

6605

T 6605

(5)

Form 504  
Ed. June, 1928

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

Aleutian Islands  
State: ~~ALASKA~~

DESCRIPTIVE REPORT  
Topographic | Sheet No. D- 37  
Hydrographic

LOCALITY  
~~ALEUTIAN ISLANDS~~  
SOUTH SIDE OF UNIMAK ISLAND  
Cape Lutke & Vicinity

19-27

CHIEF OF PARTY  
RAY L. SCHOPPE

U. S. COAST & GEODETIC SURVEY  
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DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

REG. NO.

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 No. D-37

REGISTER NO.

T6605

State ~~ALASKA~~ Aleutian Islands

General locality ~~Aleutian Islands~~ South Side of Unimak Island

Locality ~~South side Unimak Island~~ Cape Lutke & Vicinity

Scale 1-20,000 Date of survey June 1, 20, 28, 1937

Vessel DISCOVERER

Chief of party Ray L. Schoppe

Surveyed by Curtis Le Fever

Inked by Curtis Le Fever

Heights in feet above There are no trees on Unimak Island  
to ground to tops of trees

~~Contour, Approximate contour,~~ Form line interval 100 feet

Instructions dated March 7, 31, 1937

Remarks: \_\_\_\_\_

DESCRIPTIVE REPORT  
to accompany  
TOPOGRAPHIC SHEET D-1937 T-6605  
Project No. HT-208

U. S. C. & G. S. S. DISCOVERER

R. L. SCHOPPE, COMMANDING

INSTRUCTIONS

Director's instructions dated March <sup>30</sup><sub>7</sub>, 193<sup>6</sup><sub>7</sub>.

LIMITS

The area surveyed on this sheet extends from a junction with sheet C-1937 at Promontory Hill, north eastward along the south shore of Unimak Island to a point about two and one half miles north of Cape Lutke. It also extends inland from the beach for about four miles.

DESCRIPTION

From Promontory Hill northeastward along the south shore of Unimak Island to Cape Lutke, the island is covered with grass and moss. It slopes gradually upward from a sand beach or low bluff line to the barren slopes of the high ridges in the center of the island. The streams are few on this part of the island. Evidently the large amount of precipitation sinks through the porous top soil to underground drainage. Scattered over this area are large bare patches where the strong winds have blown the top soil away leaving the surface covered with small volcanic pebbles. These areas show as black spots against a green background from seaward. In the middle of this sheet a large black lava flow extends from near the foot of the barren slope of the ridge in the background toward the ocean. It spreads out near the beach and approaches the water in two places, leaving an area of the older formation and part of the old beach which it did not cover, lying between the two arms of lava. The face of this flow is a mass of great loose pieces of lava which had been kept in motion from the pressure of the lava in the center of the flow which was still molten and moving, after the edges of the flow had solidified. The small area between the two lava arms is low, sandy and grass covered. On this area are 5 distinct sand ridges which are obviously old beach lines. Each one, as one moves inland, is a little higher than the previous one. These must have been formed by five small upheavals of this part of the island. This evidently took place since the lava flow as the junctions at each end of the old beaches with the lava are smooth and even as if formed by surf action.

North of Promontory Hill and in the vicinity shown on this sheet is a large mountain glacier which is visible from seaward. A swift glacial stream runs from under the face of this glacier and discharges its load of silt into the ocean about one mile east of Promontory Hill. The salt water is discolored along this part of the beach during the period of thaw. This discoloration is very noticeable on the air photographs of this area. This stream is very dangerous to cross after a warm day, due to its swiftness and the presence of many large boulders. At two different times when working in that vicinity it was necessary to use horses for fording it. Later in the season, when the horses were taken eastward after the topography was finished,



it was reported that the crossing was dangerous even with the horses. Such streams are best crossed about daylight, when the run-off from melting ice is at a minimum.

The wide sand beach continues from the western boundary of this sheet, eastward for a distance of five miles, where it ends abruptly against the face of the lava flow. There are a few detached rocks along this beach, the most dangerous of which is about 320 meters off the mouth of the glacial stream described previously. It is in latitude 54-24.2, longitude 164-29.2. This rock is a pinnacle which shows two feet above mean lower low water and is so sharp on top that it does not break in a heavy sea. Some difficulty was experienced in its location. It was seen during extreme low water but not located at the time. During a similar low water period two cuts were taken on it from shore but a third one could not be obtained. However the hydrographic party, when working in the vicinity, saw the rock and checked its position on the topographic sheet. Six hundred meters west of this rock are detached rocks, the farthest of which is off shore about one hundred meters.

In latitude 54-25.2, longitude 164-28.1 are a few detached rocks. The most distant of these from shore is about one hundred meters. The highest of these rocks projects four feet above mean lower low water. East of this small group of rocks in latitude 54-25.3 is a larger group of detached rocks extending off shore for about 180 meters. The highest of this group shows nine feet above mean lower low water. Another small group of rocks are located in latitude 54-26.2, longitude 164-24.5. These extend off shore for about one hundred meters. This last group is off shore from a high grassy bluff on top of which is triangulation station SUN 1937.

The face of the lava flow is vertical and irregular with lava caves extending back into it. At one place along the sand beach which separates the two arms of lava, a small group of detached rocks extends off shore for about 120 meters. The highest of these rocks projects 6 feet above mean lower low water.

From the eastern edge of the lava a wide sand beach extends northeastward, to end at Cape Lutke. There is more surface drainage along this part of the coast. A large stream flows along the eastern edge of the lava flow and into the ocean, not far west of the lava. In latitude 54-28.0, longitude 164-21 is a rocky ledge running off shore from the sand beach. Another similar but larger ledge is located about one half mile northeast of this one. There are scattered detached rocks lying off each of these ledges and off the sand beach between them. The most dangerous of these, lies 380 meters outside high water and off the larger of the two ledges. This rock and others adjoining are submerged at all stages of the tide. These rocks and the ledge inshore from them form a partial protection for a short stretch of sand beach in latitude 54-28.6. This beach seems to be free from a good part of the heavy swell to which this coast is exposed and is the best landing for small boats in the area surveyed on this sheet. There are dangerous detached rocks just north of this area, the most dangerous of them being in latitude 54 28.7, longitude 164 20.3. There are many detached rocks extending north from the position of this rock to the high rocky ledges which project from the foot of Cape Lutke.



Cape Lutke has a bare black face which extends almost due north and south. It rises to join the grass covered shoulder above, the highest point of which is 553 feet in elevation. Its most easterly extremity is a series of high, bare ledges and conical shaped rocks projecting seaward from the base of the bluff into deep water. At all stages of the tide, the heavy seas beat against these ledges and the few detached, off lying, rocks. Northward from these ledges and below the vertical face of the high bluff extends a steep rocky beach. There are many detached rocks lying off this beach. The most obvious of these rocks and one which is prominent from seaward is a large pinnacle <sup>75</sup>100 feet in height. It was used as a hydrographic signal and is named PIN on this sheet. Its position is latitude 54 29.6, longitude 164 20.1. Directly east and off shore from the pinnacle, 420 meters outside the high water line is a dangerous detached rock. It is below water at all stages of the tide but breaks in heavy weather.

The sand beach just south of the prominent point on the north east end of the sheet is open to the full sweep of the heavy ground swell and could only be used for landing when the southerly swell is broken up by a strong north westerly wind from on shore. The area of breakers in latitude 54 30.3, longitude 164 19.4 was located during very heavy southerly weather. It may be due to the general shoaling near the point, as no rocks were seen but only very large breakers. The submerged rocks on the inner edge of the breakers were seen however and were located by cuts.

The point with the area of breakers on its south edge is flat on top but its face is bold and rocky with surf worn ledges extending off shore. There are many detached rocky lying well off this point which make it a danger to navigation. North of this point begins a broad sand beach which extends beyond the sheet and forms part of the shoreline of Unimak Bay.

#### CONTROL

The Unalaska Triangulation Datum is used on this survey. The line from Cape Lutke to Promontory Hill was established by the DISCOVERER in 1936. All other triangulation stations on this sheet were established this year by the personnel of this ship, Lieut. Bowie being in charge of the field work. All triangulation field computations are unadjusted. The triangulation control is excellent, the stations being close together and well located for topography.

#### SURVEY METHODS

The triangulation and topographic field work on this sheet was started near Cape Lutke. A camp was established from the ship on the small beach previously described, south of Cape Lutke. The triangulation and topography of the eastern half of the sheet was done from this camp. The four horses were brought from False Pass along the south shore of the Island to the camp. This trip took the better part of four days and is a somewhat hazardous one, due to several bad river crossings and large marsh areas. The horses were used to move the equipment and a large part of the supplies westward to the next camp which was off the west boundary of this sheet and near the base of Promontory Hill. The western half of the sheet was done from that camp. (see descriptive report Sheet C-1937)



While at the Cape Lutke Camp a large amount of fog and strong winds were experienced. Most of the heavy fogs seemed to draw through the low pass north of the Cape and from the Bering Sea. By the time the party moved to the Promontory camp the weather had improved considerably. The part of the island near Promontory Hill is protected from the Bering Sea fogs by the high ridges which form the center of the island. When working in that area I experienced some warm sunny weather along the beach when I could look east and see the heavy fog drifting through the pass north of Cape Lutke and looking westward the whole of Unimak Pass was filled with heavy fog. About two miles off shore from us was a distinct line of white caps with fog above, the wind and fog passing through Unimak Pass. Later on, when the party had moved to Scotch Cap L.H. and was working near it, this same foggy condition caused serious delay to our work. A similar foggy and rainy period which delayed the field work was experienced at the camp at Middle Point. The weather cleared about the time we moved from Middle Point to Cape Sarichef and we had our best and longest period of good weather while staying at the Sarichef Lighthouse Reserve. During the good weather the swell from the Bering Sea was not so bad and a landing could have been made at Sarichef Light any time. However the weather changed before the survey was completed and for four days it was impossible to land there.

The triangulation and topographic units of the party each consisted of one officer and three men. The two units worked in close cooperation, assistance being lent to each other when it was in the interest of the progress of the combined party to do so.

The four horses which were shipped from Seattle to False Pass were well chosen. They were experienced pack animals and proved invaluable as a time and labor saver. The absence of a trail along most of this part of the coast made the packing with horses more difficult. The lava bed might have proven a dangerous area for horses but luckily a fairly safe game trail was found crossing it and was used by the party. No serious mishap to men or horses was experienced throughout the summer.

Drift lumber, mostly of large dimensions, is scattered along the south shore of Unimak Island. It was used extensively for building hydrographic signals. Its size hampered the building but increased the sturdiness of the signals. Lumber from the ship was landed at the Cape Lutke camp and was used for signals in that area. The face of the lava bed and all of the coast line north of Cape Lutke was rocky and spots of whitewash on the bare rock projections were used as signals. The signals built of lumber are only temporary and will be destroyed within a very few years by the severe weather.

The usual method of plane table topography was used. The traverses were necessarily short, due to the close spacing of the triangulation stations and they required very little or no field adjustment. A traverse was run on top of Cape Lutke to locate the top of the bluff and also for obtaining several cuts and elevations inland. A short traverse was run, from triangulation station Hay, north along the beach at the base of Cape Lutke, to a point where it was impossible to pass. A rodman was then sent around over the cape and along the beach on the other side of and to a

point out on the rock ledge at the base of the bluff. Here the rod could be read from the last setup on the north side of the ledge. A traverse was then started at triangulation station NET and run south along the rocky beach at the base of Cape Lutke, to a junction with the traverse from the north at the point on the ledge. The closing error was found to be 8 meters at that point. The error was distributed north along the longer of the two traverses. All off shore details when possible, were located with three or more cuts, their elevations being determined by vertical angles and check angles. The inshore details were located by cuts and vertical angles, many of which were taken by the triangulation party.

The location of the mouths of all streams and their courses near the beach, also the edges of the lava flow near the beach were determined by topography. Inland the positions of stream beds were scaled from air photographs of this area. The air photographs proved invaluable for locating the streams and determining the proper shape of hills, thereby making the form lines of the sheet much more accurate than they could otherwise have been without the expenditure of a lot more time on the field survey. They were also used to determine the condition ahead of the triangulation and topographic parties. Due to abrupt and large changes in elevation and to the variable scale of the photographs, they could not be relied upon for accurate mapping along the coast line.

#### LAND MARKS FOR CHARTS

TRAP	Small cabin with whitewash on sides and roof.	Latitude 54 25	1850.0 meters
		Longitude 164 25	935.0 "
PIN	High pinnacle off Cape Lutke	Latitude 54 29	1012.0 "
		Longitude 164 20	79.0 "
Large Waterfall		Latitude 54 29	1600.0 "
		Longitude 164 20	310.0 "
SHACK	Trappers Cabin	Latitude 54 31	227.0 "
		Longitude 164 20	523.0 "

The following objects should be removed from the charts as they do not exist as shown: Three peaks in latitude  $54^{\circ} 30'$  longitude  $64^{\circ} 25'$  to  $64^{\circ} 30'$ . The elevations on these peaks are shown as 2600, 2800 and 2800. The peak shown farther west and in this general line, toward Wesdahl Peak, with elevation of 3000 feet may exist in that vicinity but its elevation will be nearer 2000 than 3000 feet. Due to fog its true elevation could not be determined.

#### RECOVERABLE TOPOGRAPHIC STATIONS

Descriptions are submitted on form No. 524 for the following topographic stations: ROCK, TRAP, PIN, and SHACK. A description is also submitted for the large waterfall shown in land marks for charts but which has no name on the sheet.



LIST OF NAMES

Cape Lutke is the only feature which is named, in this area.

STATISTICS

Statute miles of shore line - - - - -	13.0
Square statute miles surveyed - - - - -	40.0
Magnetic meridians determined - - - - -	1
Elevations of detached rocks determined - - - - -	35
Elevations of points on shore determined - - - - -	30

Respectfully submitted,

*Curtis Le Fever*  
 Curtis Le Fever,  
 Jr. H. & G. ENgr.  
 U.S.C. & G. Survey.

Approved and forwarded:

*Ray L. Schoppe*  
 Ray L. Schoppe,  
 Chief of Party, C. & G. Survey,  
 Commanding Ship DISCOVERER.

## Remarks

## Decisions

1	For Title Only	USGB decision
2		Not a Geog. Name
3		see H-6279
4		see T-6604
5	From information in descriptive report	
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# GEOGRAPHIC NAMES

Survey No. T-6605

Name on Survey	On Chart No. 8860		On previous survey No.	On U. S. quadrangle Maps	From local information	On local Maps	P. O. Guide or Map	Rand McNally Atlas	U. S. Light List	
	A,	B,								
<u>Unimak Island</u>	✓									1
<del>Lava</del>										2
<u>Cape Lutke</u>	✓									3
<u>Promontory Hill</u>	✓									4
<u>Landing</u> <i>SPZ</i>	not a geographic name									5
										6
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Names underlined in red approved  
by *SPZ* on 5/28/38



# MEMORANDUM

## IMMEDIATE ATTENTION

SURVEY  
DESCRIPTIVE REPORT  
~~PHOTOGRAPHIC~~

~~Mooh~~

No. T-6605

received April 18, 1938  
registered May 26, 1938  
verified  
reviewed  
approved

This is forwarded in order that your attention may be directed to the matters as indicated below. Please initial in column 3 as an acknowledgement that your attention has been thus directed. The complete original records are available if desired. If you cannot give this your immediate attention, please initial, note, and forward to the next section marked, calling for the records at your convenience.

ROUTE		Initial	Attention called to
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RETURN TO

82	T. B. Reed
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*V JBR*



Section of Field Records

REVIEW OF TOPOGRAPHIC SURVEY NO. 6605 (1937) FIELD NO. D-37

Cape Lutke and Vicinity, South Side of Unimak Island,  
Aleutian Islands.

Surveyed in June 1937, Scale 1:20,000  
Instructions dated March 30, 1936 (DISCOVERER)

Plane Table Survey

Aluminum Mounted

Chief of Party - Ray L. Schoppe.  
Surveyed by - C. LeFever.  
Inked by - C. LeFever.

1. Condition of Records.

The survey conforms to the requirements of the Topographic Manual except as follows:

- a. Declinatoire.--There is no evidence that the declinatoire was checked at a station of known declination during the season's work. (Par. 17, Topographic Manual).
- b. Rock legends.--A number of rocks awash were noted as baring 5 to 10 feet at m.l.l.w. The mean range of tide being about 5 feet, some of these rocks should have been noted as rocks awash at M.H.W., whereas others should have been shown as islets accompanied by the height in parenthesis. These rocks were correctly represented on H-6287 (1937) in the office and an appropriate note added to the present survey. (See review of T-6602, par. 1).
- c. Form lines.--The Topographic Manual (par. 21) specifies for form lines in Alaska at least one elevation for every 4 square inches of field sheet. This survey complies with this requirement along the eastern shore, but further inland in an area of about 230 square inches there are only 6 elevations, whereas there should have been several times that number. The Descriptive Report states that air photographs were used to locate form lines. Without more elevations than were determined it would not be possible to draw the form lines with the required degree of accuracy, even with the aid of the air photographs. The form lines, therefore, shall be considered as lacking the required degree of accuracy.
- d. Lava.--The sheet contains no indication, except in the vicinity of the coast line, of the limits of the large lava flow. It is assumed that the sides are indefinite and are marked approximately by the limits of grass symbols on the west and by the stream on the east. (See page 2 of Descriptive Report).

Rocks corrected  
and note removed  
by authority of  
letter dated Aug.  
23, 1938 rec'd  
from field party  
and attached to  
D.R. of T-6602.  
H.W.M. 9/23/38



The Descriptive Report is clear and comprehensive and satisfactorily covers all items of importance.

2. Compliance with Instructions for the Project.

The plan, character and extent of the survey satisfy the instructions for the project.

3. Junctions with Contemporary Surveys.

- a. The junction on the north will be considered when that work is received from the field.
- b. The junction on the west with T-6604 (1937) will be considered in the review of that survey.

4. Comparison with Prior Surveys.

T-2547 (1901) and H-2556 (1901), Scales 1:40,000 and 1:140,000.

These sparsely developed and small scale surveys taken together cover the entire area of the present survey.

a. Shoreline and Associated Details.

The general shoreline features are borne out by the present survey except that the latter shows considerably more detail, an example being in lat.  $54^{\circ} 30.6'$ , long.  $164^{\circ} 19.5'$  where H-2556 (1901) shows a sharp narrow point whereas the present survey shows broad point about  $1/2$  mile in width.

b. Form lines and Inland Details.

Form lines (not charted) shown on these surveys are very sparse and an adequate comparison cannot be made with the present survey. It is noted, however, that the line of peaks on T-2547 (1901) in lat.  $54^{\circ} 29.8'$  differ about  $1/4$  mile in geographic position and that the elevations are approximately twice as high as those on the present survey. Within the area covered, the larger scale present survey should supersede these surveys in future charting.

5.- Comparison with Chart 8860 (New Print dated Jan. 12, 1938).

a. Topography.

Within the area of the present survey the chart is based on surveys discussed in the foregoing paragraphs and no further consideration in this review is necessary.



b. Magnetic Meridian.

The magnetic declination determined at triangulation station LUTKE in lat.  $54^{\circ} 29'$ , long.  $164^{\circ} 20'$ , is approximately  $9^{\circ}$  E which is  $7\frac{1}{2}^{\circ}$  less than the charted value. This matter has been referred to the Division of Magnetism.

6. Field Drafting.

The inking of the shoreline, topographic features and lettering is very good.

7. Additional Field Work Recommended.

No additional field work is required. The topographer, however, may be able to supply the deficiencies noted in paragraphs 1a and d, this review.

8. Superseded Prior Surveys.

In so far as the topography actually included in the present survey is concerned, the present survey supersedes the following survey for charting purposes:

T-2547 (1901)	in part
H-2556 (1901)	in part (topography only)

9. Reviewed by - Harold W. Murray, July 6, 1938.

Inspected by - E. P. Ellis.

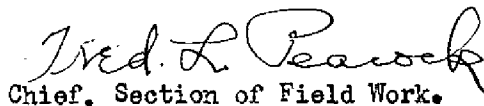
Examined and approved:



T. B. Reed,  
Chief, Section of Field Records.



Chief, Division of Charts.



Chief, Section of Field Work.



Chief, Division of H. & T.