	−0.057	45	+0.612	70	+0.218		
21	+0.773	46	−0.258	71	−0.013		
22	+0.651	47	+0.372	72	+0.144		
23	−0.484	48	−0.595	73	+0.063		
24	−0.883	49	−0.240	74	−0.782		
25	+0.447	50	+0.463	74a	+1.543		

SECTION 5. LUCK (LUCK POINT SOUTH BASE)-STANHOPE TO NAR-MIS

1	+0.566	9	−0.952	17	−0.580	25	−0.335
2	−0.146	10	−0.589	18	+0.413	26	−0.367
3	−0.115	11	+1.651	19	+0.177	27	+0.701
4	+0.476	12	−0.228	20	−0.013	28	−0.428
5	−0.207	13	−0.587	21	+0.707	29	+0.573
6	−0.140	14	−0.247	22	−0.648	30	−0.145
7	−0.518	15	−0.526	23	+0.795		
8	+1.817	16	+0.516	24	−0.841		

SECTION 6. CHACON-DUNDAS TO WEDGE-DALL TO METLAKATLA BASE

1	+0.253	21	−0.730	41	−0.410	61	+0.006
2	−0.253	22	+0.556	42	−1.219	62	−0.108
3	+0.237	23	+1.062	43	−0.083	63	+1.128
4	−0.141	24	−0.854	44	+1.708	64	−0.567
5	−0.096	25	−0.035	45	−0.174	65	−0.974
6	−0.598	26	+0.214	46	−0.244	66	+1.111
7	−0.861	27	−0.390	47	+0.012	67	+0.677
8	+0.085	28	+0.192	48	+0.839	68	−0.246
9	+1.170	29	−0.141	49	−1.490	69	+0.027
10	+0.553	30	−0.498	50	−0.585	70	−0.961
11	−0.350	31	+0.460	51	+0.540	71	+0.934
12	+0.020	32	−0.119	52	−0.023		
13	−0.984	33	+0.282	53	+0.718		
14	+0.091	34	+0.425	54	−0.480		
15	+0.434	35	+0.290	55	−0.372		
16	+0.440	36	−0.589	56	+0.037		
17	−0.436	37	−0.677	57	+1.417		
18	−0.296	38	+0.550	58	−0.602		
19	+0.383	39	+0.058	59	−0.381		
20	+0.349	40	+0.352	60	−0.644		

CORRECTIONS TO OBSERVED DIRECTIONS—Continued

SECTION 7. NAR-MIS TO WEDGE-DALL

Number of direction	Correction to direction	Number of direction	Correction to direction	Number of direction	Correction to direction	Number of direction	Correction to direction
	″		″		″		″
1	+0.174	31	+0.293	61	−0.465	91	+0.214
2	+0.982	32	−0.094	62	−0.398	92	+0.682
3	−0.167	33	−0.827	63	−0.092	93	−0.438
4	+0.066	34	+0.975	64	+0.679	94	−0.443
5	−0.125	35	−0.349	65	−0.190	95	−0.012
6	−0.184	36	−0.404	66	+0.107	96	+0.481
7	+0.017	37	+0.148	67	−0.121	97	−0.270
8	+0.602	38	−0.076	68	−0.240	98	+0.262
9	−0.314	39	+0.197	69	+0.414	99	−0.274
10	−0.096	40	+0.135	70	−0.285	100	+0.261
11	+1.130	41	+0.220	71	+0.124	101	−0.249
12	−0.216	42	+0.960	72	+0.490	102	+0.992
13	−0.143	43	−1.164	73	+0.260	103	+0.214
14	−0.552	44	+0.512	74	−0.127	104	+0.536
15	−0.122	45	−0.528	75	−0.706	105	−0.336
						106	−0.915
16	+0.367	46	−0.236	76	+0.083		
17	−0.455	47	+0.174	77	+0.421		
18	+0.384	48	−0.095	78	−0.041		
19	−0.296	49	+0.503	79	−0.658		
20	−0.061	50	−0.344	80	+0.369		
21	+0.596	51	+0.674	81	−0.094		
22	−1.090	52	+0.186	82	−0.108		
23	+0.490	53	−0.696	83	−0.793		
24	+0.066	54	−0.245	84	+0.409		
25	−0.549	55	+0.080	85	+0.313		
26	+0.089	56	−0.264	86	+0.349		
27	−0.458	57	+0.320	87	+0.080		
28	+0.803	58	−0.068	88	−0.243		
29	−0.168	59	+0.082	89	+0.145		
30	+0.283	60	+0.393	90	−0.359		

SECTION 8. FOX-AGASSIZ NORTH BASE TO GLASS-COKE TO HOLKHAM BAY BASE

1	−0.469	31	+0.212	61	+0.129	91	+0.506
2	+0.863	32	+0.164	62	+0.039	92	+0.164
3	+0.445	33	+0.087	63	+0.345	93	−1.174
4	−0.526	34	+0.008	64	−0.254	94	+0.886
5	+0.150	35	−0.326	65	−0.258	95	−0.021
6	+0.049	36	+0.719	66	+0.247	96	−0.434
7	−0.104	37	−0.679	67	+0.517	97	+0.347
8	+0.540	38	+0.066	68	−0.519	98	−0.777
9	−0.635	39	+0.090	69	+0.229	99	+0.901
10	−0.051	40	−0.196	70	−0.177	100	−0.005
11	+0.599	41	+0.583	71	−0.298	101	−0.045
12	−0.601	42	+0.172	72	+0.379	102	−0.278
13	−0.026	43	+0.198	73	+0.172	103	−0.573
14	+0.079	44	−0.805	74	−0.552	104	+0.773
15	−0.006	45	−0.148	75	−0.207	105	+0.174
16	+0.565	46	+0.756	76	+0.106	106	−0.011
17	−0.504	47	−0.157	77	+0.147	107	−0.676
18	−0.222	48	+0.436	78	+0.537	108	−0.260
19	+0.163	49	−0.534	79	+0.026	109	−0.262
20	+0.005	50	−0.501	80	−0.273	110	+0.023
21	−0.034	51	+0.609	81	−0.337	111	+0.498
22	−0.017	52	−0.607	82	+1.252	112	+0.609
23	+0.167	53	+0.320	83	−0.070	113	−0.868
24	+0.529	54	−0.291	84	−0.423	114	+0.337
25	−0.645	55	−0.030	85	−0.759	115	−0.104
26	−0.031	56	+0.375	86	+0.741	116	−0.731
27	−0.175	57	−0.164	87	−0.489	117	−0.060
28	+0.347	58	+0.166	88	−0.253	118	+0.558
29	−0.140	59	−0.040	89	+0.541	119	+0.112
30	−0.145	60	−0.337	90	−0.037	120	−0.259

CORRECTIONS TO OBSERVED DIRECTIONS—Continued

SECTION 8. FOX-AGASSIZ NORTH BASE TO GLASS-COKE TO HOLKHAM BAY BASE—Continued

Number of direction	Correction to direction	Number of direction	Correction to direction	Number of direction	Correction to direction	Number of direction	Correction to direction
	″		″		″		″
121	−0.367	136	−0.657	151	+1.071	166	+0.738
122	+0.278	137	+0.389	152	−1.066	167	+0.959
123	+0.236	138	−0.214	153	−0.098	168	+0.703
124	−0.570	139	−0.033	154	−0.982	169	−1.468
125	+0.346	140	−1.461	155	+0.547	170	+0.986
						171	+0.284
126	+0.458	141	+0.338	156	+1.043	172	−0.058
127	+0.471	142	−0.397	157	−0.509	173	−0.276
128	−0.705	143	+1.014	158	+1.019	174	+0.456
129	+0.174	144	+0.294	159	−0.244	175	−0.854
130	+0.834	145	+0.805	160	−0.270	176	+0.447
						177	+0.514
131	−0.177	146	−0.559	161	−1.272	178	−1.391
132	−0.738	147	−0.215	162	+0.767	179	+0.877
133	−0.094	148	+0.883	163	+0.196	180	−0.145
134	+0.755	149	−0.634	164	−0.424	181	−0.430
135	−0.274	150	−0.040	165	+0.227	182	+0.575

SECTION 8a. PEAN-BENDEL-SPRUCE-TOP

1	+0.827	4	+0.418	7	+0.337	10	−0.246
2	−1.020	5	+0.140	8	+0.632		
3	−1.223	6	−0.477	9	−0.386		

SECTION 9. GASTINEAU CHANNEL BASE TO NEW-CORNER

1	−0.063	11	−1.063	21	−1.112	31	−0.114
2	−0.060	12	−1.583	22	−0.009	32	+0.177
3	+0.123	13	+0.955	23	+1.755	33	−0.107
4	+0.974	14	+0.235	24	−0.550	34	−0.126
5	+0.089	15	−1.026	25	+0.135	35	+0.170
6	−1.064	16	−0.598	26	+0.042	36	−0.089
7	−0.192	17	+0.143	27	−0.278	37	+0.120
8	+0.194	18	+0.578	28	−0.939	38	−0.031
9	+0.517	19	+0.669	29	+1.364		
10	+1.174	20	−0.084	30	−0.323		

SECTION 10. TANTALLON-SALISBURY-CORNER TO GLASS-COKE

1	−0.673	26	+0.493	51	+0.129	76	+0.223
2	+1.178	27	−0.965	52	+0.077	77	−0.469
3	+1.150	28	+0.668	53	−0.185	78	−0.152
4	−1.150	29	−0.247	54	+0.108	79	+0.211
5	−0.844	30	−0.423	55a	−0.137	80	+0.543
				55	−0.116		
6	+1.164	31	+0.198	56	−0.227	81	−0.424
7	+0.534	32	−0.519	57	+0.191	82	−0.179
8	−1.218	33	+0.749	58	+0.289	83	−0.405
9	+0.364	34	−0.004	59	+0.250	84	+1.113
10	−0.333	35	−0.039	60	−0.090	85	−0.253
11	−0.196	36	+0.260	61	−0.386	86	+0.660
12	−0.534	37	+0.082	62	+0.225	87	−0.583
13	+2.318	38	−0.126	63	−0.003		
14	−1.255	39	−0.176	64	−0.043		
15	+0.454	(40 omitted)		65	+0.073		
				66	−0.123		
16	−0.957	41	−0.114	67	+0.095		
17	+0.084	42	−0.238	68	−0.080		
18	+0.900	43	+0.207	69	+0.148		
19	−0.482	44	−0.493	70	−0.198		
20	−0.323	45	+0.462				
				71	−0.198		
21	+0.100	46	+0.175	72	+0.327		
22	+0.254	47	−0.267	73	+0.197		
23	−1.098	48	+0.023	74	−0.233		
24	+1.066	49	−0.157	74a	+0.204		
25	+0.051	50	+0.272	75	+0.078		

CORRECTIONS TO OBSERVED DIRECTIONS—Continued

SECTION 11. TANTALLON-CORNER TO HORSE-EAGLE TO YOUNG BAY BASE

Number of direction	Correction to direction	Number of direction	Correction to direction	Number of direction	Correction to direction	Number of direction	Correction to direction
	"		"		"		"
1	−0.780	21	+0.160	41	−0.020	61	−0.175
2	−0.273	22	+0.098	42	+0.289	62	−0.193
3	+0.262	23	−0.065	43	−0.509	63	+0.210
4	−0.036	24	−0.093	44	+0.240	64	+0.066
5	−0.382	25	−0.637	(45 omitted)		65	−0.275
				46	+0.311		
6	−0.053	26	+0.289	47	+0.093	66	+0.209
7	+0.134	27	−0.111	48	+0.276	67	−0.813
8	−0.268	28	+0.352	49	+0.126	68	+0.604
9	+0.570	29	+0.107	49a	−0.226	69	−0.110
10	−0.319	30	−0.125	50	−1.014	69a	−0.274
						70	−0.461
11	−0.329	31	−0.365	51	+0.151		
12	+0.411	32	−0.315	52	−0.408	71	+0.782
13	+0.243	33	+0.126	53	+0.403	72	−0.173
14	−0.006	34	+0.152	54	+0.286	73	+0.236
15	−0.008	35	−0.152	55	−0.197	74	+0.123
						75	+0.165
16	+0.433	36	+0.821	56	+0.860		
17	−0.825	37	−0.143	57	−0.510	76	−0.288
18	+0.355	38	+0.125	57a	+0.282	77	+0.342
19	+0.045	39	−0.036	58	−0.104	78	−0.086
20	−0.100	39a	−0.266	59	−0.330	79	−0.256
		40	+0.177	60	+0.368		

SECTION 12. HORSE-EAGLE TO LITTLE-SENTINEL TO EAGLE RIVER BASE

1	+0.141	26	−0.244	51	+0.850	76	+0.057
2	+0.547	27	−0.093	52	−0.013	77	+0.052
3	+0.606	28	+0.053	53	−0.369	78	+0.140
4	−0.434	29	+0.040	54	−0.113	79	−0.408
5	−0.018	30	−0.148	55	+0.353	80	+0.298
6	+1.083	31	+0.113	56	−0.278	81	−0.150
7	−0.671	32	+0.493	57	−0.087	82	−0.171
8	−0.275	33	−0.355	58	+0.463	83	+1.037
9	−0.119	34	−0.118	59	−0.451	84	−0.234
10	+0.045	35	+0.040	60	+0.024	85	+0.164
11	−0.148	36	−0.025	61	+0.446	86	−0.271
12	−0.520	37	−0.359	62	−0.102	87	−0.249
13	+1.124	38	+0.510	63	−0.276	88	−0.276
14	−0.501	39	−0.151	64	−0.092	89	+0.080
15	+0.120	40	+0.090	65	−0.034	90	+0.123
16	−0.583	41	−0.386	66	+0.456	91	−0.203
17	+0.174	42	−0.194	67	−0.138	92	−0.243
18	+0.061	43	+0.459	68	+0.260	93	+0.388
19	+0.230	44	+0.030	69	−0.544	94	−0.145
20	+0.149	45	+0.463	70	−0.067	95	−0.258
21	−0.142	46	−0.275	71	+0.656	96	+0.194
22	+0.115	47	−0.216	72	−0.655	97	+0.065
23	−0.377	48	+0.226	73	+0.396	98	−0.057
24	−0.481	49	−0.198	74	−0.330	99	−0.271
25	+0.980	50	−0.356	75	+0.010	100	+0.328

SECTION 13. LITTLE-SENTINEL TO KAL-TWIN TO GLACIER POINT BASE

1	−0.349	11	+1.033	21	−0.253	31	+0.493
2	−0.052	12	−0.247	22	−0.428	32	−0.382
3	+0.757	13	−0.349	23	+0.250	33	−0.233
4	+0.118	14	−0.185	24	+0.166	34	+0.038
5	+0.233	15	−0.029	25	−0.059	35	−0.362
6	+0.133	16	−0.336	26	+0.388	36	+0.232
7	−0.086	17	−0.077	27	+0.369	37	−0.055
8	−0.223	18	+0.490	28	−0.269	38	+0.336
9	−0.057	19	−0.048	29	−0.429	39	+0.235
10	−0.252	20	+0.266	30	+0.085	40	−0.083

CORRECTIONS TO OBSERVED DIRECTIONS—Continued

SECTION 13. *LITTLE-SENTINEL TO KAL-TWIN TO GLACIER POINT BASE—Continued*

Number of direction	Correction to direction	Number of direction	Correction to direction	Number of direction	Correction to direction	Number of direction	Correction to direction
	″		″		″		″
41	+0.003	61	+1.127	81	−0.003	101	+0.302
42	−0.339	62	+0.715	82	+0.438	(102 omitted)	
43	−0.100	63	−0.410	83	−0.141	103	+0.123
44	+0.160	64	+0.192	84	−0.280	104	−0.617
45	+0.276	64a	−0.181	85	+0.343	105	+0.495
		65	−1.105				
46	−0.242	66	+0.789	86	+0.383	106	+0.211
47	+0.194	67	−0.104	87	−0.340	107	−0.008
48	−0.396	68	+0.038	88	−0.507	108	−0.203
49	+0.444	69	−0.226	89	+0.541	109	+0.464
50	−0.206	70	+0.292	90	−0.278	110	−0.284
51	−0.014	71	+0.297	91	+0.696	111	−0.266
52	+0.209	72	−0.837	92	−0.417	112	+0.523
53	+0.217	73	+0.024	93	+0.167	113	−0.436
54	+0.075	74	−0.542	94	+0.156		
55	−0.270	75	+0.352	(95 omitted)			
56	−0.046	76	+0.929	96	−0.322		
57	−0.239	77	−0.334	97	+0.209		
58	+0.336	78	+0.380	98	+0.124		
59	−0.108	79	−0.269	99	+0.090		
60	−1.071	80	−0.436	100	−0.725		

SECTION 14. KAL-TWIN TO TAI-SKAG

1	−1.119	11	+0.445	21	−0.053	31	−0.969
2	−0.137	12	−0.945	22	−0.268	32	+0.225
3	+1.418	13	+0.219	23	−0.139	33	+0.744
4	−0.693	14	−1.315	24	−0.275	34	−0.848
5	+0.610	15	+1.196	25	+0.735	35	+0.669
6	−0.174	16	+0.400	26	−0.416	36	+0.178
7	−0.320	17	+0.219	27	+0.058		
8	+0.387	18	+0.015	28	+0.380		
9	−0.631	19	−0.680	29	−0.324		
10	+0.738	20	+0.465	30	+0.302		

SECTION 15. TROUBLE-FARM TO TOP-FANSHAW

1a	+0.226	8a	−0.059	15a	+0.334	22a	−0.102
b	+0.048	b	+0.085	b	−0.313	b	−0.204
2a	+0.052	9a	−0.448	16a	+0.133	23a	−0.239
b	−0.360	b	+0.527	b	−0.768	b	−0.362
3a	−0.094	10a	−0.530	17a	+0.446	24a	−0.166
b	−0.083	b	+0.073	b	−0.046	b	+0.075
4a	−0.089	11a	−0.305	18a	−0.158	25a	−0.314
b	−0.054	b	+0.102	b	−0.558	b	−0.186
5a	−0.389	12a	−1.059	19a	+0.282	26a	−0.083
b	−0.126	b	−0.385	b	−0.620	b	+0.523
6a	−0.072	13a	−0.001	20a	+0.142		
b	+0.035	b	−0.391	b	−0.225		
7a	−0.664	14a	+0.457	21a	−0.076		
b	+0.318	b	−0.677	b	−0.304		

NOTE.—A least-squares solution of the condition equations on p. 131 resulted in the above corrections to the angles resulting from the adjustments of the triangulation in secs. 1 and 8. See pp. 138–139 and 145–146.

CORRECTIONS TO ANGLES AND CLOSURES OF TRIANGLES

The correction to each angle is the algebraic difference of the corrections to two directions. In order to make it possible to study the corrections to the separate angles, they are shown in the following tables for every triangle in the first-order scheme. There are shown the corrections to the angles resulting from the figure adjustment, the errors of closure of the triangles, the corrected spherical angles, and the spherical excess for each triangle. The plus sign prefixed to the error of closure of a triangle indicates that the sum of the angles is less than 180° plus the spherical excess. The spherical excess is a convenient indication of the size of the triangle since it is proportional to the area.

TABLE OF TRIANGLES

SECTION 1. DRY STRAIT BASE TO AGASSIZ BASE

Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess
	″	″	° ′ ″	″
Farm	−1.26	−0.30	74 17 36.07	0.05
Dry Strait east base	−0.87		80 08 24.52	
Dry Strait west base	+1.83		25 33 59.46	
Rynda	+2.25	−0.13	34 11 59.54	0.10
Dry Strait west base	−0.28		111 16 56.27	
Farm	−2.10		34 31 04.29	
Rynda	+0.28	−0.63	46 10 34.23	0.10
Dry Strait west base	−2.11		85 42 56.81	
Dry Strait east base	+1.20		48 06 29.06	
Rynda	−1.97	−0.80	11 58 34.69	0.05
Farm	+0.84		39 46 31.78	
Dry Strait east base	+0.33		128 14 53.58	
Trouble	−1.08	−0.93	14 13 34.89	0.01
Dry Strait west base	+0.58		161 19 06.19	
Farm	−0.43		4 27 18.93	
Trouble	−0.03	+0.48	113 13 01.01	0.02
Dry Strait west base	+0.86		50 02 09.92	
Rynda	−0.35		16 44 49.09	
Trouble	+1.05	+1.28	98 59 26.12	0.11
Farm	−1.67		30 03 45.36	
Rynda	+1.90		50 56 48.63	
Roth	+1.11	−1.31	57 14 46.66	0.08
Rynda	−1.26		21 06 04.69	
Dry Strait east base	−1.16		101 39 08.73	
Roth	+0.55	+0.14	78 31 34.73	0.15
Rynda	−3.23		33 04 39.38	
Farm	+2.82		68 23 46.04	
Roth	−0.56	+2.25	21 16 48.07	0.02
Dry Strait east base	+0.83		130 05 57.69	
Farm	+1.98		28 37 14.26	
Dry	-------	-------	91 14 57.74	0.08
Farm	−0.03		34 13 46.38	
Trouble	−0.58		54 31 15.96	
Cosmos	−0.84	-------	32 47 17.60	0.07
Dry	-------		102 43 52.83	
Trouble	+0.39		44 28 49.64	
Camp	+0.07	-------	26 21 58.65	0.16
Farm	+0.57		42 19 10.13	
Dry	-------		111 18 51.38	
Camp	+0.47	-------	36 07 13.62	0.13
Dry	-------		54 42 18.05	
Cosmos	−0.53		89 10 28.46	
Creek	+1.23	+0.18	38 12 46.75	0.26
Camp	−0.90		75 38 41.64	
Cosmos	−0.15		66 08 31.87	
Bluff 3	−1.18	+0.66	37 05 33.49	0.14
Camp	+0.48		111 44 19.72	
Cosmos	+1.36		31 10 06.93	
Bluff 3	+0.48	+1.82	111 07 29.45	0.13
Camp	+1.38		36 05 38.08	
Creek	−0.04		32 46 52.60	
Bluff 3	+1.66	+1.34	74 01 55.96	0.25
Cosmos	−1.51		34 58 24.94	
Creek	+1.19		70 59 39.35	
Fred	−1.19	−1.75	48 00 05.47	0.09
Bluff 3	−0.20		26 48 39.12	
Creek	−0.36		105 11 15.50	
Island 2	+2.05	+0.69	37 26 08.35	0.21
Bluff 3	−0.90		55 13 38.04	
Creek	−0.46		87 20 13.82	
Island 2	+0.99	+0.95	50 57 28.92	0.16
Bluff 3	−0.70		28 24 58.92	
Fred	+0.66		100 37 32.32	
Island 2	−1.06	−1.49	13 31 20.57	0.04
Creek	+0.10		17 51 01.68	
Fred	−0.53		148 37 37.79	

TABLE OF TRIANGLES—Continued

SECTION 1. DRY STRAIT BASE TO AGASSIZ BASE—Continued

Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess
	″	′	° ′ ″	″
Cliff	+0.44	−0.15	73 33 32.76	0.04
Fred	−0.43		21 20 27.22	
Island 2	−0.16		85 06 00.66	
Pete	+0.54	+0.74	5 50 05.98	0.02
Cliff	−0.25		20 33 59.03	
Island 2	+0.45		153 35 55.01	
Pete	−0.68	−1.54	30 51 20.79	0.17
Cliff	+0.19		94 07 31.79	
Fred	−1.05		55 01 07.59	
Pete	−1.22	−2.13	25 01 14.81	0.11
Island 2	−0.29		121 18 04.93	
Fred	−0.62		33 40 40.37	
Agassiz south base	+0.86	−0.11	19 32 43.30	0.04
Cliff	−0.76		64 59 02.10	
Island 2	−0.21		95 28 14.64	
Agassiz south base	+1.35	+0.58	92 46 43.23	0.13
Cliff	−0.51		44 25 03.07	
Pete	−0.26		42 48 13.83	
Agassiz south base	+0.49	+1.43	73 13 59.93	0.11
Island 2	+0.66		58 07 40.37	
Pete	+0.28		48 38 19.81	
New	+0.60	+0.17	58 10 48.67	0.10
Agassiz south base	−1.02		39 13 08.85	
Pete	+0.59		82 36 02.58	
Fox	+3.48	+0.14	128 18 43.75	0.04
New	−1.70		24 31 31.81	
Agassiz south base	−1.64		27 09 44.48	
Fox	−2.86	+0.93	149 54 47.40	0.02
Agassiz south base	+0.60		12 03 24.37	
Pete	+3.19		18 01 48.25	
Fox	−0.60	−0.90	81 46 28.85	0.04
Pete	−2.60		64 34 14.33	
New	+2.30		33 39 16.86	
Agassiz north base	+0.65	+2.27	52 35 11.77	0.05
Agassiz south base	+1.34		69 04 18.60	
Fox	+0.28		58 20 29.68	
Agassiz north base	+0.82	+2.78	104 51 45.52	0.07
Agassiz south base	+2.98		41 54 34.12	
New	−1.02		33 13 40.43	
Agassiz north base	+0.17	+0.65	52 16 33.75	0.06
Fox	+3.20		69 58 14.07	
New	−2.72		57 45 12.24	

SECTION 2. ZAREMBO ISLAND BASE

Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess
Zarembo Island north base	+0.35	+1.46	3 45 44.75	0.00
Zarembo Island south base	+0.92		26 49 34.28	
Hot	+0.19		149 24 40.97	
Oart	+1.30	+3.52	88 46 02.72	0.00
Zarembo Island north base	+1.10		7 07 24.32	
Hot	+1.12		84 06 32.96	
Mid	+0.74	+0.85	130 39 44.78	0.00
Zarembo Island north base	−0.17		30 55 46.25	
Hot	+0.28		18 24 28.97	
Mid	+0.63	−0.85	140 53 25.58	0.00
Zarembo Island north base	−1.27		23 48 21.93	
Oart	−0.21		15 18 12.49	
Mid	−0.11	+1.82	10 13 40.80	0.00
Hot	+0.84		65 42 03.99	
Oart	+1.09		104 04 15.21	
Warm	+0.66	-------	141 18 01.82	0.00
Zarembo Island north base	−0.17		30 55 46.25	
Hot	-------		7 46 11.93	
Warm	−0.66	-------	38 41 58.18	0.00
Hot	-------		10 38 17.04	
Mid	+0.74		130 39 44.78	
Near	+0.40	−0.65	129 51 28.08	0.00
Zarembo Island north base	+1.75		30 41 32.36	
Warm	−2.80		19 26 59.56	

TABLE OF TRIANGLES—Continued

SECTION 3. FARM-ROTH TO ZAREMBO ISLAND BASE TO HAR-GRANITE

Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess
	"	"	° ′ ″	"
Grey	−1.35	−2.28	23 00 41.04	0.20
Farm	−1.05		61 05 19.86	
Roth	+0.12		95 53 59.30	
Field	+2.06	+0.29	62 59 08.25	0.36
Grey	−1.38		83 08 31.40	
Farm	−0.39		33 52 20.71	
Field	−0.26	+0.25	76 12 29.94	0.27
Grey	−0.03		60 07 50.36	
Roth	+0.54		43 39 39.97	
Field	−2.32	−2.32	13 13 21.69	0.11
Farm	−0.66		27 12 59.15	
Roth	+0.66		139 33 39.27	
Large 2	−0.71	−0.39	65 43 21.21	0.17
Grey	−0.18		49 11 29.24	
Field	+0.50		65 05 09.72	
Duck	+0.56	+0.55	50 46 31.56	0.18
Grey	−0.05		90 34 28.37	
Field	+0.04		38 39 00.25	
Duck	+0.09	+2.11	84 48 41.33	0.12
Grey	+0.13		41 22 59.13	
Large 2	+1.89		53 48 19.66	
Duck	−0.47	+1.17	34 02 09.77	0.11
Field	+0.46		26 26 09.47	
Large 2	+1.18		119 31 40.87	
Mile	+0.56	+1.43	102 34 30.46	0.06
Duck	−0.28		45 15 57.25	
Grey	+1.15		32 09 32.35	
Lee	+0.26	+0.88	21 26 19.10	0.03
Mile	+0.48		137 04 37.29	
Duck	+0.14		21 29 03.64	
Lee	+0.96	+0.29	97 22 28.32	0.03
Mile	−0.08		34 30 06.83	
Grey	−0.59		48 07 24.88	
Lee	+0.70	+0.84	75 56 09.22	0.06
Duck	−0.42		23 46 53.61	
Grey	+0.56		80 16 57.23	
Wedge	−0.25	+0.56	47 02 13.11	0.05
Duck	−0.14		79 49 35.25	
Mile	+0.95		53 08 11.69	
Rem	+0.11	+0.41	15 30 16.69	0.06
Duck	+0.11		134 38 57.86	
Mile	+0.19		29 50 45.51	
Rem	−0.61	+0.70	35 57 29.33	0.07
Duck	+0.25		54 49 22.61	
Wedge	+1.06		89 13 08.13	
Rem	−0.72	+0.85	20 27 12.64	0.06
Mile	+0.76		23 17 26.18	
Wedge	+0.81		136 15 21.24	
High	+0.79	+1.80	76 12 51.29	0.07
Rem	−0.59		75 59 13.65	
Duck	+1.60		27 47 55.13	
Kof	+0.36	+0.43	57 00 53.43	0.08
Rem	−0.87		96 25 55.33	
Duck	+0.94		26 33 13.32	
Kof	+0.48	+1.00	63 40 31.02	0.01
Rem	−0.27		20 26 39.68	
High	+0.79		95 52 49.31	
Kof	+0.12	+2.37	6 39 37.59	0.00
Duck	+0.67		1 14 41.81	
High	+1.58		172 05 40.60	
Tole	−0.29	+0.69	18 50 33.15	0.09
Rem	+0.11		49 34 07.33	
Kof	+0.87		111 35 19.61	
Cliff	−1.46	−1.72	22 45 45.90	0.10
Rem	−0.85		72 33 54.43	
Kof	+0.59		84 40 19.77	
Cliff	−1.23	−1.28	93 54 39.30	0.12
Rem	−0.96		22 59 47.10	
Tole	+0.91		63 05 33.72	
Cliff	+0.23	+1.13	71 08 53.40	0.11
Kof	+0.28		26 54 59.84	
Tole	+0.62		81 56 06.87	
Zarembo Island north base	−1.15	+0.72	68 35 46.53	0.16
Kof	+1.24		69 24 04.66	
Tole	+0.63		42 00 08.97	
Zarembo Island south base	−0.28	+0.97	58 12 26.30	0.05
Zarembo Island north base	−0.27		99 32 22.78	
Kof	+1.52		22 15 10.97	
Zarembo Island south base	+0.05	+0.80	136 21 30.12	0.04
Zarembo Island north base	+0.88		30 56 36.25	
Tole	−0.13		12 41 53.67	
Zarembo Island south base	+0.33	+0.55	78 09 03.82	0.15
Kof	−0.28		47 08 53.69	
Tole	+0.50		54 42 02.64	
Granite	+0.42	+0.06	42 35 07.70	0.06
Cliff	−0.48		47 20 07.63	
Tole	+0.12		90 04 44.73	
Har	+1.91	+1.16	37 29 06.32	0.08
Cliff	−1.71		80 20 59.78	
Tole	+0.96		62 09 53.98	
Har	+1.69	+0.83	75 07 11.85	0.06
Cliff	−1.23		33 00 52.15	
Granite	+0.37		71 51 56.06	
Har	−0.22	−0.27	37 38 05.53	0.04
Tole	−0.84		27 54 50.75	
Granite	+0.79		114 27 03.76	

TABLE OF TRIANGLES—Continued

SECTION 3A—GREY-LEE-RYN-KAD

Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess	Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess
	"	"	° ′ ″	"		"	"	° ′ ″	"
Kad	+0.56	+2.42	43 55 24.54	0.03	Ryn	+0.38	−0.62	105 54 10.41	0.02
Lee	+0.82		70 05 20.80		Kad	−0.10		36 19 13.61	
Grey	+1.04		65 59 14.69		Grey	−0.90		37 46 36.00	
Ryn	−1.10	+0.20	63 44 32.91	0.03	Ryn	+1.48	+1.60	42 09 37.50	0.02
Kad	+0.46		80 14 38.15		Lee	−0.02		34 04 31.83	
Lee	+0.84		36 00 48.97		Grey	+0.14		103 45 50.69	

SECTION 4. HAR-GRANITE TO LUCK POINT BASE

Round	−0.98	−1.05	44 12 17.71	0.04	Stik	−0.86	+0.20	23 37 28.48	0.00
Granite	−0.23		45 12 17.75		Sheer	+1.29		4 15 31.20	
Har	+0.16		90 35 24.58		Steam	−0.23		152 07 00.32	
Bear	−0.73	−0.75	49 42 19.80	0.01	West	−0.97	+1.26	31 10 02.12	0.07
Granite	+0.22		116 54 34.64		East	+1.23		109 17 51.92	
Har	−0.24		13 23 05.57		Stik	+1.00		39 32 06.03	
Bear	+1.03	+1.61	96 08 57.37	0.01	Harrington	+0.26	+0.07	33 59 16.42	0.14
Granite	+0.45		71 42 16.89		West	−0.61		60 43 25.19	
Round	+0.13		12 08 45.75		East	+0.42		85 17 18.53	
Bear	+1.76	+1.31	46 26 37.57	0.04	Harrington	+0.21	+0.59	56 00 54.20	0.12
Har	+0.40		77 12 19.01		West	+0.36		29 33 23.07	
Round	−0.85		56 21 03.46		Stik	+0.02		94 25 42.85	
Point	−0.40	+1.63	60 46 45.81	0.05	Harrington	−0.05	+1.78	22 01 37.78	0.05
Round	+0.02		82 22 57.83		East	+0.81		24 00 33.39	
Bear	+2.01		36 50 16.41		Stik	+1.02		133 57 48.88	
Ban	−0.17	+0.13	47 28 39.85	0.02	Bluff	−0.68	−0.51	26 21 51.92	0.10
Round	−0.35		121 45 00.04		West	+0.09		120 31 08.92	
Bear	+0.65		10 46 20.13		East	+0.08		33 06 59.26	
Ban	−1.34	−2.84	122 29 26.64	0.01	Bluff	−0.56	+0.77	50 41 59.22	0.17
Round	−0.37		39 22 02.21		West	+1.06		89 21 06.80	
Point	−1.13		18 08 31.16		Stik	+0.27		39 56 54.15	
Ban	−1.17	−1.34	75 00 46.79	0.04	Bluff	−0.64	−0.70	77 47 28.37	0.18
Bear	+1.36		26 03 26.28		West	+0.70		59 47 43.73	
Point	−1.53		78 55 16.97		Harrington	−0.76		42 24 48.08	
Sheer	−1.26	−0.16	56 54 56.85	0.01	Bluff	+0.12	+2.54	24 20 07.30	1.14
Ban	+1.22		74 06 30.81		East	+1.15		76 10 52.66	
Point	−0.12		48 58 32.35		Stik	+1.27		79 29 00.18	
Steam	+1.04	−0.27	30 51 35.77	0.02	Bluff	+0.04	−0.12	51 25 36.45	0.22
Sheer	−1.11		96 50 33.76		East	+0.34		52 10 19.27	
Ban	−0.20		52 17 50.49		Harrington	−0.50		76 24 04.50	
Steam	−0.72	+0.26	55 22 53.13	0.02	Bluff	−0.08	−0.88	27 05 29.15	0.13
Sheer	+0.15		39 55 36.91		Stik	−0.25		54 28 48.70	
Point	+0.83		84 41 29.98		Harrington	−0.55		98 25 42.28	
Steam	−1.76	+0.37	24 31 17.36	0.01	Blash	−0.55	+0.29	69 32 00.11	0.14
Ban	+1.42		21 48 40.32		Bluff	+1.10		72 47 34.93	
Point	+0.71		133 40 02.33		Harrington	−0.26		37 40 25.10	
East	−0.99	−0.69	56 34 21.61	0.02	Marsh	−0.23	+0.97	30 52 32.10	0.12
Sheer	+1.05		89 44 06.44		Blash	+0.07		107 39 32.43	
Steam	−0.75		33 41 31.97		Bluff	+1.13		41 27 55.59	
Stik	−0.12	−1.11	30 43 51.20	0.03	Marsh	−0.07	+1.96	86 23 42.46	0.12
East	−0.75		63 47 33.59		Blash	+0.62		38 07 32.32	
Sheer	−0.24		85 28 35.24		Harrington	+1.41		55 28 45.34	
Stik	−0.98	−0.22	54 21 19.68	0.01	Marsh	+0.16	+1.28	55 31 10.36	0.14
East	+0.24		7 13 11.98		Bluff	−0.03		31 19 39.34	
Steam	+0.52		118 25 28.35		Harrington	+1.15		93 09 10.44	

TABLE OF TRIANGLES—Continued

SECTION 4. HAR-GRANITE TO LUCK POINT BASE—Continued

Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess
	"	"	° ′ ″	"
Coffman	+0.02	+1.34	42 47 04.73	0.18
Blash	+0.86		89 34 02.84	
Marsh	+0.46		47 38 52.61	
Lincoln	+0.42	+0.53	48 25 21.81	0.20
Coffman	−0.63		77 22 43.26	
Blash	+0.74		54 11 55.13	
Lincoln	−0.23	−1.01	92 12 41.88	0.16
Coffman	−0.65		34 35 38.53	
Marsh	−0.13		53 11 39.75	
Lincoln	−0.65	−0.20	43 47 20.07	0.14
Blash	+0.12		35 22 07.71	
Marsh	+0.33		100 50 32.36	
Luck (Luck Point south base)	−0.25	+1.17	65 45 21.29	0.17
Coffman	+1.48		54 04 19.98	
Lincoln	+0.44		60 10 18.90	
Stanhope	+0.81	+2.86	31 38 10.55	0.17
Luck (Luck Point south base)	+0.56		118 48 00.60	
Coffman	+1.49		29 33 49.02	
Stanhope	−0.11	+0.36	63 02 06.65	0.15
Luck (Luck Point south base)	+1.31		53 02 39.31	
Lincoln	−0.84		63 55 14.19	
Stanhope	−0.92	−1.33	31 23 56.10	0.15
Coffman	−0.01		24 30 30.96	
Lincoln	−0.40		124 05 33.09	
Luck Point north base	+0.28	+2.87	34 50 11.99	0.16
Lincoln	+1.48		105 42 04.62	
Stanhope	+1.11		39 27 43.55	
Luck Point north base	−0.46	+0.80	69 17 41.51	0.12
Lincoln	+2.32		41 46 50.43	
Luck (Luck Point south base)	−1.06		68 55 28.18	
Luck Point north base	−0.74	−1.71	34 27 29.52	0.11
Stanhope	−1.22		23 34 23.10	
Luck (Luck Point south base)	+0.25		121 58 07.49	

SECTION 5. LUCK (LUCK POINT SOUTH BASE)-STANHOPE TO NAR-MIS

Ratz	+0.07	+0.69	44 05 23.28	0.22
Luck (Luck Point south base)	+0.48		69 46 13.66	
Stanhope	+0.14		66 08 23.28	
Double	−0.36	−0.08	35 55 50.08	0.28
Ratz	−0.31		109 34 17.08	
Luck (Luck Point south base)	+0.59		34 29 53.12	
Double	−0.02	−1.11	59 58 42.67	0.28
Ratz	−0.38		65 28 53.80	
Stanhope	−0.71		54 32 23.81	
Double	+0.34	−0.34	24 02 52.59	0.22
Luck (Luck Point south base)	−0.11		35 16 20.54	
Stanhope	−0.57		120 40 47.09	
Sal	+1.04	−1.27	45 19 51.54	0.34
Ratz	−0.43		76 31 34.72	
Double	−1.88		58 08 34.08	
Ern	+1.45	−1.38	51 38 26.77	0.28
Sal	−0.06		96 01 53.03	
Ratz	−2.77		32 19 40.48	
Ern	−0.19	+0.95	92 47 29.37	0.25
Sal	−1.10		50 42 01.49	
Double	+2.24		36 30 39.39	
Ern	−1.64	+1.06	41 09 02.60	0.31
Ratz	+2.34		44 11 54.24	
Double	+0.36		94 39 03.47	
Nar	−0.03	−0.63	70 15 52.10	0.07
Sal	+0.76		90 52 20.87	
Ern	−1.36		18 51 47.10	
Mis	+1.00	+1.80	7 08 50.39	0.07
Nar	+1.03		139 21 32.57	
Sal	−0.23		33 29 37.11	
Mis	+0.29	+2.07	40 55 47.24	0.29
Nar	+1.06		69 05 40.47	
Ern	+0.72		69 58 32.58	
Mis	−0.71	−0.36	33 46 56.85	0.29
Sal	+0.99		57 22 43.76	
Ern	−0.64		88 50 19.68	

TABLE OF TRIANGLES—Continued

SECTION 6. CHACON-DUNDAS TO WEDGE-DALL TO METLAKATLA BASE

Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess
	″	″	° ′ ″	″
Lazaro	−0.26	-------	107 47 50.00	6.66
Dundas	−0.51		38 26 50.43	
Chacon	-------		33 45 26.23	
Ken	+0.01	+0.62	116 59 52.24	2.18
Lazaro	+0.94		22 32 58.76	
Chacon	−0.33		40 27 11.18	
Duncan	+1.29	+2.27	114 39 42.33	1.32
Lazaro	−0.43		34 37 57.81	
Ken	+1.41		30 42 21.18	
Ingraham	+0.38	+0.65	21 25 16.43	0.91
Duncan	+1.79		136 44 14.41	
Lazaro	−1.52		21 50 30.07	
Ingraham	+0.78	+0.28	91 44 17.86	0 56
Duncan	+0.50		22 04 32.08	
Ken	−1.00		66 11 10.62	
Ingraham	+0.40	+1.90	70 19 01.43	0.97
Lazaro	+1.09		12 47 27.74	
Ken	+0.41		96 53 31.80	
Seal	+0.14	+1.60	128 55 07.57	1.36
Lazaro	+1.41		38 29 20.72	
Chacon	+0.05		12 35 33.07	
Seal	+0.82	+1.63	154 32 17.65	0.44
Lazaro	+0.47		15 56 21.96	
Ken	+0.34		9 31 20.83	
Seal	+0.79	−0.41	175 02 43.03	0.09
Lazaro	−0.62		3 08 54.22	
Ingraham	−0.58		1 48 22.84	
Seal	+0.68	+0.65	25 37 10.08	1.26
Chacon	−0.38		27 51 38.11	
Ken	+0.35		126 31 13.07	
Seal	−0.03	−0.14	20 30 25.38	0.62
Ken	+0.07		87 22 10.97	
Ingraham	−0.18		72 07 24.27	
Wedge	+1.22	−1.40	61 22 27.05	1.01
Duncan	−1.91		42 15 31.06	
Ingraham	−0.71		76 22 02.90	
Dall	+0.29	−0.91	62 01 50.50	1.10
Duncan	−1.09		66 07 13.29	
Ingraham	−0.11		51 50 57.31	
Dall	−0.47	−0.75	105 15 14.15	0.54
Duncan	+0.82		23 51 42.23	
Wedge	−1.10		50 53 04.16	
Dall	−0.76	−1.24	43 13 23.65	0.45
Ingraham	−0.60		24 31 05.59	
Wedge	+0.12		112 15 31.21	
Head	+0.74	+0.98	52 22 34.34	0.59
Ingraham	−0.02		35 56 14.68	
Wedge	+0.26		91 41 11.57	
Hid	+1.13	+1.92	44 26 07.97	0.97
Ingraham	−0.35		70 06 05.20	
Wedge	+1.14		65 27 47.80	
Hid	+2.92	+2.03	70 12 05.84	0.73
Ingraham	−0.33		34 09 50.52	
Head	−0.56		75 38 04.37	
Hid	+1.79	+1.09	25 45 57.87	0.35
Wedge	−0.88		26 13 23.77	
Head	+0.18		128 00 38.71	
Burt	+1.12	−1.13	90 30 45.10	0.21
Hid	−1.95		35 19 19.31	
Head	−0.30		54 09 55.80	
McCartey	−0.52	−0.70	85 17 46.10	0.12
Burt	−0.12		68 13 40.81	
Hid	−0.06		26 28 33.21	
McCartey	+0.11	−0.65	146 32 06.88	0.05
Hid	−1.89		8 50 46.10	
Head	+1.13		24 37 07.07	
McCartey	+0.41	+0.22	128 10 07.02	0.04
Head	−1.43		29 32 48.73	
Burt	+1.24		22 17 04.29	
Metlakatla south base	−0.41	−0.10	91 33 51.07	0.12
Hid	+0.19		38 42 37.94	
McCartey	+0.12		49 43 31.11	
Metlakatla south base	+1.68	+2.01	97 35 06.60	0.19
Hid	−1.70		47 33 24.04	
Head	+2.03		34 51 29.55	
Metlakatla south base	+1.25	+2.15	141 28 00.51	0.04
Hid	+0.25		13 14 04.73	
Burt	+0.65		26 17 54.80	
Metlakatla south base	+2.09	+2.76	6 01 15.53	0.02
McCartey	−0.23		163 44 22.01	
Head	+0.90		10 14 22.48	
Metlakatla south base	+1.66	+1.55	49 54 09.44	0.04
McCartey	−0.64		35 34 14.99	
Burt	+0.53		94 31 35.61	
Metlakatla south base	−0.43	−0.99	43 52 53.91	0.06
Head	−2.33		19 18 26.25	
Burt	+1.77		116 48 39.90	
Metlakatla north base	−1.00	−2.28	62 52 55.55	0.05
Metlakatla south base	+0.74		90 09 12.25	
McCartey	−2.02		26 57 52.25	
Metlakatla north base	+0.90	−0.28	80 21 16.87	0.02
Metlakatla south base	−0.92		40 15 02.81	
Burt	−0.26		59 23 40.34	
Metlakatla north base	+1.90	+3.55	17 28 21.32	0.01
McCartey	+1.38		8 36 22.74	
Burt	+0.27		153 55 15.95	

TABLE OF TRIANGLES—Continued

SECTION 7. NAR-MIS TO WEDGE-DALL

Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess
		″	° ′ ″	″
Tol	−0.06	+0.86	55 42 26.81	0.38
Nar	+0.98		44 44 26.09	
Mis	−0.06		79 33 07.48	
Sly	−0.41	+0.54	48 02 13.23	0.38
Tol	+0.14		104 47 46.24	
Nar	+0.81		27 10 00.91	
Sly	+0.02	+0.45	74 57 55.22	0.21
Tol	+0.20		49 05 19.43	
Mis	+0.23		55 56 45.56	
Sly	+0.43	+0.77	26 55 41.99	0.21
Nar	+0.17		17 34 25.18	
Mis	+0.17		135 29 53.04	
Ship	+0.45	+0.99	49 42 10.45	0.21
Tol	+0.58		41 54 33.44	
Sly	−0.04		88 23 16.32	
Stoi	−0.83	−1.08	97 42 24.46	0.05
Tol	−0.33		68 54 53.53	
Sly	+0.08		13 22 42.06	
Stoi	+0.01	−1.87	147 30 06.68	0.03
Tol	−0.91		27 00 20.09	
Ship	−0.97		5 29 33.26	
Stoi	+0.84	+0.20	49 47 42.22	0.19
Sly	−0.12		75 00 34.26	
Ship	−0.52		55 11 43.71	
Pet	+0.66	−0.53	53 52 56.00	0.13
Stoi	+0.16		94 57 32.77	
Sly	−1.35		31 09 31 36	
Pet	−1.03	−0.45	102 45 45.52	0.11
Stoi	−0.68		45 09 50.55	
Ship	+1.26		32 04 24.04	
Pet	−1.69	+0.28	48 52 49.52	0.17
Sly	+1.23		43 51 02.90	
Ship	+0.74		87 16 07.75	
Had	−0.38	+0.22	64 32 52.00	0.12
Pet	+1.15		60 14 39.95	
Ship	−0.55		55 12 28.17	
Goat	+0.28	−1.27	38 12 52.17	0.16
Had	−1.12		92 49 55.56	
Pet	−0.43		48 57 12.43	
Goat	+0.22	+0.12	60 05 02.41	0.08
Had	−0.74		28 17 03.56	
Ship	+0.64		91 37 54.11	
Goat	−0.06	+1.61	21 52 10.24	0.04
Pet	+1.58		11 17 27.52	
Ship	+0.09		146 50 22.28	
Hid	+0.74	+0.99	64 27 13.79	0.13
Had	+0.48		76 45 38.17	
Goat	−0.23		38 47 08.17	
Pen	+0.60	−2.11	31 41 17.78	0.12
Hid	−1.38		104 04 26.01	
Had	−1.38		44 14 16.33	
Pen	−0.25	−1.82	82 27 55.21	0.12
Hid	−2.12		39 37 12.22	
Goat	+0.55		57 54 52.69	
Pen	−0.85	+1.28	50 46 37.43	0.13
Had	+1.81		32 31 21.84	
Goat	+0.32		96 42 00.86	
Approach	−0.48	−0.12	49 59 52.33	0.16
Hid	+0.63		80 34 17.82	
Pen	−0.27		49 25 50.01	
Caamano	+0.31	−2.10	36 11 53.02	0.20
Approach	−1.37		95 29 44.12	
Hid	−1.04		48 18 23.06	
Caamano	−0.54	−1.02	69 04 43.45	0.19
Approach	−0.89		45 29 51.79	
Pen	+0.41		65 25 24.95	
Caamano	−0.85	+0.96	32 52 50.43	0.15
Hid	+1.67		32 15 54.76	
Pen	+0.14		114 51 14.96	
Guard Island	−0.87	−0.07	41 34 35.88	0.22
Approach	+0.46		35 13 53.69	
Caamano	+0.34		103 11 30.65	
South Vallenar	−0.70	−0.16	36 46 09.71	0.37
Approach	+0.78		61 30 25.29	
Caamano	−0.24		81 43 25.37	
South Vallenar	−0.29	+1.11	62 31 51.63	0.27
Approach	+0.32		26 16 31.60	
Guard Island	+1.08		91 11 37.04	
South Vallenar	+0.41	+1.20	25 45 41.92	0.12
Caamano	+0.58		21 28 05.28	
Guard Island	+0.21		132 46 12.92	
High Island	−0.22	−0.13	28 07 17.57	0.35
Caamano	+0.19		92 24 54.09	
Guard Island	−0.10		59 27 48.69	
High Island	−0.61	−1.05	51 21 58.51	0.56
Caamano	−0.39		70 56 48.81	
South Vallenar	−0.05		57 41 13.24	
High Island	−0.39	+0.28	23 14 40.94	0.33
Guard Island	+0.31		73 18 24.23	
South Vallenar	+0.36		83 26 55.16	
Skin	−0.46	−0.37	82 41 49.22	0.45
High Island	+0.21		56 08 06.34	
South Vallenar	−0.12		41 10 04.89	
Gravina	−0.26	−0.55	31 25 51.82	0.36
Skin	−1.08		113 30 17.50	
High Island	+0.79		35 03 51.04	
Gravina	−0.60	−1.45	88 22 53.08	0.25
Skin	−0.62		30 48 28.28	
South Vallenar	−0.23		60 48 38.89	
Gravina	−0.34	−1.27	56 57 01.26	0.34
High Island	−0.58		21 04 15.30	
South Vallenar	−0.35		101 58 43.78	

TABLE OF TRIANGLES—Continued

SECTION 7. NAR-MIS TO WEDGE-DALL—Continued

Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess
	"	"	° ′ ″	"
Slide	−0.75	+0.74	46 08 27.61	0.31
Skin	+1.03		31 27 50.83	
Gravina	+0.46		102 23 41.87	
North Chasina	−0.51	+0.10	121 01 15.06	0.10
Skin	+0.57		42 45 10.50	
Gravina	+0.04		16 13 34.54	
North Chasina	+0.07	+0.10	165 10 53.49	0.04
Skin	−0.46		11 17 19.67	
Slide	+0.49		3 31 46.88	
North Chasina	+0.58	+0.74	44 09 38.43	0.25
Gravina	+0.42		86 10 07.33	
Slide	−0.26		49 40 14.49	
South Chasina	−0.53	+0.16	53 19 25.06	0.22
Gravina	+0.52		70 07 14.71	
Slide	+0.17		56 33 20.45	
Wedge	−0.78	−0.09	28 32 30.89	0.26
South Chasina	−0.51		116 20 26.18	
Gravina	+1.20		35 07 03.19	
Wedge	−0.46	−0.44	55 24 33.49	0.29
South Chasina	+0.02		63 01 01.12	
Slide	0.00		61 34 25.68	
Wedge	+0.32	−0.19	26 52 02.60	0.25
Gravina	−0.68		35 00 11.52	
Slide	+0.17		118 07 46.13	
Dall	−0.34	−1.84	49 24 08.26	0.32
Wedge	−0.99		86 58 31.26	
South Chasina	−0.51		43 37 20.80	
Dall	−0.92	−2.57	85 07 37.02	0.17
Wedge	−0.53		31 33 57.77	
Slide	−1.12		63 18 25.38	
Dall	−0.58	−1.17	35 43 28.76	0.14
South Chasina	+0.53		19 23 40.32	
Slide	−1.12		124 52 51.06	

SECTION 8. FOX-AGASSIZ NORTH BASE TO GLASS-COKE TO HOLKHAM BAY BASE

Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess
Noon	−0.57	+1.02	45 07 19.24	0.09
Agassiz north base	+0.66		72 33 38.01	
Fox	+0.93		62 19 02.84	
Wave 2	−0.62	−1.49	26 42 57.01	0.06
Agassiz north base	+0.02		125 43 09.59	
Fox	−0.89		27 33 53.46	
Wave 2	−0.56	−0.65	74 21 29.42	0.07
Agassiz north base	−0.64		53 09 31.58	
Noon	+0.55		52 28 59.07	
Wave 2	+0.06	+1.86	47 38 32.41	0.10
Fox	+1.82		34 45 09.38	
Noon	−0.02		97 36 18.31	
Square	−0.13	−1.16	37 05 49.74	0.08
Wave 2	+0.55		101 53 24.29	
Noon	−1.58		41 00 46.05	
Sand	−0.04	−1.31	43 59 58.20	0.09
Square	−0.54		95 10 34.34	
Wave 2	−0.73		40 49 27.55	
Sand	−1.98	−1.23	83 07 21.74	0.11
Square	−0.41		58 04 44.60	
Noon	+1.16		38 47 53.77	
Sand	−1.94	−1.08	39 07 23.54	0.10
Wave 2	+1.28		61 03 56.74	
Noon	−0.42		79 48 39.82	
Catch 2	−0.71	+0.55	44 07 36.07	0.07
Square	+0.35		99 55 34.59	
Sand	+0.91		35 56 49.41	
South Grand	+0.41	+0.09	14 22 15.71	0.08
Catch 2	−0.33		135 33 30.63	
Square	+0.01		30 04 13.74	
South Grand	−0.31	+0.36	39 08 45.23	0.19
Catch 2	+0.38		91 25 54.56	
Sand	+0.29		49 25 20.40	
South Grand	−0.72	+0.82	24 46 29.52	0.18
Square	+0.34		69 51 20.85	
Sand	+1.20		85 22 09.81	
Bridge	−0.20	−0.23	53 58 24.39	0.20
South Grand	+0.32		78 03 40.40	
Catch 2	−0.35		47 57 55.41	
Bridge	−0.52	0.00	76 34 24.70	0.26
South Grand	−0.09		63 41 24.69	
Square	+0.61		39 44 10.87	
Bridge	−0.32	+0.32	22 36 00.31	0.14
Catch 2	+0.02		87 35 35.22	
Square	+0.62		69 48 24.61	
Bay Point	−0.86	−0.08	44 11 14.19	0.19
South Grand	−0.14		93 58 19.19	
Bridge	+0.92		41 50 26.81	
Portage	−0.67	−1.69	40 35 58.55	0.21
Bay Point	−0.58		88 47 14.55	
South Grand	−0.44		50 36 47.11	
Portage	−0.94	−2.31	83 19 47.83	0.22
Bay Point	+0.28		44 36 00.36	
Bridge	−1.65		52 04 12.03	
Portage	−0.27	−0.70	42 43 49.28	0.20
South Grand	+0.30		43 21 32.08	
Bridge	−0.73		93 54 38.84	

TABLE OF TRIANGLES—Continued

SECTION 8. FOX-AGASSIZ NORTH BASE TO GLASS-COKE TO HOLKHAM BAY BASE—Continued

Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess
	"		° ′ ″	"
Highland	−1.58	−0.97	36 09 40.08	0.25
Bay Point	−0.59		106 18 14.60	
Portage	+1.20		37 32 05.57	
Flat	+0.29	+0.16	34 04 49.60	0.33
Highland	−0.56		100 20 35.33	
Bay Point	+0.43		45 34 35.40	
Flat	−0.43	−0.49	67 27 53.62	0.48
Highland	+1.02		64 10 55.25	
Portage	−1.08		48 21 11.61	
Flat	−0.72	−1.62	33 23 04.02	0.40
Bay Point	−1.02		60 43 39.20	
Portage	+0.12		85 53 17.18	
Fanshaw	−0.28	−0.11	65 37 58.02	0.25
Highland	−0.66		81 59 07.08	
Flat	+0.83		32 22 55.15	
Top	−0.05	+0.07	10 05 08.72	0.34
Fanshaw	−0.41		135 13 59.72	
Highland	+0.53		34 40 51.90	
Top	−0.01	−0.76	33 38 13.37	0.85
Fanshaw	−0.13		69 36 01.70	
Flat	−0.62		76 45 45.78	
Top	+0.04	−0.94	23 33 04.65	0.76
Highland	−1.19		47 18 15.18	
Flat	+0.21		109 08 40.93	
Southwest	+0.04	+0.19	77 32 25.62	0.68
Fanshaw	−0.60		77 14 32.01	
Top	+0.75		25 13 03.05	
Round Rock	−0.35	−1.51	103 58 07.01	0.61
Southwest	−0.12		34 53 03.08	
Top	−1.04		41 08 50.52	
Spruce	−1.23	−2.43	15 39 14.39	0.19
Round Rock	−0.69		154 38 53.94	
Southwest	−0.51		9 41 51.86	
Spruce	−0.99	−1.06	83 45 34.35	0.31
Round Rock	−0.34		50 40 46.93	
Top	+0.27		45 33 39.03	
Spruce	+0.24	−0.14	68 06 19.96	0.73
Southwest	+0.39		25 11 11.22	
Top	−0.77		86 42 29.55	
Bill Point	−0.21	+0.10	95 10 35.11	0.14
Fanshaw	−0.01		41 22 14.84	
Southwest	+0.32		43 27 10.19	
Pybus	−1.34	−2.96	70 27 45.27	0.49
Southwest	−0.30		45 00 00.39	
Round Rock	−1.32		64 32 14.83	
Twin	−0.91	−1.50	21 51 37.24	0.33
Bill Point	−0.72		68 36 34.64	
Southwest	+0.13		89 31 48.45	
Twin	−0.41	−0.82	50 41 33.39	0.70
Southwest	−0.07		69 35 32.27	
Pybus	−0.34		59 42 55.04	
Gambier	−0.29	+0.45	96 33 19.22	0.34
Twin	+0.77		23 20 06.06	
Pybus	−0.03		60 06 35.06	

Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess
	"	"	° ′ ″	"
Sunset	−0.60	−0.40	62 11 48.96	0.42
Twin	−0.35		95 30 30.19	
Pybus	+0.55		22 17 41.27	
Sunset	−0.78	−2.14	78 59 04.56	0.35
Twin	−1.12		72 10 24.13	
Gambier	−0.24		28 50 31.66	
Sunset	−0.18	−1.29	16 47 15.60	0.27
Pybus	−0.58		37 48 53.79	
Gambier	−0.53		125 23 50.88	
Hugh	−1.48	−3.09	61 36 31.38	0.59
Sunset	−0.67		61 25 46.01	
Gambier	−0.94		56 57 43.20	
Cliff	−0.44	−0.73	44 47 52.39	0.64
Sunset	−0.25		95 09 23.49	
Gambier	−0.04		40 02 44.76	
Cliff	−1.07	−0.54	77 09 38.92	0.34
Sunset	+0.42		33 43 37.48	
Hugh	+0.11		69 06 43.94	
Cliff	−0.63	−2.90	32 21 46.53	0.29
Gambier	−0.90		16 54 58.44	
Hugh	−1.37		130 43 15.32	
Mid	−0.04	+1.39	106 20 57.04	0.05
Cliff	+0.67		14 28 04.22	
Hugh	+0.76		59 10 58.79	
Lookout	+0.92	+2.68	48 15 10.86	0.05
Cliff	+1.28		119 50 41.53	
Hugh	+0.48		11 54 07.66	
Lookout	+1.03	+2.29	59 13 58.73	0.05
Cliff	+0.61		105 22 37.31	
Mid	+0.65		15 23 24.01	
Lookout	+0.11	+1.00	10 58 47.87	0.05
Hugh	+0.28		47 16 51.13	
Mid	+0.61		121 44 21.05	
Lite	+0.65	+0.18	99 46 30.82	0.05
Lookout	+0.01		15 33 33.93	
Mid	−0.48		64 39 55.30	
Tip	−1.03	−2.30	33 24 16.17	0.05
Lookout	−1.16		135 19 07.61	
Mid	−0.11		11 16 36.27	
Tip	−1.42	−3.15	44 29 32.67	0.06
Lookout	−1.17		119 45 33.68	
Lite	−0.56		15 44 53.71	
Tip	−0.39	−0.67	11 05 16.50	0.06
Mid	−0.37		53 23 19.03	
Lite	+0.09		115 31 24.53	
Midway	−1.37	−0.67	45 45 56.07	0.31
Tip	+1.05		59 30 48.12	
Lite	−0.35		74 43 16.12	
Astley	+1.09	+0.53	32 34 54.30	0.08
Tip	+0.45		134 41 20.25	
Lite	−1.01		12 43 45.53	
Astley	−0.43	−0.51	87 09 14.25	0.15
Tip	−0.60		75 10 32.13	
Midway	+0.52		17 40 13.77	

TABLE OF TRIANGLES—Continued

SECTION 8. FOX-AGASSIZ NORTH BASE TO GLASS-COKE TO HOLKHAM BAY BASE—Continued

Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess
	"	"	° ′ ″	"
Astley	−1.52	−1.71	54 34 19.95	0.38
Lite	+0.66		61 59 30.59	
Midway	−0.85		63 26 09.84	
Coke	−0.62	+2.84	61 17 38.02	0.39
Astley	+1.71		58 05 27.00	
Midway	+1.75		60 36 55.37	
Glass	−2.29	−1.15	46 57 23.23	0.32
Coke	+0.03		101 17 06.28	
Astley	+1.11		31 45 30.81	
Glass	−0.25	−1.03	92 23 48.30	0.20
Coke	+0.65		39 59 28.26	
Midway	−1.43		47 36 43.64	
Glass	+2.04	+2.96	45 26 25.07	0.27
Astley	+0.60		26 19 56.19	
Midway	+0.32		108 13 39.01	
Tracy	+0.49	+0.02	76 06 41.76	0.28
Astley	−0.42		59 50 56.82	
Midway	−0.05		44 02 21.70	
Tracy	−1.06	−3.11	118 14 15.28	0.24
Astley	−1.02		33 31 00.63	
Glass	−1.03		28 14 44.33	
Tracy	−1.55	−0.17	42 07 33.52	0.23
Midway	+0.37		64 11 17.31	
Glass	+1.01		73 41 09.40	
Holk	−0.34	+1.74	25 57 48.73	0.28
Midway	+1.04		107 51 45.04	
Glass	+1.04		46 10 26.51	
Holk	−0.55	+2.14	58 11 00.16	0.29
Midway	+0.67		43 40 27.73	
Tracy	+2.02		78 08 32.40	
Holk	−0.21	+0.23	32 13 11.43	0.24
Glass	−0.03		27 30 42.89	
Tracy	+0.47		120 16 05.92	
Harbor	−2.17	−0.59	69 45 26.95	0.16
Holk	+0.17		92 20 55.17	
Midway	+1.41		17 53 38.04	
Harbor	+0.29	+0.13	122 54 02.60	0.06
Holk	+0.72		34 09 55.01	
Tracy	−0.88		22 56 02.45	
Harbor	+2.46	+2.86	53 08 35.65	0.19
Midway	−0.74		25 46 49.69	
Tracy	+1.14		101 04 34.85	
Holkham Bay south base	−1.90	−0.25	52 27 00.20	0.05
Holk	0.00		80 24 44.75	
Harbor	+1.65		47 08 15.10	
Holkham Bay north base	−0.29	+1.38	66 55 53.75	0.02
Holkham Bay south base	+0.37		84 01 39.38	
Holk	+1.30		29 02 26.89	
Holkham Bay north base	+0.71	+1.29	131 16 47.29	0.01
Holkham Bay south base	+2.27		31 34 39.18	
Harbor	−1.69		17 08 33.54	
Holkham Bay north base	+1.00	−0.34	64 20 53.54	0.04
Holk	−1.30		51 22 17.86	
Harbor	−0.04		64 16 48.64	

SECTION 8A. SPRUCE-TOP-BENDEL-PEAN

Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess
Pean	−0.62	+0.82	38 18 27.26	0.40
Spruce	+0.42		93 03 39.71	
Top	+1.02		48 37 53.43	
Bendel	−1.02	+0.82	47 12 58.82	0.56
Pean	+0.20		65 08 36.28	
Spruce	+1.64		67 38 25.46	
Bendel	−0.88	−1.91	83 05 20.48	0.37
Pean	+0.82		26 50 09.02	
Top	−1.85		70 04 30.87	
Bendel	+0.14	−1.91	35 52 21.66	0.21
Spruce	−1.22		25 25 14.25	
Top	−0.83		118 42 24.30	

SECTION 9. GASTINEAU CHANNEL BASE TO NEW-CORNER

Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess
Marks	+0.67	+1.23	60 05 29.68	0.01
Gastineau Channel north base	+0.18		46 28 51.25	
Gastineau Channel south base	+0.38		73 25 39.08	
Ton	−1.26	−0.64	16 45 34.13	0.00
Marks	+0.44		155 12 18.86	
Gastineau Channel north base	+0.18		8 02 07.01	
Ton	−0.83	−0.18	53 46 00.47	0.00
Marks	−0.23		95 06 49.18	
Gastineau Channel south base	+0.88		31 07 10.35	
Ton	+0.43	+1.69	37 00 26.34	0.01
Gastineau Channel north base	0.00		38 26 44.24	
Gastineau Channel south base	+1.26		104 32 49.43	

TABLE OF TRIANGLES—Continued

SECTION 9. GASTINEAU CHANNEL BASE TO NEW-CORNER—Continued

Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess
	"		° ′ ″	"
Salisbury	−2.30	−0.38	24 45 56.49	0.01
Ton	−0.09		90 07 04.83	
Marks	+2.01		65 06 58.69	
Corner	−0.66	+2.22	4 33 19.64	0.01
Ton	+0.35		158 59 34.91	
Marks	+2.53		16 27 05.46	
Corner	+1.64	+0.78	24 32 42.76	0.03
Ton	+1.18		105 13 34.44	
Gastineau Channel south base	−2.04		50 13 42.83	
Corner	−0.04	+2.23	35 57 05.57	0.03
Ton	+0.44		68 52 30.08	
Salisbury	+1.83		75 10 24.38	
Corner	+2.30	−1.62	19 59 23.12	0.02
Marks	−2.76		78 39 43.72	
Gastineau Channel south base	−1.16		81 20 53.18	
Corner	+0.62	−0.37	31 23 45.93	0.03
Marks	−0.52		48 39 53.23	
Salisbury	−0.47		99 56 20.87	
New	−0.28	−0.17	9 37 57.20	0.01
Ton	+1.27		152 59 13.42	
Gastineau Channel south base	−1.16		17 22 49.39	
New	−0.30	+3.09	23 41 33.25	0.02
Ton	+0.53		116 38 09.06	
Salisbury	+2.86		39 40 17.71	
New	0.00	−0.33	68 25 59.89	0.03
Ton	+0.09		47 45 38.98	
Corner	−0.42		63 48 21.16	
New	+0.28	+0.62	58 48 02.69	0.05
Gastineau Channel south base	−0.88		32 50 53.44	
Corner	+1.22		88 21 03.92	
New	+0.30	−1.19	44 44 26.64	0.04
Salisbury	−1.03		35 30 06.67	
Corner	−0.46		99 45 26.73	
Tantallon	+0.21	−0.08	66 33 45.50	0.03
Salisbury	+0.07		70 54 28.62	
Corner	−0.36		42 31 45.91	
Tantallon	+0.06	+1.15	116 29 57.37	0.03
Salisbury	+1.10		35 24 21.95	
New	−0.01		28 05 40.71	
Tantallon	−0.15	+0.04	49 56 11.87	0.04
Corner	−0.10		57 13 40.82	
New	+0.29		72 50 07.35	

SECTION 10. TANTALLON-SALISBURY-CORNER TO GLASS-COKE

Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess
Anmer	+2.01	−0.32	39 49 32.93	0.32
Coke	−1.15		74 52 58.32	
Glass	−1.18		65 17 29.07	
Twin Point	+2.86	+1.93	49 14 04.32	0.30
Anmer	+1.37		101 32 38.85	
Coke	−2.30		29 13 17.13	
Twin Point	−0.71	+0.50	81 25 42.83	0.29
Anmer	−0.64		61 43 05.92	
Glass	+1.85		36 51 11.54	
Twin Point	−3.57	−1.75	32 11 38.51	0.31
Coke	+1.15		45 39 41.19	
Glass	+0.67		102 08 40.61	
Style	−1.41	−1.92	64 27 50.43	0.15
Anmer	−0.17		67 29 17.58	
Twin Point	−0.34		48 02 52.14	
South	−1.35	−0.14	30 38 27.55	0.13
Style	−0.37		117 08 40.64	
Anmer	+1.58		32 12 51.94	
South	+0.82	+1.99	73 29 04.41	0.14
Style	+1.04		52 40 50.21	
Twin Point	+0.13		53 50 05.52	
South	+2.17	+0.21	42 50 36.86	0.16
Anmer	−1.75		35 16 25.64	
Twin Point	−0.21		101 52 57.66	
Limestone	+0.44	+0.03	80 55 05.30	0.08
Style	−0.56		61 22 07.75	
South	+0.15		37 42 47.03	
Stone	+1.27	−1.13	18 57 49.49	0.06
Limestone	−1.02		131 13 55.14	
Style	−1.38		29 48 15.43	
Stone	+0.51	−0.52	62 57 18.07	0.09
Limestone	−1.46		50 18 49.84	
South	+0.43		68 43 52.18	
Stone	−0.76	+0.64	41 59 28.58	0.11
Style	+0.82		31 33 52.32	
South	+0.58		106 26 39.21	
Grave	+0.30	+0.30	71 13 21.55	0.09
Limestone	+0.72		48 32 28.62	
Stone	−0.72		60 14 09.92	
Rock	+0.95	+0.16	44 24 29.60	0.09
Grave	+0.12		101 55 34.84	
Limestone	−0.91		33 39 55.65	
Rock	+0.67	+1.11	83 32 38.91	0.04
Grave	−0.18		30 42 13.29	
Stone	+0.62		65 45 07.84	
Rock	−0.28	+1.25	39 08 09.31	0.04
Limestone	+1.63		14 52 32.97	
Stone	−0.10		125 59 17.76	
Doty	−0.14	−0.73	36 39 32.94	0.09
Grave	−0.21		54 59 01.91	
Rock	−0.38		88 21 25.24	
Whale	−0.26	−1.22	56 25 26.67	0.06
Grave	−0.26		59 36 39.40	
Rock	−0.70		63 57 53.99	

TABLE OF TRIANGLES—Continued

SECTION 10. TANTALLON-SALISBURY-CORNER TO GLASS-COKE—Continued

Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess	Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess
	″	″	° ′ ″	″		″	″	° ′ ″	″
Whale	+0.03	+0.41	167 06 44.81	0.01	Slocum	+0.44	−0.29	21 10 54.36	0.05
Grave	−0.05		4 37 37.49		Grand	−0.64		55 58 05.34	
Doty	+0.43		8 15 37.71		Cove	−0.09		102 51 00.35	
Whale	+0.29	+0.90	110 41 18.14	0.04	Slocum	+0.31	+0.54	50 41 52.54	0.08
Rock	+0.32		24 23 31.25		Grand	−0.30		43 20 21.01	
Doty	+0.29		44 55 10.65		Arden	+0.53		85 57 46.53	
Cove	+0.10	+0.37	28 26 24.82	0.04	Bishop	+0.36	−0.53	67 25 05.14	0.06
Rock	−0.13		13 56 33.55		Slocum	−0.55		56 49 58.57	
Doty	+0.40		137 37 01.67		Arden	−0.34		55 44 56.35	
Circle	+0.11	+0.81	32 08 49.32	0.05	Salisbury	+1.52	+0.80	19 32 33.92	0.03
Doty	+0.29		48 00 53.91		Bishop	−0.03		144 52 19.89	
Cove	+0.41		99 50 16.82		Slocum	−0.69		15 35 06.22	
Grand	−0.02	−0.06	91 47 37.96	0.03	Salisbury	+0.16	−0.01	59 27 39.71	0.05
Cove	−0.11		52 14 40.08		Bishop	−0.39		77 27 14.75	
Circle	+0.07		35 57 41.99		Arden	+0.22		43 05 05.59	
Arden	+0.53	+0.72	35 42 08.89	0.06	Salisbury	−1.36	−1.34	39 55 05.79	0.08
Circle	−0.13		65 07 57.54		Slocum	+0.14		41 14 52.35	
Grand	+0.32		79 09 53.63		Arden	−0.12		98 50 01.94	
Slocum	−0.43	+0.28	26 07 39.03	0.05	Corner	−0.59	−0.90	48 43 06.72	0.04
Circle	+0.09		118 02 48.40		Salisbury	+0.41		77 23 39.98	
Grand	+0.62		35 49 32.62		Bishop	−0.72		53 53 13.34	
Slocum	+0.01	+0.05	47 18 33.39	0.07	Tantallon	+0.66	+1.31	17 44 08.99	0.01
Circle	+0.02		82 05 06.41		Salisbury	+0.41		148 18 08.60	
Cove	+0.02		50 36 20.27		Bishop	+0.24		13 57 42.42	
Slocum	−0.12	+0.10	76 49 31.57	0.07	Tantallon	−0.66	−2.21	48 49 36.51	0.06
Circle	+0.22		52 54 50.86		Bishop	−0.96		39 55 30.92	
Arden	0.00		50 15 37.64		Corner	−0.59		91 14 52.63	

SECTION 11. TANTALLON-CORNER TO HORSE-EAGLE TO YOUNG BAY BASE

Oliver	+0.84	+1.88	48 13 01.69	0.05	Bight	−0.25	+0.66	40 38 04.94	0.07
Tantallon	+0.26		75 24 06.96		Jumbo	+0.04		87 56 51.23	
Corner	+0.78		56 22 51.40		Donough	+0.87		51 25 03.90	
Rain	−0.17	+0.07	17 24 17.77	0.09	Young	+0.97	+0.67	16 03 34.99	0.07
Tantallon	−0.03		123 09 04.30		Jumbo	+0.01		134 24 45.75	
Corner	+0.27		39 26 38.02		Donough	−0.31		29 31 39.33	
Rain	−0.42	−0.60	31 02 57.53	0.09	Young	+0.01	+0.97	42 20 52.88	0.08
Tantallon	−0.29		47 44 57.34		Jumbo	−0.03		46 27 54.52	
Oliver	+0.11		101 12 05.22		Bight	+0.99		91 11 12.68	
Rain	−0.25	+1.21	13 38 39.76	0.05	Young	−0.96	+0.96	26 17 17.89	0.08
Corner	+0.51		16 56 13.38		Donough	+1.18		21 53 24.57	
Oliver	+0.95		149 25 06.91		Bight	+0.74		131 49 17.62	
Donough	+0.44	+1.28	76 16 13.65	0.08	Hilda	−0.17	+0.07	76 05 15.39	0.05
Oliver	+0.52		45 51 33.47		Bight	+0.53		34 49 27.12	
Rain	+0.32		57 52 12.96		Young	0.29		69 05 17.54	
Jumbo	+0.26	+0.50	19 26 59.25	0.04	Target	+0.31	−0.04	24 40 19.10	0.03
Donough	+0.05		145 48 28.64		Hilda	+0.05		140 20 47.29	
Olive	+0.19		14 44 32.15		Bight	−0.40		14 58 53.64	
Jumbo	+0.20	−0.20	59 29 02.09	0.06	Target	−0.49	−0.25	57 16 47.46	0.03
Donough	−0.39		69 32 14.99		Hilda	+0.22		64 15 31.90	
Rain	−0.01		50 58 42.98		Young	+0.02		58 27 40.67	
Jumbo	−0.06	+0.58	40 02 02.84	0.10	Target	−0.80	−0.14	32 36 28.36	0.05
Oliver	+0.33		31 07 01.32		Bight	+0.93		19 50 33.48	
Rain	+0.31		108 50 55.94		Young	−0.27		127 32 58.21	

TABLE OF TRIANGLES—Continued

SECTION 11. TANTALLON-CORNER TO HORSE-EAGLE TO YOUNG BAY BASE—Continued

Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess
	"	"	° ′ ″	"
Scull 2	−0.36	+0.35	21 00 02.48	0.03
Target	+0.26		129 47 52.49	
Hilda	+0.45		29 12 05.06	
Scull 2	−1.15	+0.10	44 00 01.95	0.04
Target	+0.75		72 31 05.03	
Young	+0.50		63 28 53.06	
Scull 2	−0.79	−0.50	22 59 59.47	0.04
Hilda	−0.23		35 03 26.84	
Young	+0.52		121 56 33.73	
Deer	−1.37	−2.61	46 28 50.09	0.07
Young	+0.06		43 14 38.88	
Scull 2	−1.30		90 16 31.10	
Grouse	−1.02	−0.24	59 55 24.76	0.05
Deer	+0.79		53 11 54.65	
Scull 2	−0.01		66 52 40.64	
Hawk	−0.16	+0.71	37 35 54.86	0.05
Grouse	+0.39		109 37 01.32	
Deer	+0.48		32 47 03.87	
Hawk	−0.35	+0.95	63 58 07.38	0.04
Grouse	+1.41		49 41 36.56	
Scull 2	−0.11		66 20 16.10	
Hawk	−0.19	0.00	26 22 12.52	0.04
Deer	+0.31		20 24 50.78	
Scull 2	−0.12		133 12 56.74	
Hawk	+1.05	−0.19	51 29 50.57	0.14
Deer	−1.06		66 53 40.87	
Young	−0.18		61 36 28.70	
Hawk	+1.24	+2.42	25 07 38.05	0.03
Scull 2	+1.42		136 30 32.16	
Young	−0.24		18 21 49.82	
Young Bay east base	−0.17	+0.37	50 19 45.51	0.04
Hawk	+0.29		82 10 16.41	
Scull 2	+0.25		47 29 58.12	
Young Bay west base	+0.04	+1.55	38 32 49.85	0.03
Hawk	+0.70		110 54 12.51	
Scull 2	+0.81		30 32 57.67	
Young Bay west base	−0.41	−0.43	93 00 53.82	0.01
Hawk	+0.41		28 43 56.10	
Young Bay east base	−0.43		58 15 10.09	
Young Bay west base	−0.45	−1.61	54 28 03.97	0.02
Scull 2	−0.56		16 57 00.45	
Young Bay east base	−0.60		108 34 55.60	
Horse	−0.35	+0.03	39 18 18.98	0.08
Deer	+0.41		90 07 00.66	
Scull 2	−0.03		50 34 40.44	
Eagle	−0.55	−0.18	24 53 10.05	0.04
Deer	+0.18		133 45 33.13	
Scull 2	+0.19		21 21 16.86	
Eagle	−0.56	−0.93	91 10 09.76	0.04
Deer	−0.23		43 38 32.47	
Horse	−0.14		45 11 17.81	
Eagle	−0.01	−0.72	66 16 59.71	0.08
Scull 2	−0.22		29 13 23.58	
Horse	−0.49		84 29 36.79	

SECTION 12. HORSE-EAGLE TO LITTLE-SENTINEL TO EAGLE RIVER BASE

Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess
Outer	+1.10	+0.12	54 27 33.24	0.03
Eagle	−0.43		96 49 24.39	
Horse	−0.55		28 43 02.40	
Clearing	+1.64	−0.05	27 26 24.13	0.03
Outer	−0.65		85 29 00.37	
Eagle	−1.04		67 04 35.53	
Clearing	+0.02	−1.33	77 55 37.20	0.03
Outer	−1.75		31 01 27.13	
Horse	+0.40		71 02 55.70	
Clearing	−1.62	−1.16	50 29 13.07	0.03
Eagle	+0.61		29 44 48.86	
Horse	−0.15		99 45 58.10	
Cow	−0.29	−0.11	39 20 49.48	0.08
Outer	+0.55		85 36 45.86	
Clearing	−0.37		55 02 24.74	
Cabin	−0.11	+0.01	61 05 10.90	0.07
Cow	−0.04		83 58 33.70	
Outer	+0.16		34 56 15.47	
Cabin	+0.06	+0.12	103 54 16.62	0.06
Cow	+0.25		44 37 44.22	
Clearing	−0.19		31 27 59.22	
Cabin	+0.17	0.00	42 49 05.72	0.07
Outer	+0.39		50 40 30.39	
Clearing	−0.56		86 30 23.96	
Symonds	−0.01	−0.45	56 48 25.86	0.03
Cow	−0.49		35 03 08.38	
Cabin	+0.05		88 08 25.79	
Lena	+0.26	+0.66	26 44 50.25	0.05
Cow	−0.35		115 47 33.01	
Cabin	+0.75		37 27 36.79	
Lena	+0.64	+0.92	45 28 45.96	0.07
Cow	+0.14		80 44 24.63	
Symonds	+0.14		53 46 49.48	
Lena	+0.38	−0.19	18 43 55.71	0.05
Cabin	−0.70		50 40 49.00	
Symonds	+0.13		110 35 15.34	
Cliff	+0.65	−0.54	55 21 25.83	0.04
Lena	+0.03		101 45 24.58	
Cow	−1.22		22 53 09.63	
Dairy	+0.87	+1.33	63 22 13.35	0.02
Cliff	+0.22		70 00 42.47	
Lena	+0.24		46 37 04.20	

TABLE OF TRIANGLES—Continued

SECTION 12. HORSE-EAGLE TO LITTLE-SENTINEL TO EAGLE RIVER BASE—Continued

Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess
	"	"	° ′ ″	"
Dairy	+0.21	+1.24	158 34 05.49	0.01
Cliff	−0.43		14 39 16.64	
Cow	+1.46		6 46 37.88	
Dairy	−0.66	−0.63	95 11 52.14	0.03
Lena	−0.21		55 08 20.38	
Cow	+0.24		29 39 47.51	
Tee	+1.20	+1.49	24 35 23.04	0.04
Lena	+0.09		96 31 40.09	
Cliff	+0.20		58 52 56.91	
Ledge	+0.45	+0.72	67 25 15.91	0.06
Tee	+0.34		58 16 37.55	
Lena	−0.07		54 18 06.60	
Ledge	+0.02	−1.32	97 37 10.97	0.04
Tee	−0.86		33 41 14.51	
Cliff	−0.48		48 41 34.56	
Ledge	−0.43	−0.55	30 11 55.06	0.02
Lena	+0.16		42 13 33.49	
Cliff	−0.28		107 34 31.47	
Slate	−0.91	−1.95	68 52 01.11	0.03
Tee	−0.36		24 27 11.91	
Ledge	−0.68		86 40 47.01	
Islet	+0.42	+0.38	46 20 08.61	0.04
Tee	−0.10		104 25 39.15	
Ledge	+0.06		29 14 12.28	
Islet	−0.12	+0.68	85 07 02.54	0.04
Tee	+0.26		79 58 27.24	
Slate	+0.54		34 54 30.26	
Islet	−0.54	−1.65	18 46 53.93	0.03
Ledge	−0.74		57 26 34.73	
Slate	−0.37		103 46 31.37	
Pearl	+0.48	+0.69	43 00 42.71	0.06
Islet	+0.01		106 11 36.70	
Slate	+0.20		30 47 40.65	
Indian	+1.05	+1.13	37 26 23.80	0.06
Pearl	−0.11		83 33 55.58	
Islet	+0.19		58 59 40.68	
Indian	+0.32	−0.90	90 43 09.54	0.07
Pearl	−0.59		40 33 12.87	
Slate	−0.63		48 43 37.66	
Indian	−0.73	−1.34	53 16 45.74	0.07
Islet	−0.18		47 11 56.02	
Slate	−0.43		79 31 18.31	
Sentinel	−0.04	−1.03	46 34 50.02	0.10
Pearl	−0.40		65 05 36.58	
Indian	−0.59		68 19 33.50	
Gull	−0.45	−1.36	131 38 10.98	0.02
Pearl	+0.40		25 28 40.79	
Indian	−1.31		22 53 08.25	
Gull	+0.20	+0.49	108 40 03.48	0.04
Indian	+0.72		45 26 25.25	
Sentinel	−0.43		25 53 31.31	
Gull	+0.25	−0.16	119 41 45.54	0.04
Sentinel	+0.39		20 41 18.71	
Pearl	−0.80		39 36 55.79	
Eagle River south base	+0.04	−1.29	53 35 11.05	0.04
Gull	−0.46		102 32 34.55	
Sentinel	−0.87		23 42 14.44	
Eagle River north base	+0.63	−0.20	42 35 46.66	0.02
Eagle River south base	−0.28		84 49 30.64	
Gull	−0.55		52 34 42.72	
Eagle River north base	+0.10	+0.98	125 24 02.08	0.03
Eagle River south base	−0.32		31 14 19.59	
Sentinel	+1.20		23 21 38.36	
Eagle River north base	−0.53	−0.11	82 48 15.42	0.05
Gull	+0.09		49 57 51.83	
Sentinel	+0.33		47 13 52.80	
Lincoln	−0.13	−0.50	57 22 31.35	0.07
Sentinel	−0.41		63 13 38.49	
Gull	+0.04		59 23 50.23	
Little	−0.21	−0.66	25 49 00.30	0.09
Sentinel	−0.44		119 30 15.52	
Gull	−0.01		34 40 44.27	
Little	+0.39	+0.81	48 59 25.98	0.09
Sentinel	−0.03		56 16 37.03	
Lincoln	+0.45		74 43 57.08	
Little	+0.60	+0.97	23 10 25.68	0.07
Gull	+0.05		24 43 05.96	
Lincoln	+0.32		132 06 28.43	

SECTION 13. LITTLE-SENTINEL TO KAL-TWIN TO GLACIER POINT BASE

Bridget	−0.10	+0.07	29 32 52.35	0.25
Sentinel	+0.12		80 20 13.84	
Little	+0.05		70 06 54.06	
Whid	−0.10	−1.06	62 51 06.06	0.36
Bridget	−0.32		73 51 22.36	
Sentinel	−0.64		43 17 31.94	
Whid	+0.06	+0.14	88 24 00.24	0.27
Bridget	−0.22		44 18 30.01	
Little	+0.30		47 17 30.02	
Whid	+0.16	+1.27	25 32 54.18	0.16
Sentinel	+0.76		37 02 41.90	
Little	+0.35		117 24 24.08	
Will	−0.54	−0.67	75 31 58.86	0.13
Bridget	−0.13		26 06 36.11	
Whid	0.00		78 21 25.16	
Bern	−0.52	−1.77	38 43 23.93	0.32
Bridget	+0.03		96 32 46.11	
Whid	−1.28		44 43 50.28	

TABLE OF TRIANGLES—Continued

SECTION 13. LITTLE-SENTINEL TO KAL-TWIN TO GLACIER POINT BASE—Continued

Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess
	"	"	° ′ ″	"
Bern	−0.69	+0.04	50 28 36.78	0.31
Bridget	+0.16		70 26 10.00	
Will	+0.57		59 05 13.53	
Bern	−0.17	+1.14	11 45 12.85	0.12
Whid	+1.28		33 37 34.88	
Will	+0.03		134 37 12.39	
River	−0.16	+0.48	70 02 04.86	0.30
Bern	+0.68		64 33 07.14	
Will	−0.04		45 24 48.30	
Chan	+0.40	+1.26	34 18 27.71	0.23
Bern	+0.60		124 42 37.37	
Will	+0.26		20 58 55.15	
Chan	−0.46	−1.17	68 32 58.98	0.19
Bern	−0.08		60 09 30.23	
River	−0.63		51 17 30.98	
Chan	−0.86	−1.95	34 14 31.27	0.26
Will	−0.30		24 25 53.15	
River	−0.79		121 19 35.84	
Cot	−0.32	+0.26	100 13 22.17	0.07
Chan	+0.15		22 41 51.61	
River	+0.43		57 04 46.29	
Half	−0.34	+0.06	57 13 10.14	0.02
Chan	+0.42		117 04 24.04	
River	−0.02		5 42 25.84	
Half	−0.10	+0.37	77 50 01.02	0.02
Chan	+0.27		94 22 32.43	
Cot	+0.20		7 47 26.57	
Half	+0.24	+0.57	20 36 50.88	0.07
River	+0.45		51 22 20.45	
Cot	−0.12		108 00 48.74	
Sher	+0.43	+0.90	59 56 27.78	0.03
Half	+0.38		110 04 19.89	
Cot	+0.09		9 59 12.36	
Van	−0.14	−0.18	3 47 02.46	0.03
Sher	−0.16		148 14 44.29	
Half	+0.12		27 58 13.28	
Van	−0.49	−0.77	37 55 50.84	0.26
Sher	−0.59		88 18 16.51	
Cot	+0.31		53 45 52.91	
Van	−0.35	+0.31	34 08 48.38	0.26
Half	+0.26		82 06 06.61	
Cot	+0.40		63 45 05.27	
Met	−0.19	−0.23	25 08 41.76	0.17
Sher	+0.25		127 25 39.59	
Cot	−0.29		27 25 38.82	
Met	+0.38	+1.23	85 26 09.91	0.17
Sher	+0.84		39 07 23.08	
Van	+0.01		55 26 27.18	
Met	+0.57	+0.69	60 17 28.15	0.26
Cot	+0.60		26 20 14.09	
Van	−0.48		93 22 18.02	
Eld	−1.13	−2.30	75 56 07.89	0.08
Met	−1.40		67 09 17.72	
Van	+0.23		36 54 34.47	
Island	−0.26	−1.75	35 09 18.93	0.05
Eld	−0.53		109 03 06.13	
Met	−0.96		35 47 34.99	
Island	+0.25	+1.04	107 49 16.06	0.04
Eld	+0.60		33 06 58.24	
Van	+0.19		39 03 45.74	
Island	+0.51	+0.49	72 39 57.13	0.07
Met	−0.44		31 21 42.73	
Van	+0.42		75 58 20.21	
Slide	−1.14	+0.99	17 43 11.24	0.05
Met	+2.20		26 27 40.14	
Eld	−0.07		135 49 08.67	
Slide	−0.28	+0.84	43 36 06.74	0.17
Met	+1.24		62 15 15.13	
Island	−0.12		74 08 38.30	
Slide	+0.86	+1.60	25 52 55.50	0.07
Eld	+0.60		115 07 45.20	
Island	+0.14		38 59 19.37	
Kabe	+0.88	+3.04	45 54 55.96	0.13
Slide	+1.19		72 13 59.29	
Eld	+0.97		61 51 04.88	
Sed	+0.44	+2.63	113 04 24.98	0.04
Slide	+0.30		35 48 43.67	
Eld	+1.89		31 06 51.39	
Sed	−0.88	−0.75	126 36 54.88	0.05
Eld	−0.92		30 44 13.49	
Kabe	+1.05		22 38 51.68	
Sed	+0.44	+1.16	120 18 40.14	0.04
Kabe	−0.17		23 16 04.28	
Slide	+0.89		36 25 15.62	
Chil	−0.09	−1.49	82 26 53.64	0.09
Slide	−0.68		48 00 15.25	
Kabe	−0.72		49 32 51.20	
Glacier Point south base	+0.79	−0.59	23 57 45.66	0.06
Chil	−0.12		132 10 35.15	
Slide	−1.26		23 51 39.25	
Glacier Point south base	−0.17	+0.32	63 55 28.91	0.07
Chil	−0.03		49 43 41.51	
Kabe	+0.52		66 20 49.65	
Glacier Point south base	−0.96	−0.58	39 57 43.25	0.10
Slide	+0.58		24 08 36.00	
Kabe	−0.20		115 53 40.85	
Glacier Point north base	−0.19	−1.74	77 08 34.10	0.05
Chil	−0.82		35 49 31.01	
Glacier Point south base	−0.73		67 01 54.94	

TABLE OF TRIANGLES—Continued

SECTION 13. LITTLE-SENTINEL TO KAL-TWIN TO GLACIER POINT BASE—Continued

Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess	Station	Correction to angle from figure adjustment	Error of closure of triangle	Corrected spherical angle	Spherical excess
	"	"	° ′ ″	"		"	"	° ′ ″	"
Duck	−0.74	−0.51	87 05 24.03	0.04	Twin	−1.11	−0.98	31 36 58.62	0.18
Chil	+0.21		62 57 18.37		Kabe	+0.62		20 42 18.24	
Glacier Point south base	+0.02		29 57 17.64		Kal	−0.49		127 40 43.32	
					Riley	+1.14	+2.69	55 05 49.32	0.14
					Twin	+1.41		54 28 15.53	
					Kal	+0.14		70 25 55.29	
Duck	+0.37	+1.18	128 20 03.96	0.02	Ripinski	+2.50	−0.50	13 44 48.44	0.13
Chil	+1.03		27 07 47.36		Twin	−2.10		17 15 53.75	
Glacier Point north base	−0.22		24 32 08.70		Riley	−0.90		148 59 17.94	
Duck	+1.11	−0.05	41 14 39.93	0.03	Ripinski	+1.71	+2.14	23 33 42.02	0.36
Glacier Point south base	−0.75		37 04 37.30		Twin	−0.69		71 44 09.28	
					Kal	+1.12		84 42 09.06	
Glacier Point north base	−0.41		101 40 42.80		Ripinski	−0.79	−0.05	9 48 53.58	0.09
					Riley	−0.24		155 54 52.74	
					Kal	+0.98		14 16 13.77	
Kal	−0.48	−0.51	38 06 03.12	0.23	Vil	−0.15	−1.64	40 03 02.19	0.22
Slide	+0.03		61 24 24.96		Twin	−0.80		45 44 40.03	
Kabe	−0.06		80 29 32.15		Riley	−0.69		94 12 18.00	
Twin	+0.97	−0.33	27 42 45.20	0.31	Vil	+0.56	+0.33	108 59 35.12	0.32
Slide	−0.62		92 30 01.20		Twin	+1.30		28 28 46.28	
Kabe	−0.68		59 47 13.91		Ripinski	−1.53		42 31 38.92	
Twin	−0.14	−0.80	59 19 43.82	0.26	Vil	+0.71	+1.47	68 56 32.93	0.23
Slide	−0.65		31 05 36.24		Riley	−0.21		54 46 59.94	
Kal	−0.01		89 34 40.20		Ripinski	+0.97		56 16 27.36	

SECTION 14.—KAL-TWIN TO TAI-SKAG

Hal	+0.63	−0.62	47 08 29.69	0.27	Tai	−0.49	+0.17	28 41 45.96	0.12
Vil	−1.02		75 15 08.36		Top	−0.14		50 32 11.94	
Ripinski	−0.23		57 36 22.22		Hal	+0.80		100 46 02.22	
Top	−0.22	+1.30	42 45 39.21	0.20	Skag	+1.20	+2.39	34 56 16.71	0.12
Vil	+0.35		102 44 40.45		Top	+0.87		82 15 56.15	
Ripinski	+1.17		34 29 40.54		Hal	+0.32		62 47 47.26	
Top	−0.08	+0.58	109 26 27.09	0.11	Skag	+1.71	+4.24	99 52 06.49	0.13
Vil	+1.37		27 29 32.09		Top	+1.01		31 43 44.21	
Hal	−0.71		43 04 00.93		Tai	+1.52		48 24 09.43	
Top	+0.14	−1.34	66 40 47.88	0.18	Skag	+0.51	+2.02	64 55 49.78	0.13
Ripinski	−1.40		23 06 41.68		Hal	+0.48		37 58 14.96	
Hal	−0.08		90 12 30.62		Tai	+1.03		77 05 55.39	

ACCURACY OF OBSERVATIONS

Below is given a table of statistics showing the accuracy of the observations for the various sections of the arc. The general instructions for first-order triangulation require that the average triangle closing error shall not be over 1″00, while the maximum triangle closing error shall seldom exceed 3″00.

The following table gives statistics for closures of triangles and related errors for the sections of this arc of first-order triangulation. The probable error of an observed direction is given by the formula

$d = \pm 0.6745\sqrt{\frac{\Sigma v^2}{c}}$, in which Σv^2 is the sum of the squares of the corrections to directions and c is the number of conditions. The mean error of an angle was computed from the formula $a = \pm\sqrt{\frac{\Sigma\Delta^2}{3n}}$, in which $\Sigma\Delta^2$ is the sum of the squares of the closing errors of the triangles, and n is the number of triangles.

The probable error of a corrected angle from the adjustment of section 15 (see p. 137) is given by the formula $d = \pm 0.6745\sqrt{\frac{\Sigma v^2}{c}}$, in which Σv^2 is the sum of the squares of the corrections to angles, and c is the number of conditions. Since $\Sigma v^2 = 6.570714$ and $c = 6$, $d = \pm 0''.71$.

Statistics showing accuracy of triangulation

Section	Total number of triangles	Number of triangles with plus closures	Number of triangles with minus closures	Number of triangles with zero closures	Number of concluded triangles	Maximum correction to an observed direction	Probable error of an observed direction	Average closure of triangles	Maximum closure of triangles	Mean error of an angle
						"	"	"	"	"
1	36	19	13		4	+1.87	[1] ±0.64	0.99	2.78	±0.71
2	8	4	2		2	+1.40	±0.70	1.52	3.52	±1.05
3	32	26	6			+1.81	±0.67	0.97	2.37	±0.67
3a	4	3	1			−1.04	±0.60	1.41	2.42	±0.86
4	41	24	17			+1.54	±0.53	1.02	2.87	±0.74
5	12	5	7			+1.82	±0.68	0.96	2.07	±0.65
6	32	18	13		1	+1.71	±0.63	1.25	3.55	±0.87
7	45	21	24			+1.16	±0.45	0.83	2.57	±0.61
8	73	28	44	1		−1.47	[1] ±0.55	1.15	3.15	±0.85
8a	4	2	2			−1.22	±0.71	1.36	1.91	±0.85
9	18	9	9			+1.75	±0.47	1.00	3.09	±0.76
10	36	21	15			+2.32	±0.58	0.77	2.21	±0.57
11	34	19	14	1		−1.02	±0.37	0.70	2.61	±0.56
12	40	17	22	1		+1.12	±0.39	0.76	1.95	±0.52
13	46	25	21			+1.13	±0.41	0.92	3.04	±0.66
14	15	10	5			+1.42	±0.66	1.43	2.50	±1.04

[1] These probable errors were obtained from the results of the first adjustments of the triangulations in secs. 1 and 8. As parts of these sections were readjusted (see p. 109), these figures are not strictly correct, but have been changed slightly.

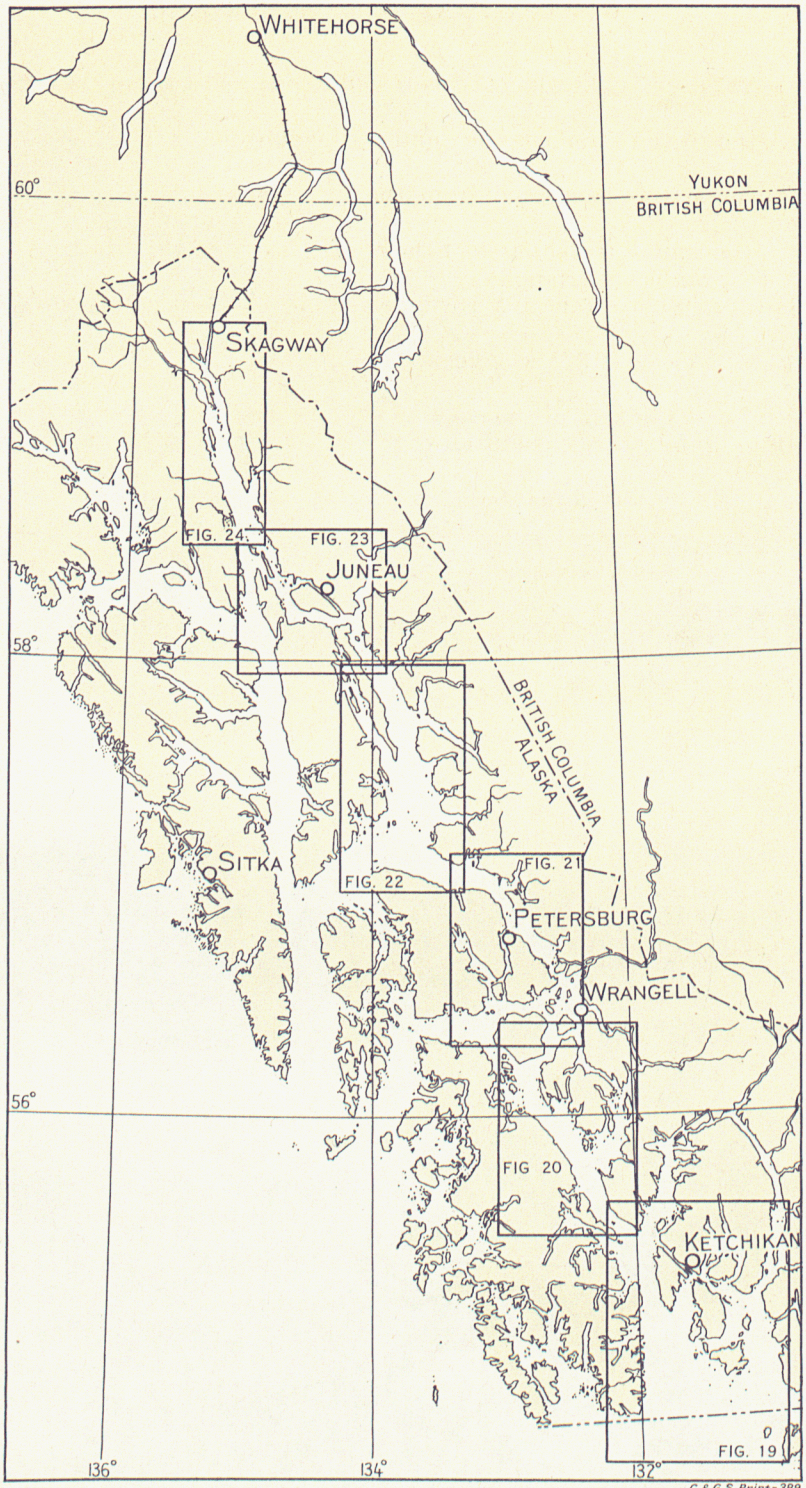

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FIG. 18 – INDEX MAP OF SOUTHEAST ALASKA SHOWING BOUNDARIES OF SKETCHES, FIGURES 19 TO 24

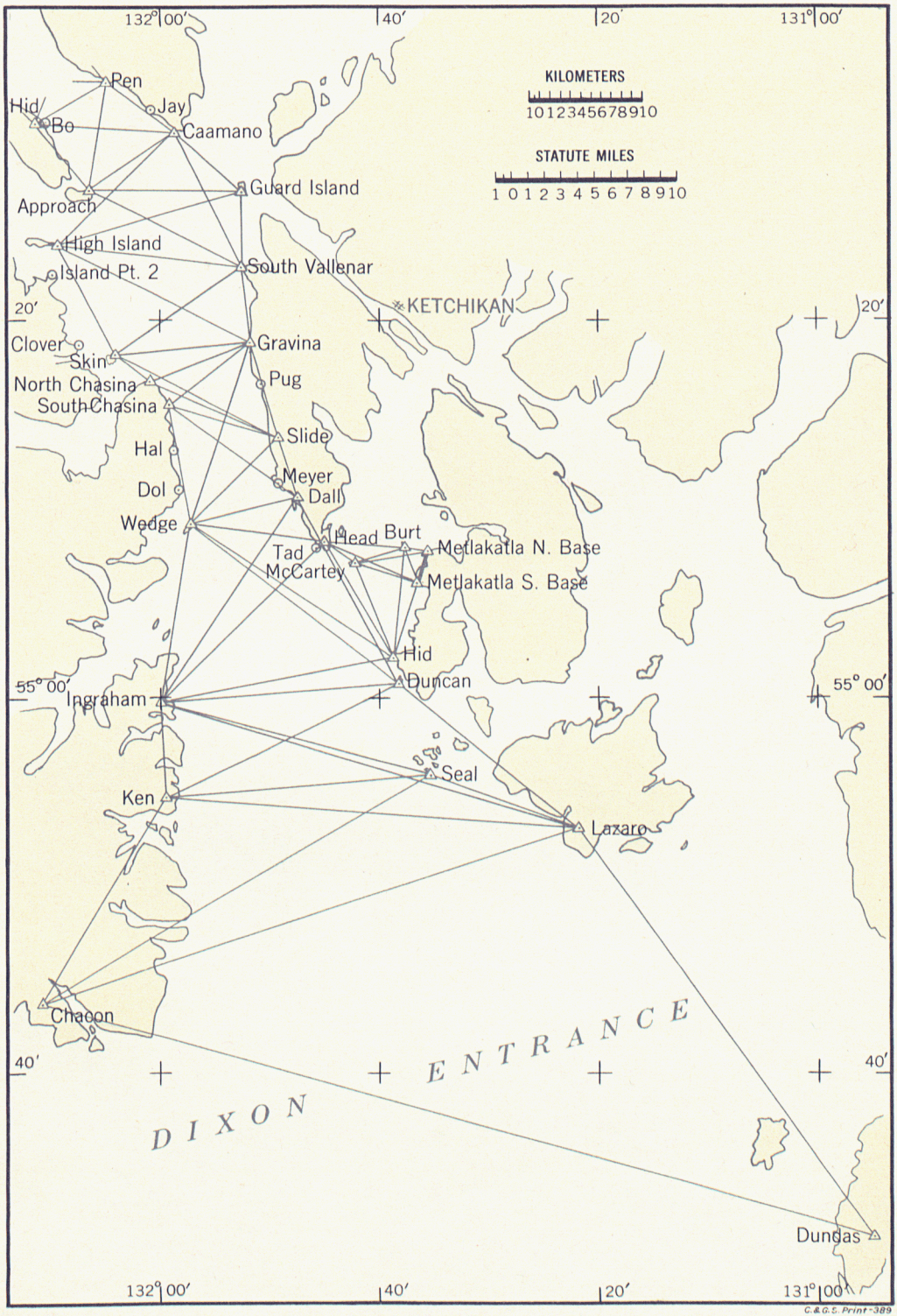


FIG. 19 – TRIANGULATION, SOUTHERN END OF CLARENCE STRAIT

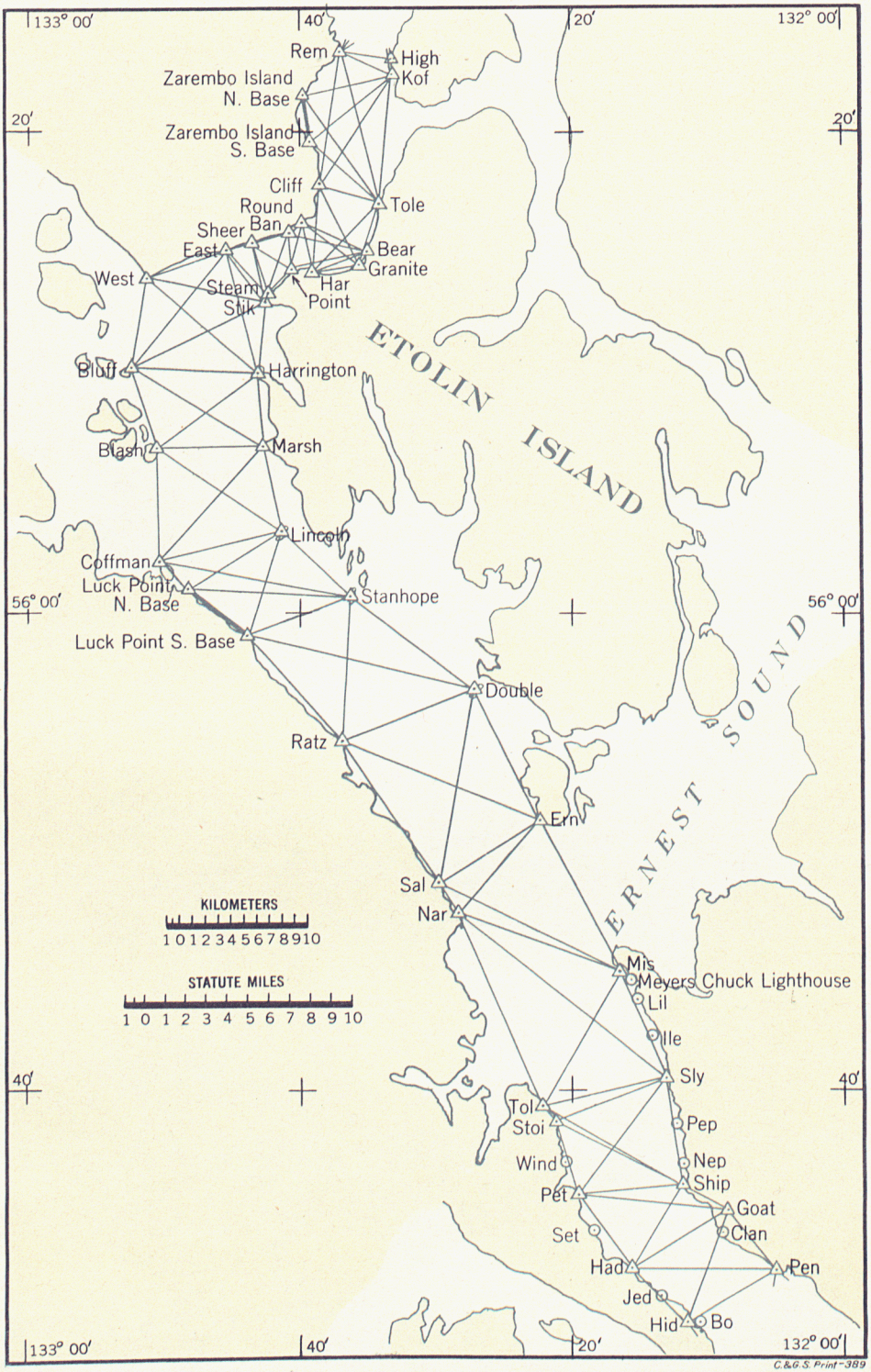


FIG. 20 – TRIANGULATION, NORTHERN END OF CLARENCE STRAIT AND STIKINE STRAIT

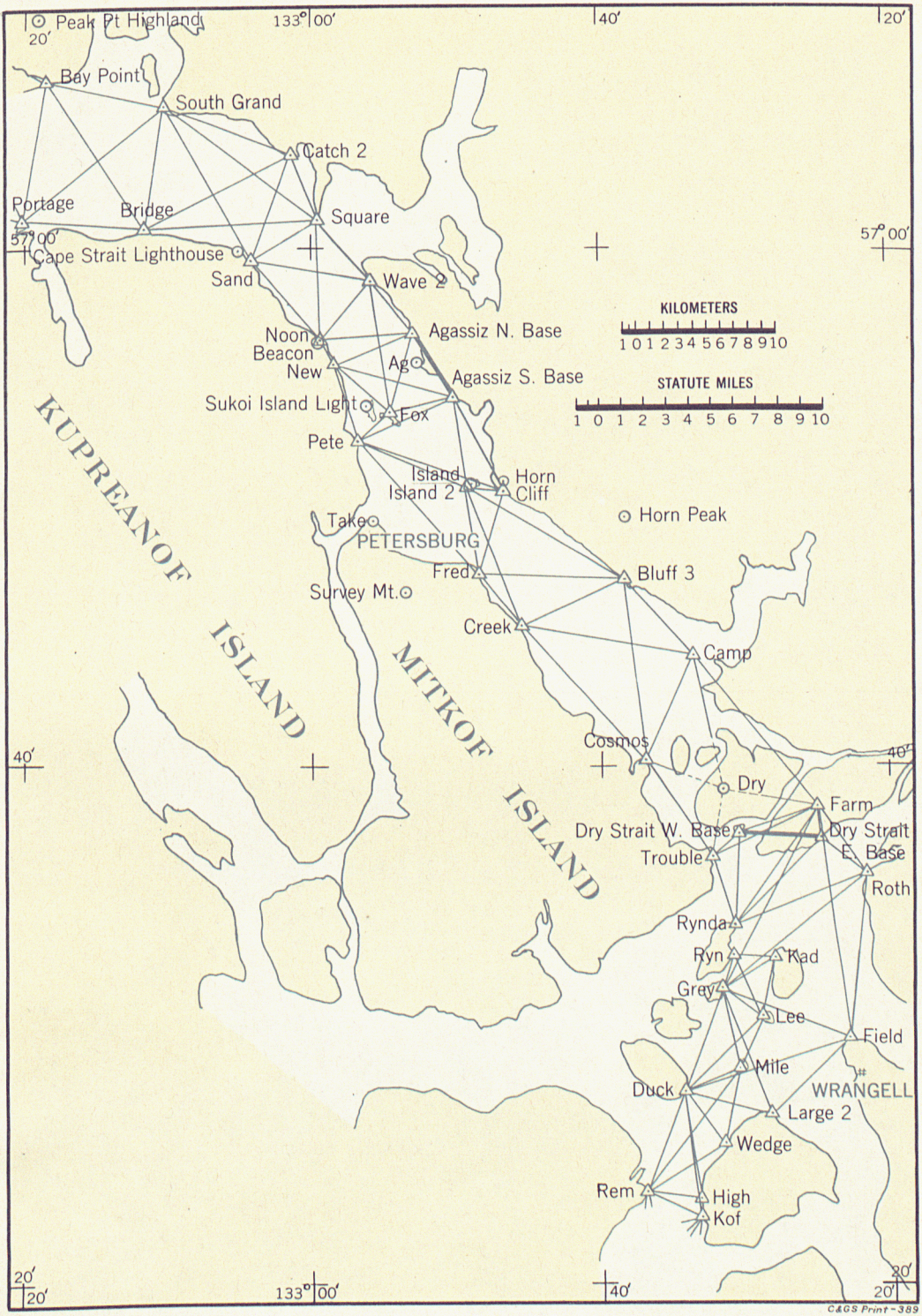


FIG. 21 – TRIANGULATION, STIKINE STRAIT AND SOUTHEAST END OF FREDERICK SOUND

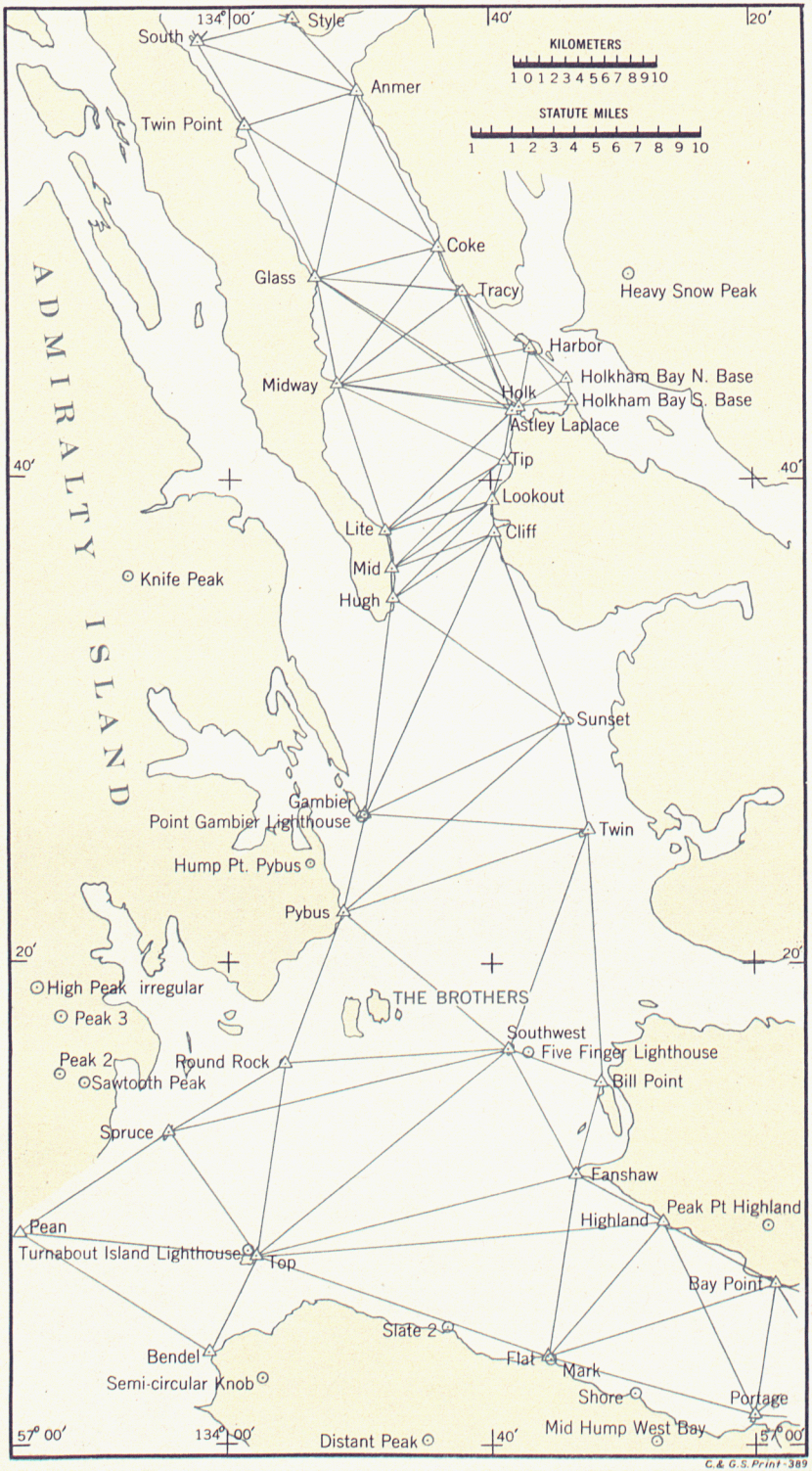


FIG. 22 – TRIANGULATION NORTHWEST END OF FREDERICK SOUND AND SOUTHERN END OF STEPHENS PASSAGE

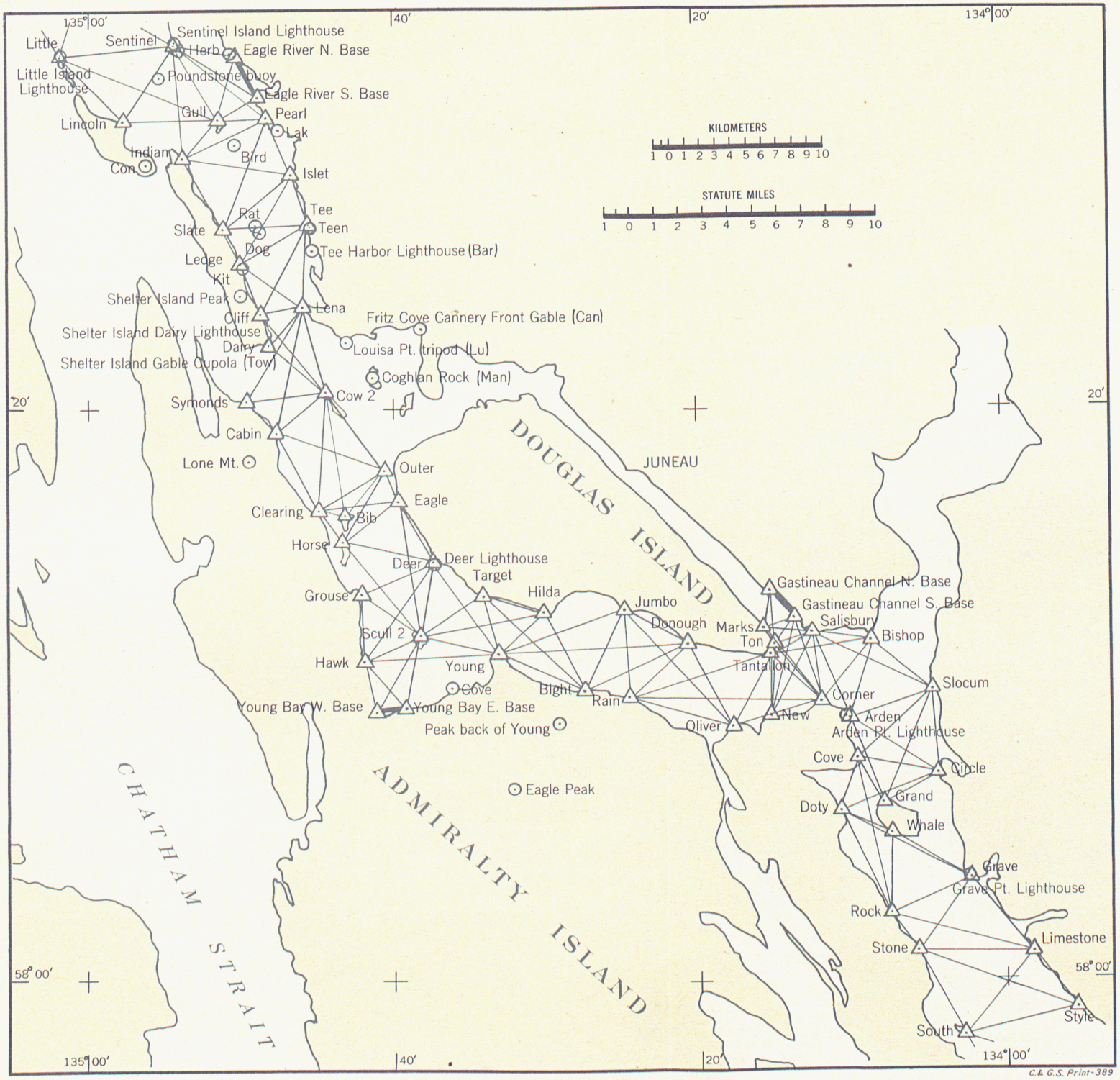
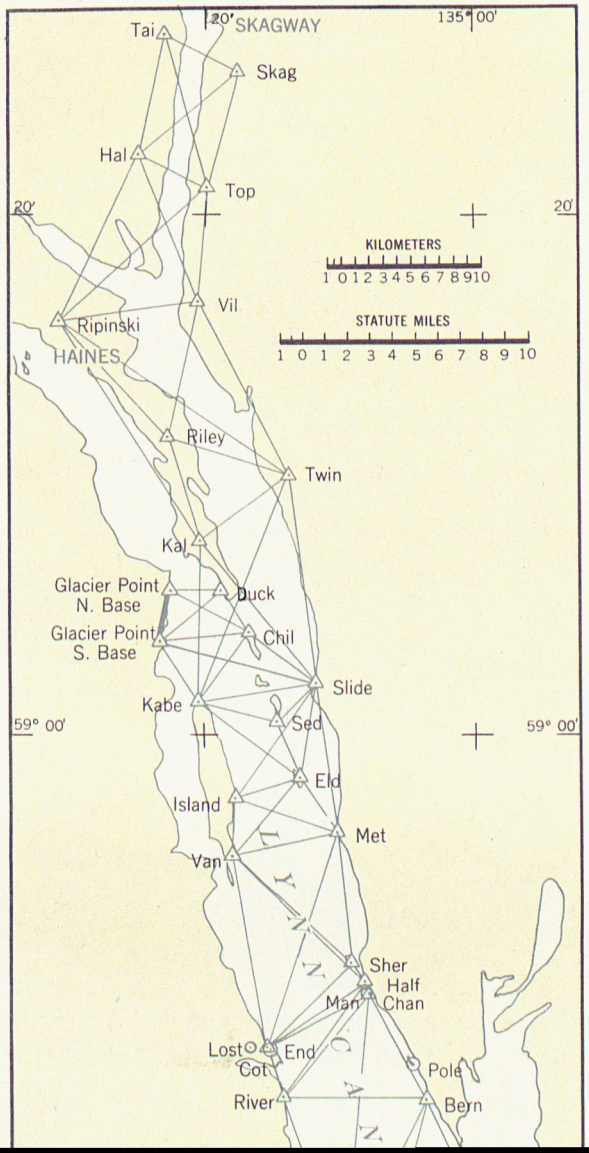


FIG. 23 – TRIANGULATION, STEPHENS PASSAGE AND FAVORITE CHANNEL


SKAGWAY
135° 00'
20'
59° 00'
KILOMETERS
1 0 1 2 3 4 5 6 7 8 9 10
STATUTE MILES
1 0 1 2 3 4 5 6 7 8 9 10
Tai
Skag
Hal
Top
Vil
Ripinski
HAINES
Riley
Twin
Kal
Glacier Point
N. Base
Duck
Glacier Point
S. Base
Chil
Slide
Kabe
Sed
Eld
Island
Met
Van
Sher
Half
Chan
Man
Lost
End
Cot
Pole
River
Bern

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Bib	34	72		23
Bight	32	68	13	23
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Bishop	31	67	12	23
Blash	22	49	6	20
Bluff	22	49	6	20
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Kad	25	56	5	21
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Skin	21	45	9	19
Slate	33	72	14	23
Slate 2	29	62		22
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Slide (Lynn Canal)	36	75	15	24
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Whid	36	73	15	24
Will	36	73	15	24
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Young Bay west base	33	70	13	23
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Zarembo Island south base	25	54	4, 5	20

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