Form 804
U. S. COAST AND GEODETIC SURVEY
DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey: Topographic

Field No.: 2270
Office No.: 2274

LOCALITY

State: 
General Locality: Pribilof Islands
Locality: Bering Sea

CHIEF OF PARTY

Will Ward Bifflefield

LIBRARY & ARCHIVES

DATE:
U. S. COAST AND GEODETIC SURVEY.

Superintendent.

State: Alaska

DESCRIPTIVE REPORT.

Topographic Sheets Nos. 2270, 2274, 2287, 2289.

LOCALITY:

Pribilof Islands,
Bering Sea.

1897.

CHIEF OF PARTY:

William Ward Duffield.
U. S. COAST AND GEODETIC SURVEY.

Henry S. Pritchett
Superintendent

State: Alaska

DESCRIPTIVE REPORT.
Topographic Sheet No. 2270

LOCALITY:
Staraya-Artill and Little East Rockeries, St. George Island.
(See season's report of 1897)

1897

CHIEF OF PARTY:
W.W. Duffield
Descriptive report to accompany topographical sheets of St. George Island, Bering Sea. (Sheets 2287 a and 2287 b) and topographical sheets of 1/4 of the Seal rookery on the Atka Islands. (Sheets 2279 to 2281).

General sheets of St. George Island (Sheets 2287 a and 2287 b).

When the work on this island was commenced it was not supposed that it could be completed before it would be necessary to leave the island; in order therefore to accomplish as much as possible in the time available the work was based on a plane table triangulation starting from a base about 1½ miles long measured with a steel tape, and running west-south-west from near the village. At the close of the season, the time being available, a theodolite triangulation was carried out, using the same base and signals as in the plane table triangulation.

As the time the base line distance was plotted on the sheet 10,000 metre distances were laid off around its edge as shown by the pricked holes surrounded by lead pencil squares, the distances between these holes being laid off to scale both horizontally and vertically. The projection was placed on the sheet at the office in Jan 1898, and is based on the geographical positions computed from the triangulation. The nearest minutes of latitude and longitude were laid off from each triangulation point, correcting the scale in each direction according to the distances on the sheet as compared with distance given by the triangulation. At the time of drawing the projection Jan 6, 1898, there had been a general contraction of the sheet of about 2½ per cent, uniform in all directions, as shown by the 10,000 metre distances all measuring about 9754 metres, both horizontally and vertically. There is some additional distortion due to differences between the plane table and theodolite triangulations. In drawing the projection the lines were slightly bent where necessary to conform to the positions of the triangulation points. The celluloid sheet was used for this island.
to save time in foggy and misty weather.

The topography of the interior of the island, east of a line running from Graces Point to South Hill, thence to the mainland north of Granada Lake, thence north to the shore, excepting a strip near the bluff line and the summit of the hills, was done by Assistant Surveyor on a separate sheet, the positions of the signals having been transferred from the plane table triangulation. This is filed as an original sheet (No. 2276) but has not been inked in, as all the work on it has been transferred and inked on the general sheet. The portion of the shore line and adjacent interior covered by the sheets of the real rockeries (Nos. 2272 to 2274 on a scale of 2000) were left blank on the general sheet during the field work, but have been reduced and transferred to the general sheet (Dec. 1897). Two or more points in common for each rockery were located on the general and the rockery sheets, and the reduction and transfer were based on these points. On the general sheet each of the common points is indicated by a small triangle, and one point on each rockery is designated by a letter both on the general and corresponding rockery sheet, as follows: A on Granada Artillery Rockery, B on North Rockery, C on Little East Rockery, D at junction of Little East and East Rockeries, E on East Rockery, F on Jaspal's Rockery.

All the points permanently marked and described as triangulation points in the volume "Measurement of Base Line and Descriptions of Stations" are shown on this sheet as triangulation stations (a). Several of these stations were not used in the theodolite triangulation. Nearly all of the rock cairns, mostly built by the natives and forming prominent land marks, are represented on this sheet by small circles and are designated cairns. The houses marked "Barrabana" at Jaspadur, Garden Cove, and East Rockery, are native coal houses. The trails running from the village to Jaspadur, Garden Cove, and East Rockery are merely foot paths, on portions of which some work has been done.

The great central ridges of the island, extending from
bull till to near Gapaduie Rookery, and from Ellakiga to the base of High Bluff, and the ridge running obliquely across the western end of the island, and the extensive slope south of Ellakiga, are mostly covered with broken volcanic rock, pears and cinders, intermingled with growths of moss, short grass, and wild flowers. The hill summits are usually covered with scoria and cinders and the lower slopes with larger lava rocks, often quite smooth and flat; but angular and jagged and piled in great masses at the terminals of the ancient lava flow which are quite prominent in places. The bordering portion of the island is almost everywhere covered with a heavy growth of coarse grass becoming 2 to 4 feet high in places, intermingled with wild flowers. The High Bluff (Gamanita) is thus covered on the land side to its summit. There are some boggy areas on the island, especially in the vicinity of the village and of Gapaduie; these are moss bogs, spongy and wet, but could usually be traversed at the season of this work; probably in wetter seasons there would be more difficulty in crossing them. At the time of this work (an unusually dry season) there were no running streams on the island save the outlet of the lake, northeast of Red Bluffs, and the outlet of the marsh immediately west of the village. Several other well marked stream beds, in which water was seen running after rains, are shown on the map. The stream at Gasshead Point was dry nearly all the time. It is said that the cascade here is only prominent during the spring thaw. One of the most striking features of this island is the bold bluff line, from a few feet to 1012 feet in elevation, extending around the island, with short breaks at Garden Cove and Gapaduie, and at intervals along the north shore between Staraga Cutoff and East Rookery. The High Bluff (Gamanita) extending for several miles west from Staraga Cutoff Rookery, presents some fine views, and is a prominent land mark from a considerable distance at sea, being plainly visible from St. Paul Island on a clear day. The castle near the western extremity of the island, is a group of ledges of rock somewhat crater like in shape, rising abruptly from
the summit of a hill. Although the entire island is of volcanic origin there are no clearly defined craters as on St. Paul and Otter Islands. On the shore west of high Bluff and northeast of Fox Grotto is a remarkable crag called by the natives the "rayab," standing well out from the Bluff and rising 471 feet above the water.

The limit of breakers as seen from the shore, and as indicating the presence of reefs, is shown by the dotted lines off Little East and East Rockeries, and the south end of Japadru Rockery. Only a few rocks off the shore could be discerned, principally in the vicinity of Garden Gove. The greater part of the island is surrounded by deep grooves near the shore, as shown. The only sand beaches are at Garden Gove and at Japadru Salt House, with stony beaches at several points on the north shore. For a good shore of the bluff line it is impossible or dangerous to descend from the plateau to the shore. From Karaya Point to Japadru Point and around to Rush Point there is only one place at which the shore can be reached, at Gajumwanga just southeast of Fox Grotto; here the natives are said to go up and down to the shore. There is apparently no point at which the shore can be reached from above between Garden Gove and Japadru.

There is no harbor about the island, and vessels anchor off the village on the north shore, or off Garden Gove, or off Japadru, according to the direction of the wind. The main landing near the village is somewhat protected by a ledge of rocks running out north of it, and by kelp growing in the right, the ledge tending to bulge out the breakers. A small pocket has been blasted out in the rocks for small boats to come in at high or medium tide. A second landing just northeast of the village is another boat landing better protected from northwesterly winds, where a similar pocket has been blasted out. A ledge of rocks washes herb a short distance off this landing. With northerly winds landings may usually be made at Garden Gove on the sand beach, or at Japadru on the right at the north end of the
rocky. From these points trails lead across the island to the village, the distance from Garden Cove being about 2 1/2 miles, and from Zapadni about 5 1/2 miles. Both trails pass over ridges from 400 to 500 feet in elevation and the walking is rather rough.

The following elevations above mean high water were determined with the plane table and were in general checked from two or more sources. In an average they are probably in error not more than a foot.

<table>
<thead>
<tr>
<th>Elevation in feet</th>
<th>Triangulation station</th>
<th>Summit</th>
</tr>
</thead>
<tbody>
<tr>
<td>of ground</td>
<td>of hill</td>
<td></td>
</tr>
<tr>
<td>Bull Hill</td>
<td>509</td>
<td>509</td>
</tr>
<tr>
<td>First Bluff (back of Staraia Artist)</td>
<td>508</td>
<td>570</td>
</tr>
<tr>
<td>Goat Rock</td>
<td>119</td>
<td>—</td>
</tr>
<tr>
<td>Northeast</td>
<td>119</td>
<td>—</td>
</tr>
<tr>
<td>South Hill</td>
<td>668</td>
<td>668</td>
</tr>
<tr>
<td>Red Bluff</td>
<td>391</td>
<td>393</td>
</tr>
<tr>
<td>Cascade</td>
<td>361 ft.</td>
<td>363 ft.</td>
</tr>
<tr>
<td>Garden</td>
<td>434</td>
<td>—</td>
</tr>
<tr>
<td>South Scalin Hill</td>
<td>679</td>
<td>679</td>
</tr>
<tr>
<td>North Scalin Hill</td>
<td>645</td>
<td>645</td>
</tr>
<tr>
<td>Agionghi (Staraia Bluff)</td>
<td>428</td>
<td>—</td>
</tr>
<tr>
<td>Fox Grotto</td>
<td>671</td>
<td>671</td>
</tr>
<tr>
<td>High Bluff (Bjornita)</td>
<td>1008</td>
<td>1012</td>
</tr>
<tr>
<td>Southwest</td>
<td>885</td>
<td>843</td>
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<tr>
<td>Zapadni Bluff</td>
<td>290</td>
<td>—</td>
</tr>
<tr>
<td>Storgard's Hill</td>
<td>380</td>
<td>380</td>
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<td>Southwest Bluff</td>
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<td>—</td>
</tr>
<tr>
<td>West Rock</td>
<td>237</td>
<td>—</td>
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<tr>
<td>Illakiya</td>
<td>944</td>
<td>946</td>
</tr>
<tr>
<td>Tolstoi</td>
<td>185</td>
<td>—</td>
</tr>
</tbody>
</table>

The field work on these sheets was executed between Aug. 14 and Sept. 25, 1877, by the party under charge of Assistant U. S. Rank. Griffith. The theodolite triangulation, eastern part of interior topography and astronomical observations at the base station,
(Unalaska) were made by Assistant Chief Survey, and the base measurement, plane table triangulation, shore line topography, western part of interior topography, topography of the five seal rookeries, astronomical and magnetic observations (at St. George) were by the winter.

**Topographical sheets of the seal rookeries.**

This memorandum relates to the following sheets: (celluloid)

- Sheet No. 2270: St. George Rockery and Little East Rockery, St. George Island
- " 2271: Zapadni Rockery, St. George Island (celluloid)
- " 2272: North Rockery, " " "
- " 2273: East Rockery, " " "
- " 2274: Tolstoi Rockery, St. Paul Island (paper).

The scale of each of these was 1:2000. A base line was measured with steel tape on each rockery, and a plane table triangulation carried from this base for the control of the sheet. Elevations (above mean high water) were determined, with the plane table and checked at different points. The lengths of the bases were as follows (each measured twice):

- Tolstoi Rockery: 544.00 metres
- East Rockery: 210.00 "
- North Rockery: 482.15 "
- Storaya Artar Rockery: 150.85 "
- Little East Rockery: 125.42 "
- Zapadni Rockery: 187.84 "

No projections nor other distances save these bases, were plotted on the sheets, except the East Rockery sheet, on which 1000 metre distances were laid off along the edge and traverses, measurements at Washington in Dec. 1877 showed a fairly uniform linear shrinkage of about 350 to the foot; on all these sheets, both paper and celluloid. Points in common on the rockery sheets and the St. George general sheet (as already referred to) are designated by letters. The main diagonal lines through these points on the rockery sheets, are derived from
azimuths measured from the general sheet. The contours are at
foot intervals, above mean high water. Prominent rocks at
intervals along each rookery were numbered with white paint,
as landmarks, and are located on the sheet. The limits of the
area occupied by the seals could not be shown on the sheet
as these surveys could not be made during the breeding season.
For the St. George rookeries and hauling grounds some idea of the
area covered by the seals during and after the breeding season,
is given by the area of trampled grass which is shown. It must
be understood however that the seals wander farther back from
the water after the breeding season, and also that some of these
areas are simply hauling grounds for the bachelor seals. In
both rookery each end of the rookery proper was marked by
painting a rock entirely white, and these terminal rocks are
shown on the sheet. The vegetation shows evidence of the seals
having in former times extended far back beyond the present
area of the rookeries; the so-called seal grass where the seals
have once been, and late in the summer this vegetation has a
yellowish tinge in contrast to the more green vegetation further
back. The limits of this area were rather too indefinite however
to attempt to show on the topographical sheet.


G. Forstman