4592

Form 504
Ed. June, 1928

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
R.S. Patton, *Director*

State: Alaska

DESCRIPTIVE REPORT

Topographic | *Sheet No.* 4592
~~*Hydrographic*~~ | *Field #* F

LOCALITY

Behm Canal

Syble Pt. to Claude Pt.

1930

CHIEF OF PARTY

E.W. Eickleberg

U. S. GOVERNMENT PRINTING OFFICE: 1930

DESCRIPTIVE REPORT

TO ACCOMPANY TOPOGRAPHIC SHEET "F"

BEHM CANAL - S. E. ALASKA

AUTHORITY:

Authority for this survey was the Director's Instructions for Project #56 to the Commanding Officer, Ship EXPLORER, dated March 7th, 1930.

CONTROL:

Control for this survey was furnished by triangulation established by J. M. Smook in 1929, and supplementary third order triangulation established by the party during the Season.

SURVEYING METHODS:

Due to the large number of triangulation station on this sheet most of the surveying was controlled by plane table triangulation and three point fix positions. There was practically no distortion of the sheet during the field work and the plane table triangulation worked out well.

Traverse lines run were as follows:

(1) Blind Pass: Traverse was run from triangulation station Blind through Blind Pass to triangulation station Pass. Closed to about 12 meters and was adjusted.

(2) Bailey Bay: This traverse was started from a three point fix position at station "A" and run to the head of the bay and back to station "A" closing to about 5 meters and was not adjusted. When this traverse was run there was practically no distortion of the sheet. Station "A" was located by plane table three point fix positions on triangulation station KEEL, 1930, COW, 1930, CUR, 1930 and MY,1891, a direction having been previously taken on station "A" from triangulation station COW,1930. Directions were also taken from triangulation station COW on stations PIG, ZIPS, RENO, HIPS and HANS in Bailey Bay. Beginning the traverse at station "A" the table was oriented on triangulation station CUR and checked on stations MY, COW and KEEL. A magnetic meridian was marked on the sheet, directions were taken ahead on all stations visible. Before beginning this traverse all traverse stations had been marked out ahead with flags and it was possible to use long lines for orientation. Also triangulation station MY was visible for resections as far up the bay as a traversestation near signal LIST. At the turning point at the head of the bay the orientation was checked by the declinatoire and there was a difference of about 30 minutes from the observation at station "A". No adjustments were attempted for this difference as resections

on triangulation station MY on both the forward and back traverse lines show only a very small error in azimuth of about four or five meters.

(3) Triangulation Station CLA 1930 to Triangulation Station GAD 2, 1930:

This traverse was run along the shore line and across the grass flat back of Claude Point to triangulation station Gad 2. The traverse closed to about 3 meters and was not adjusted.

(4) Triangulation Station DYE 1891 to Triangulation Station ~~TIG~~ Tug:

Triangulation station ~~TIG~~ Tug comes off the east edge of the sheet but the traverse was run up to station DIN and from station DIN a distance and azimuth were observed to triangulation station ~~TIG~~ Tug, and marked on the sheet. The closure was checked aboard ship. The traverse practically closed and no adjustment was necessary.

DISTORTION:

It is thought that the small amount of distortion in this sheet during work in the field was due to the following precautions:

(1) Seasoning: The sheet was laid out on the chart table on the bridge of the ship where it was protected by the awning but was subject to the variation in the outside atmosphere. It was seasoned in this manner for one month before the projection was made.

(2) The larger part of the shore line on this sheet was surveyed during favorable weather conditions and the sheet was not exposed to extreme dampness until the latter part of the season when nearly all of the shore line had been surveyed.

During the period when form lines were being sketched rainy weather was encountered and the sheet while not being exposed directly to rain, did become damp on several occasions. It is thought that the change from the damp outside atmosphere to a dry warm office is responsible for the present distortion.

CONNECTION WITH TOPOGRAPHIC SHEETS "E" AND "G":

This sheet connects with topographic sheet Field Letter "G" of Yes Bay at triangulation station SYB 1930. It connects with Topographic Sheet Field Letter "E" at triangulation station BLIND at the west entrance to Blind Pass and at triangulation station HASSLER and station TIP in Hassler Pass.

MAGNETIC OBSERVATIONS:

Magnetic observations were taken with the declinatoire at triangulation stations SIS2, SIR, and AM, and at station "A", Bailey Bay. About the same magnetic variation was obtained for each of these observations. However, the variation of about 28½° obtained with the declinatoire

(No. 118 was used on all magnetic stations on this sheet) is about 1¾ degrees less than shown by declinometer observations. It is thought that the difference of 1° 48' between the declinatoire and the declinometer observations at triangulation station SIR should be applied as a plus correction to all of the declinatoire observations on this sheet.

ELEVATIONS AND FORM LINES:

Elevations shown on this sheet were computed from vertical angles taken from plane table set ups.

Elevations shown on this sheet indicate elevations of the ground above mean high water and are expressed in feet.

Where elevations were taken on the tops of the trees, the elevation of the ground is shown on the sheet and just above is given in parenthisis the height of the trees. The sum of the two numbers is the actual elevation obtained, by the topographer, on the highest visible point.

Those peaks listed in the Geographic Positions furnished from Lieutenant Smooks work in 1929 which come within the area covered by this sheet are plotted.

A method of recording vertical angles was used during the last season and is indicated by the following examples:

STA.	PEAK	VERT.ANG.	DIST.	ELEV.	CORRECTION		CORRECTED ELEV.
		5.53 (trees)		953			957
$\#17_2$	#13	5.23 (ground)	2810	872	+2 +2	=	876
$\#18_2$	"	5.22	3100	958	+2 +2	=	962
$\#19_4$	"	4.34	3640	955	+4 +3	=	962

Elevation of trees 957 - 876 = 81'.

NOTE: Sub figures below station number denotes height of telescope above mean high water.

Where elevations were taken on the tops of the trees the elevation of the ground was computed as follows: Whenever a rift in the trees could be seen, or whenever it was in any way possible to select the approximate highest point of the ground beneath the trees, a vertical angle was taken on the top of the highest tree, and a second vertical angle taken on the approximate position of the top of the ground. The difference in the elevations computed from the two vertical angles and corrected for curvature, refraction, and the height of instrument was taken as the value for the height of the tree. The height of the tree was then subtracted from the elevation of the top of the tree to get the elevation of the ground which is shown on the sheet. This second vertical angle with which

to compute the height of the tree was usually taken from only one station for any one elevation. Where it was not possible to get such a vertical angle on the approximate top of the ground the height of the trees was simply estimated from general appearances.

COMPARISON OF FORM LINES WITH MAP OF BOUNDRY SURVEY:

A section of the Form Lines on the U. S. Boundry Survey Map (scale 1/250,000) between Yes Bay and Bailey Bay was enlarged to a scale of 1/20,000 for comparison with this Topographic Sheet. Except possibly along the tops of the ridges and then only in a general way, there is little connection between the two systems of Form Lines. A tracing of the enlargement of the Boundry Survey Map is submitted with this sheet. The enlargement was made by pantograph at the Seattle Field Station.

AREA ON THIS SHEET NOT SURVEYED:

Because of considerable unfavorable weather towards the close of the last Field Season there was not time to survey the shore line through Bell Arm and Anchor Pass. Unfavorable weather also prevented farther sketching of Form Lines than those shown on the Sheet.

GENERAL DESCRIPTION OF THE COUNTRY:

Approaching from the south-west the shore line along the north-west shore of Behm Canal is steep and rugged, generally wooded up to about two thousand feet, with bare topped mountains close above the shore, and with numerous bare rock cliffs and outcrops, showing on the wooded slopes.

Along the south-east side of Black Island the shore is steep with overhanging trees. The interior of the Island is marked by low well rounded hills and is heavily wooded.

Blind Pass.

Blind Pass is closed near its south-west entrance by a sand bar. Passage can be made over this bar by small boats at, or near, high water, and preferably on flood tides. Care should be taken to avoid the rocks in the south-east entrance and in crossing the bar. After crossing this bar deep water is found on mid-channel courses through the rest of the pass.

Bailey Bay.

Bailey Bay is marked by a steep, bare cliff of smooth rock on the east side of its entrance. The shore line in the bay is generally steep with wooded slopes rising from the water line. The trail shown on this sheet near Station FRED leads to a water fall of considerable scenic

beauty about 0.6 mile inland. The falls mark the outlet of the first of a chain of lakes as shown on Geological Survey Maps. From the falls, the trail leads around the south shore of the first lake to ~~reveal~~ several hot sulphur springs.

Bell Arm. Entering Bell Arm from the west the shore line is steep with steep wooded slopes rising abruptly from the waters edge.

Bell Island Hot Springs. The hot sulphur springs are about 1/4 mile from the mouth of the stream which flows into salt water about 1-1/2 miles north-east around Snipe Point. A small settlement consisting of a hotel and about fifteen cabins built along the north shore of the stream near the springs is maintained by Miss Anna Herring, as a health resort and supply base for hunting parties, fishermen, and prospectors. Mail, freight, and passenger service are maintained by water with Ketchikan through-out the year on a schedule of one trip each week. There is a float for small boats. A fixed red light is maintained above this float. Small boats often anchor just off the flats at the mouth of the creek, but the anchorage is poor. The bottom has a steep slope almost up to the flats. With the south-west storms which sometimes blow up, there is some danger of grounding on the flats. A long canyon, apparently of glacial origin extends from the mouth of the stream in a north-easterly direction. Northerly winds often attain considerable velocity down this canyon and in such weather there is danger of dragging anchor into deep water.

Fair anchorage can be found in the bight about 0.4 mile south of the Bell Island Float.

Behm Narrows. The shore line is generally steep through-out the Narrows. Hills near the water are heavily wooded with a fairly gentle slope.

Claude Point is a prominent point near the eastern end of the Narrows. From a distance it appears as a wooded island near the southern shore. The point except for the small grass flat which connects it with the shore, is heavily wooded. The elevation of 396 feet shown on the sheet was taken from the list of Geographic Positions and the sheet furnished from Lieutenant Smook's work in 1929.

Mid-channel courses carry safely through-out the Narrows. See hydrographic sheets and Coast Pilot Notes for sailing directions.

The water is deep close up to the beach along most of the shore line.

Respectfully submitted,

B. G. Jones

B. G. Jones,
Jr. Hydro. & Geod. Engineer.

Approved and forwarded,

E. W. Eickelberg

E. W. Eickelberg,
Hydro. & Geod. Engineer, Comdg. EXPLORER.

STATISTICS

TO ACCOMPANY TOPOGRAPHIC SHEET "F"

Number of statute miles of shore line	71.8
Number of statute miles of Low Water line	26.5
Number of square statute miles of Form Line	16.7
Number of elevations	203
Number of permanently marked topographic stations	9
Number of Landmarks for Charts	2

APPROVAL SHEET

TO ACCOMPANY TOPOGRAPHIC SHEET "F"

This sheet has been examined and is approved.

E. W. Eickelberg,
Commanding Officer,
U.S.C. & G.S.S. EXPLORER.

7-4592

Form 567

DIVISION OF CHARTS, FILE NO._____

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

Seattle, Washington

January 15, 1931

DIRECTOR, U. S. COAST AND GEODETIC SURVEY:

The following determined objects are prominent, can be readily distinguished from seaward from the description given below, and should be charted.

Chief of Party.

DESCRIPTION	POSITION						METHOD OF DETERMINATION	CHARTS AFFECTED
	Latitude			Longitude		Datum		
	° ′	D. M. meters		° ′	D. P. Meters			
Fixed red light at shore-ward end of board walk at Bell Island Hot Springs.	55 55	1459 M ~~146.9 M~~ (597 M)		131 34	226 M (816 M)	N.A.	p.t.	8102 8105
Bare, smooth faced cliff east side entrance to Bailey Bay.	55 56	748 (1108)		131 36	972 (70)	N.A.	p.t.	8102 8105

A list of objects which are of sufficient prominence for use on the charts, together with a description of the same, must be furnished in a special report on this form, and a copy of such report must be attached by the Chief of Party to his descriptive report. The selection, determination, and description of these points are of primary importance.

The description of each object should be short, but such as will identify it; for example, standpipe, water tower, church spire, tank, tall stack, red chimney, radio mast, etc. Generally, flagstaffs and like objects are not sufficiently permanent to chart.

GOVERNMENT PRINTING OFFICE

Form 537a

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

REG. NO. 4592

TOPOGRAPHIC TITLE SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field Letter F

REGISTER NO. 4592

State S. E. ALASKA

General locality BEHM CANAL

Locality Syhle Point to Claude Point

Scale 1/20,000 Date of survey Aug. to Oct., 1930

Vessel EXPLORER

Chief of Party E. W. EICKELBERG

Surveyed by B. G. JONES

Inked by B. G. JONES

Heights in feet above H.W. to ground [illegible]

Contours [illegible] Form line interval 100 feet

Instructions dated March 7, 1930

Remarks:

U. S. GOVERNMENT PRINTING OFFICE: 1933