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DIXON ENTRANCE TO CAPE SPENCER

WITH

THE INLAND PASSAGE

171

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U. S. COAST AND GEODETIC SURVEY OFFICE,
WASHINGTON, D. C., *Oct. 1, 1879.*

This volume of the Pacific Coast Pilot embraces the coast and islands from Dixon Entrance to Cape Spencer, together with The Inland Passage, by which the mail steamers of the United States and other steam-vessels are accustomed to reach the waters of southeastern Alaska.

The system adopted in this work includes—

I. A general description of the coast-line and of the shores of the several harbors and thoroughfares.

II. A description of those dangers and obstructions to navigation known to exist on the coast and in the harbors, with directions for avoiding them.

III. Sailing directions for approaching and entering the harbors.

IV. Geographical positions of important landmarks, headlands and special localities.

V. Practical information in regard to tides, tidal currents, ice, variation of the compass, and such other matters as might prove of use to navigators on an unfamiliar coast.

VI. Views of the coast and of the entrances to the more important harbors.

VII. Charts of the coast on a uniform scale.

VIII. An appendix (No. 1)—containing a synopsis of existing material on winds, atmospheric pressure and temperature, with other meteorological data, ocean temperatures and currents, and a list of the charts and publications containing information from which this volume of the Pilot (so far as not based on the records of the survey) has been compiled—has been separately issued.

IX. For marginal references the styles of lettering in use upon the charts of the Coast and Geodetic Survey (being upright for ordinary names and inclined when applicable to sunken dangers) and also systematic sizes and weights in printed names to indicate the relative importance of coast features.

In response to an urgent demand for purposes of navigation for some guide to the coast recently acquired by the United States, an octavo volume of two hundred and fifty pages, under the title of "Coast Pilot of Alaska, (First Part,) from southern boundary to Cook's Inlet," was compiled at short notice by Assistant **George Davidson**, and issued by the Coast Survey in 1869. The same officer had previously written the Coast Pilot of California, Oregon and Washington Territory, of which two editions were published by the Coast Survey.

The materials for Assistant Davidson's volume of the Alaska Coast Pilot were derived from previous publications on the subject, such as the works of Vancouver and others, together with information collected by Assistant Davidson and party while engaged on a reconnaissance of the coast of Alaska in the summer of 1867, and subsequently in 1869, while visiting Alaska for the purpose of observing the eclipse of the sun of that year, from a station on the Chilkaht River. This information consisted of the observations of Assistant Davidson and party during these two seasons, now forming part of the records of the Coast and Geodetic Survey, and of data communicated to him by navigators familiar with the region and other persons interested.

Assistant Davidson having been charged with other most important duties, including the charge of a party to observe in Japan the transit of Venus, the compilation of a new work exhaustive of all known sources of information was placed by me in the hands of **William Healey Dall**, Acting Assistant Coast and Geodetic Survey, by whom the present volume as well as Appendix No. 1, on the Meteorology of Alaska, separately published, has been compiled.

This volume includes the results of a coördination and digestion of the following material:

I. The charts and publications relating to Alaska catalogued in Appendix No. 1, so far as they were accessible.

II. Mr. Dall's own observations and notes collected by him during the explorations of the Scientific Corps of the late Western Union Telegraph Expedition in 1865, 1866, 1867 and 1868.

III. The records of the U. S. Coast and Geodetic Survey Office, including the results of reconnaissance surveys by Acting Assistant W. H. Dall and party, during the seasons of 1871, 1872, 1873 and 1874, as well as those of Assistant Davidson, before mentioned.

IV. Various notes, sketches and observations communicated by navigators and others familiar with the coast, for whose assistance foot-notes throughout this volume contain the acknowledgments.

The views of the coast and approaches to the harbors were drawn by the officers of the survey or extracted from the works of previous navigators.

The compiler, who has been ably assisted by Mr. Marcus Baker, has exercised every care to avoid errors. Absolute accuracy in a work of this kind when based upon accurate charts and modern surveys being generally admitted to be unattainable, the compiler desires to have attention directed: 1st, to the fact that the compilation, while representing as nearly as practicable the present knowledge of the subject, is based in large part necessarily upon ancient and often conflicting records of navigators not specially educated for hydrographic surveys, and must be more or less imperfect in details; and 2d, to the desirability of improving our imperfect knowledge, as here presented, by such corrections, additions and new information as almost every navigator in the Alaskan region will find it in his power to supply.

I shall feel greatly obliged for any such information, which should be addressed to the Superintendent of the Coast and Geodetic Survey, Washington, D. C., and will in future publications of the Survey be accredited to the persons furnishing it.

Carlile P. Patterson,
Superintendent.

NOTE.

All **bearings** and **courses** are *magnetic.*

All **distances** are in *nautical miles.*

All **depths** are at *mean low water,* unless otherwise stated, when known.

A **cable length** is *one tenth of a nautical mile.*

All **longitudes** are *west from Greenwich.*

Russian fathoms, being seven feet long, are here reduced to *fathoms of six feet.*

The **spelling** of Russian and native names is as nearly *phonetic* as possible consistent with *simplicity.*

PACIFIC COAST PILOT.

THE INLAND WATERS OF THE COLUMBIAN ARCHIPELAGO.

THE GULF OF GEORGIA TO DIXON ENTRANCE.

In making the passage from the entrance of the Strait of Fuca to the waters of Alaska or to Sitka Harbor, it will for most purposes be sufficient to refer to other guides for the navigation of the intricate channels of the Strait and of the Gulf of Georgia. From the head of that gulf a brief description of the usual route is here presented. This description comprises nearly all that is definitely needed by navigators bound northward.

DISCOVERY PASSAGE

is the only known navigable outlet from the northwestern part of the Gulf of Georgia to the **NW.**, and lies between the western side of Valdes* Island and the northeastern shore of Vancouver Island. This passage averages a little more than a mile in breadth, contracting at Seymour Narrows to less than half a mile. Its shores southward from these narrows are moderately high and apparently fertile, but northward from them steep, rugged and mountainous. This passage was first entered by the United States sloop *Washington*, of Boston, Captain Robert Gray, in 1789. Its length in a **NW.** and **SE.** direction from Cape Mudge to Chatham Point is twenty three and a half miles. The southern entrance to this passage is formed by **Willow Point**, a small and insignificant low rocky point covered with willows, with *a ledge* extending **NE.** from it three cables, which renders it inadvisable to approach the point within half a mile, and by Cape Mudge, which is the landmark for the entrance of the passage. This cape is a peculiar headland about two hundred and fifty feet high, flat and wooded on its summit, forming a rather abrupt yellow clay cliff, more or less covered with vegetation. It falls to the westward toward Discovery Passage, forming a low boulder point; from the **SE.** the high land of Valdes Island appears behind it. It is situated (according to British Admiralty Chart No. 580) in

Cape Mudge.

Latitude	**50° 00′ N.**
Longitude	**125° 12′.5 W.**

DANGERS.

From the low point referred to, a boulder beach extends to the eastward, following the general direction of the shore, and off this shore extending eastward from the low point, two miles, the depth is not over five fathoms. This shoal is marked by kelp during the summer and generally by a tidal line or heavy ripplings, which should be avoided.

From Cape Mudge, Willow Point bears **S.** a mile and two-thirds.

TIDES.

At the entrance, according to British authorities, it is **H. W. F.** and **C.** at 5^h 30^m, with a range of eleven feet. The current runs from four to six knots, turning at high and low water. In heavy weather the tide-rips at flood in the entrance are sufficiently heavy to be dangerous to small craft. The flood tide proceeds from the northwestward.

*Named for DON CAYETANO VALDÉS, who visited these waters in 1792, in the Spanish guliot *Mexicana*. Erroneously spelled *Valdez* on British Admiralty Chart No. 538.

A set of these proofs were furnished to Lieut H. E. Nichols, commanding the U.S. steamer Hassler, June 20, 1881.

They were used exclusively by him and upon them were endorsed the following notes which are signed H.E.N.

Transferred to the book March 6 — 1881 by Marcus Baker

In Duncan Bay the tides run directly opposite to their direction in mid channel. Time of h.w. the same as at Seymour Narrows. H.E.N. 82.

SAILING DIRECTIONS

FOR ENTERING DISCOVERY PASSAGE.

The western low part of Cape Mudge should not be brought to bear to the westward of **W NW.** in entering or leaving this passage. The channel is free from dangers and presents no difficulties for steamers. Sailing vessels are recommended to enter it only in clear weather with a fair wind, and after the first rush of the flood is over. The course from a point in mid-channel **S SE.** from Cape Mudge about one mile is **NW.** The soundings in the vicinity vary from twenty to forty fathoms, rocky bottom.

NW. by **W.** from Cape Mudge one mile is *a shoal patch* on which eight fathoms may be had, and over which the current forms strong tide-rips. **N NW.** from Cape Mudge less than two miles is a level piece of shore between the hills and the sea, where an Indian village is situated, off which fifteen fathoms may be had close in-shore, and immediately northward of this is a patch extending from the shore and carrying nine fathoms. The western shore of the passage is here moderately low. From the **Yakulta village** * westerly the shore of Valdes Island is about one hundred feet high, extending in a **W NW.** direction one mile to a rounded bluff point with a small rock close to it.

Kwathiaski Cove. Directly behind this point to the northward is Kwathiaski Cove,† a small indentation bordered by a sandy beach. This cove is only fit for steamers or small craft, affording room for one vessel to moor in its northern part and for another in the southeastern part. The extreme length of the cove is two-thirds of a mile in a **NW.** and **SE.** direction, and its greatest width less than half a mile.

In the center of the cove is Grouse Island, small and moderately high, with *a shoal* extending four hundred feet **SE.** from its **SE.** point, which should be guarded against in entering. The tide in the cove is slight but the stream runs strongly past the entrance, necessitating care in entering.

DIRECTIONS FOR THE USE OF KWATHIASKI COVE.

If intending to anchor in the cove it should be entered to the southward of Grouse Island, keeping an eye upon the tide, and the navigator should keep well over to the southern shore until inside, where the southeastern mooring ground is recommended, one or two cables **SE.** from Grouse Island, in ten fathoms, well sheltered from all winds, about midway between the **SE.** point of the island and the opposite shore. If necessary, a vessel may proceed to the northern part of the cove inside Grouse Island and anchor in seven to nine fathoms, but the southeastern mooring ground is recommended. *A shoal patch* exists in the middle of the northern entrance with three feet upon it.

(A plan of this cove has been published by the British Admiralty Office in connection with that of Gowlland Harbor, No. 2067.)

From Willow Point the Vancouver shore is low and bordered by a sandy beach. Five and a half miles **NW.** from Willow Point is the entrance of **Campbell River,** a large stream, navigable for some distance by boats or canoes. In this part of Discovery Passage the current turns, near the shore, with the tides, running from the northwestward with the flood. One and a half miles **NW.** from this river is **Orange Point,** bare and round, of a reddish color, forming the eastern extreme

Duncan Bay. of Duncan Bay, an indentation in the shore about two cables in extent **N NW.** and **S SE.** and five or six cables **W SW.** and **E NE.**; easy of access, well out of the tide, sheltered from all winds except those from **W NW.** round by **N.** to **E SE.**, and affording good anchorage in seven to fourteen fathoms, sand, about five cables **W.** ½ **S.** from Orange Point. This is the best anchorage between Seymour Narrows and Cape Mudge. A stream of water enters at its head, where there is a broad sandy beach. A boulder spit of triangular shape extends a cable and a half **NW.** by **N.** from Orange Point, its outer limits marked by kelp in four fathoms. This bay is shown on the British Admiralty Charts 538 and 2067, in connection respectively with Seymour Narrows and Gowlland Harbor.

Gowlland Harbor. Gowlland Harbor is the next shelter on the southwestern shore of Valdes Island, **NW.** from Kwathiaski Cove. From the northern entrance of the latter the shore is bold-to and very irregular, extending in a general **NW.** direction two miles to the northern end of **Steep Island,** which forms the southern head of the entrance to Gowlland Harbor. This island is less than half a mile long, very narrow, with a bluff shore on the western side, and about one hundred feet high. Its northwestern end is directly abreast of Orange Point and bears from it **NE.** ½ **N.**, distant one mile. Between it and Gowlland Island, forming the southern protection of the harbor, is a narrow

* Spelled **Yaculta** by British authorities.

† The name is spelled **Quathiaski** and **Quathiasky** by British authorities.

See Meade's remarks: see also remarks by H.E.N.

Coming from the southward I like the S.W. channel best. H.E.N.

rocky channel. The last-named island is about a mile long and a third of a mile wide, with two summits, of which the southeastern one is about four hundred feet high. A rock connected by a rocky tongue with the northwestern end of Gowlland Island is known as **Vigilant Point**, and is stated to be in

Latitude ..... 50° 5′ 2″ N.
Longitude ..... 125° 16′ 6″ W.

The variation of the compass in this vicinity was 23° 35′ E. in 1866, with a presumed annual increase of 2′.

The harbor lying within this point is two and a half miles in a NW. and SE. direction, and from a quarter to two-thirds of a mile in width. There are several rocks and islets within it, and the shores are mostly wooded, rugged and irregular. From Vigilant Point to some islets near shore, forming the northwestern head of the entrance, is a little less than half a mile W NW. Across the inner portion of the entrance, extending to within a cables length of the islets before mentioned and of Vigilant Point, lies the *Entrance Bank*, composed of sand, partly dry at low water, and being about four cables long in a W NW. and E SE. direction, and one and a half cables wide. There is a clear passage on each side of it with not less than four fathoms; its southern end, with three fathoms on it, lies a cable N. by W. from Vigilant Point.

Entrance Bank.

SAILING DIRECTIONS

FOR ENTERING GOWLLAND HARBOR.

I. ***From the Southward.***—Steep Island should be rounded at about a cable's distance, when the course is NE. by E. for the passage north of Vigilant Point, which is nearly steep-to and should be rounded at half a cables length, or less, to avoid Entrance Bank. When Vigilant Point bears W. by S., a quarter of a mile, anchorage may be had in seven fathoms, muddy bottom. More extended anchorage may be found with deeper water at the southeastern head of the harbor, but the passage between the southeastern end of Gowlland Island and Valdes Island is obstructed by rocks and shoals. A contracted anchorage is also at the northwestern end of the harbor, N NW. of the Entrance Bank, in four fathoms. The first-mentioned anchorage is recommended for navigators intending only a short stay.

II. ***From the Northward.***—If coming from the northward, the course is E. for Vigilant Point, passing as before directed.

(A plan of this harbor is issued by the British Admiralty Office, No. 2067.)

TIDES.

It is H. W. F. and C. at 5^h 30^m p. m. Spring tides rise eleven feet.

The coast from Gowlland Harbor, in a W NW. direction, is bold-to, high and rugged for four miles. On the Vancouver side, from Duncan Bay, the bluffs are lower, and the shore trends about NW. for nearly three miles, with a narrow beach to **Race Point**, a high bluff promontory, bold-to; past which the tide runs with a four to six-knot current, the flood forming rips very dangerous for boats.

Menzies Bay.

From this point the land trends W SW. two miles to the mouth of Menzies Bay, an indentation in the Vancouver shore of considerable extent, being a mile and a half long in a NW. and SE. direction, and three-quarters of a mile wide. The head of the bay is somewhat shoal, with a broad bank at low water, and the middle of the bay just within the entrance is obstructed by a large triangular sand bank, partly dry at low water, with a clear passage on each side of it about a cable and a half in width.

SAILING DIRECTIONS

FOR ENTERING MENZIES BAY.

To reach the anchorage the navigator should keep within a cables length of the eastern shore for half a mile, when the vessel may be kept off for the center of the bay, where anchorage may be had in six fathoms, muddy bottom, half a mile from the head of the bay, and two cables S SW. from the eastern shore. The latter is high and rugged, the western shore low; both are steep, and an extensive valley runs northwestward from the head of the bay. A less direct and narrower passage exists along the southwestern shore which may also be used, as above. *

of remarks by Meade

Seymour Narrows. The Haesler went through at the end of the flood tide which was running about 2 knots; there was not a ripple or a tide race to be seen. H. E. N.

A moderate [illegible] the [illegible] H.W.F.&C. Establishment for Port Townsend can be used. Passed the narrows at 8 A.M. May 9, 1883, with strong ebb running, establ. n.w. at 7.46 m H.W.F.&C. 83

1 I have seen it run 9¾ knots at neaptides and not full strength either (moon five days old). H. E. N.

a Between the eastern end of Maud Id and the adjacent shore is an appearance of a passage though none exists, the place is often called False Passage. Race Pt is rocky flattish and bare of trees. W.H.D.

2 I should recommend passing the Narrows at the end of a head tide as you then have perfect control of the steering of the ship; with a fair tide you do not. H. E. N.

3 Plumper Bay. My pilot says the eddies and tides in Plumper Bay are very strong causing a vessel to surge heavily on her chains. He considers it a good anchorage only to hold on an hour or so waiting a tide to pass the narrows H. E. N.

Wilfred Point, the eastern headland of Menzies Bay, is over three hundred feet high, bluff and rocky. **E NE.** from it half a mile is **Maud Island**,* three hundred feet high, less than half a mile in diameter, rounded, with a boat passage between it and Valdes Island to the northward. A small islet called Yellow Islet lies three cables **E NE.** from Maud Island. Between the latter and Wilfred Point is the southern entrance to

SEYMOUR NARROWS,

which extend **N NW.** from the entrance two miles, being less than four cables in width at their narrowest part. The shores on both sides are rugged, high and bold-to. The summits on the Valdes shore rise to the height of seven hundred feet and those on the Vancouver side ~~are not much less~~; the depth of water in some parts of the narrows exceeds sixty-five fathoms. have the appearances of being decidedly the higher land.

TIDES.

Owing to the narrowness of this gorge the tides rush through with great velocity, attaining nearly nine knots at spring tides; it is stated that the flood and ebb streams run for nearly equal intervals of six hours,—a very short period of slack water intervening between them. It should be noted that the flood stream runs in on the surface some time before the water commences to rise, so that with an hour's apparent flood the depth of water in the passage may not be appreciably greater than at low water. According to English authorities it is **H. W. F.** and **C.** at $4^h\ 0^m$, the stream running one and a half hours after high and low water, with a spring rise of thirteen feet.

Deceptive flood-tide.

DANGERS.

According to the British Admiralty Charts, on a line connecting the summits of Maud Island and Wilfred Point lies *Ripple Rock*, a submerged channel rock having three fathoms on it at lowest water. This rock is situated rather less than two cables from the Vancouver shore and nearly three cables from the western shore of Maud Island. It is in one with the outer edge of Race Point bearing **E.** by **S.** ½ **S.**; with the southern edge of Maud Island bearing **E.**; with the southeast edge of Wilfred Point bearing **SW.** by **S.** ½ **S.**; and with the western end of Separation Head bearing **N NW.** The U. S. S. *Saranac* was lost on this rock in June, 1875. **N.** one cable from this rock is *another small patch* with four fathoms on it. Around these rocks the water varies from twelve to forty fathoms in depth.

Ripple Rock.

GENERAL DIRECTIONS

FOR DISCOVERY PASSAGE AND SEYMOUR NARROWS.

In proceeding through Discovery Passage from the Southward, if the tide be favorable, a vessel has only to keep in mid-channel until up with the Narrows. If the tide be unfavorable, after passing Cape Mudge it is desirable to keep two or three cables off the Valdes Island shore, which is bold-to and where the tide does not run so strongly. Sailing vessels, except small craft, should not attempt to beat through, southward of the Narrows.

In attempting to pass the Narrows it is recommended to choose the earlier or latter part of a favorable tide, as during the time of greatest strength a boiling race, with whirls and overfalls, extends clear across, rendering steerage-way very difficult to obtain. In passing through, when abreast of Maud Island the navigator should keep a cable to the eastward of mid-channel to avoid the rocks; over which, however, vessels drawing less than thirteen feet may pass freely.

To the northward of the Narrows, the tides being comparatively weak, a vessel may proceed either in mid-channel or close inshore (except off Chatham Point) in safety.

At the northern entrance of the Narrows the passage is three-quarters of a mile broad, but immediately expands to nearly twice that width, forming on the Vancouver side a small bight with a sandy beach, and on the opposite shore Plumper Bay, named after H. B. M. steamer *Plumper*, long engaged in surveying in this region. This bay is about half a mile wide and less than a mile long in a **N NW.** and **S SE.** direction, and is sheltered to the **NW.** by Separation Head, an oval high peninsula putting out from Valdes Island. It is easy of access, well sheltered, and out of the tide. In its southeastern part good anchorage may be had in seven

Plumper Bay.

* Erroneously spelled Maude on British Admiralty Chart No. 580. **Maude Island** is near Nanoose Harbor.

Note white rock opposite Plumper Bay for a fog mark or night. H.E.N.

a These bays are reported to extend much further than Brit. Adm. chart 530 indicates. W.H.D.

b Granite Pt is rather low, wooded on top, bare at the end, the highest side toward the northern inlet. W.H.D.

c The point opposite Chatham Pt. has a nearly bare steep rocky face not much higher than Chatham Pt. The North shore here is largely rocky for some little way back. W.H.D.

e. Beaver Rock off Chatham Point. The pilot says the "North Star" struck a rock a good half mile N.E. of Chatham Point, probably an extension of Beaver Rock. He says the latest editions of the charts have corrected the position. I have not seen it. H.E.N.

d Pilot George says the tides in Johnstone Strait are very irregular. The H.B. Co's officers agree with him in saying that the data on the Br. Adm. Charts are not sufficient to compute the tides by. W.H.D.

In Johnstone Strait we noticed very few tide rips and no overfalls running with ebb tide and wind light from westward. H.E.N. 81

In 1882, June 18, tide eddies very strong against the wind. May 9, 1883, tides strong & full of eddies. H.E.N.

to twelve fathoms within two cables length of the shore. For vessels from the northward, unable to proceed through the Narrows, this bay offers a convenient anchorage, and no directions are necessary for entering it.

Separated from Plumper Bay by the peninsula of Separation Head is **Deep Water Bay,** about a mile long and over half a mile wide, but too deep for convenient anchorage. From Separation Head Discovery Passage trends **NW.** for five miles, the shores becoming more high and rugged than before. At this point a deep bay, with a number of islets in it but no anchorage, is reported, indenting the eastern shore, and a mile to the northward is another smaller and narrower, not yet fully explored. Between these is **Granite Point,** a high white granite bluff, from which **NW.** at two cables distance is *a submerged rock* having only nine feet of water on it. The western shore **NW.** from the Narrows is nearly straight, and at six miles **NW.** from Separation Head forms a rather low sloping point, known as **Otter Point,** having a gravel beach off it with a fringe of kelp about it. Westward from this point the shore forms a slight indentation three-quarters of a mile deep, called **Elk Bay,** affording indifferent anchorage, exposed to northerly winds, in fourteen fathoms about a third of a mile from its head. Three-quarters of a mile **NW.** of the northern headland of this bay, in a slight indentation of the shore, lies *a rock,* covered at half-tide, at a distance of a cable and a half from the beach. Northward from this bay the shores are high and rugged, with numerous inshore rocks marked by kelp. The mountains on the Valdes Island side rise to the height of 2,200 feet.

Submerged rock.

NW., three and a half miles from Otter Point, lies Otter Cove, about four cables in extent, on the western side of the passage and just south of Chatham Point. It is a small but snug anchorage, sheltered from most winds by Limestone or Lewis Island, a small islet one hundred feet high, nearly in the middle of the entrance. About a cable **ENE.** from this islet lies *Snag Rock,* with two feet of water upon it.

Otter Cove.

DIRECTIONS FOR THE USE OF OTTER COVE.

Intending to anchor in this cove, a vessel should pass in mid-channel on the northern side of Limestone Island, and anchor midway between it and the head of the cove in six to ten fathoms, sand. The bottom is chiefly rocky in the entrance, but with not less than sixteen fathoms in the channel. There is a narrow four fathom passage bordered by shoals on the southern side of the islet. Large vessels must moor.

(A plan of Otter Cove is added to the last edition of British Admiralty Chart No. 580.)

Directly north of this cove is Chatham Point, nearly twenty-four miles from Cape Mudge, and forming the northwestern headland of Discovery Passage. It is a low rocky point, fringed with rocks which extend to the eastward and northward a quarter of a mile. Two cables **NE.** from its northern extreme is *Beaver Rock,* awash at low water. In rounding Chatham Point it should not be approached within half a mile. The entrance to Discovery Passage is here a mile and a quarter wide. An islet lies west of and close to its eastern headland.

Chatham Point.

TIDES.

The tides in this vicinity run from two to five knots, and opposite Chatham Point, between it and the entrance to Nodales Channel, are several strong tide-rips.

NODALES CHANNEL

and Johnstone Strait intersect Discovery Passage at right angles. Four miles to the eastward, in the channel, is an indentation of the Valdes Island shore, forming an anchorage known as **Cameleon Harbor.**

JOHNSTONE STRAIT,

which separates the northern side of Vancouver Island from the Thurlow and other islands and the mainland, is comprised between Chatham Point and Ella Point, Vancouver Island; being about fifty-five miles in length in a **W.** by **S.** and **E.** by **N.** direction, and having a width of from one to two miles. The shore on both sides is high and rugged, especially to the southward, where an almost continuous range of mountains rises abruptly from the sea with summits 2,000 to 5,000 feet in height, some of which bear snow throughout the year. The shores of the strait, except in a few places to be hereafter referred to, are bold-to, and there are no anchorages whatever along the southern shore.

This strait is represented on British Admiralty Charts Nos. 580, corrected to September, 1867, and 581, corrected to August, 1872.

a Mt. Eldon near Pender Island is a peculiar wooded square-topped hill abrupt to the NW. and quite isolated. The Vancouver shore here abouts is the steeper higher and most densely wooded. W.H.D.

b The bluff E.N.E. of Knox Bay is nearly bald on its S.E. slope W.H.D.

c On the line from Thurlow at Eden Pt to Camp Pt. Peak close to the Vancouver shore is a rock close in covered at h.w. not on Br. Adm. Ch. 581. It was discovered by Capt Carroll of Str. California in May, 1880.

TIDES. [a]

[a] See p. 5

The tides attain a strength of six knots in a few places, but on an average do not exceed three knots. It is stated by English authorities that everywhere in Johnstone Strait it is **H. W. F. and C.** at 0^h 35^m, and the rise and fall of tide is about sixteen feet. The streams run by the shore from two to two and a half hours after high and low water, and except near Helmcken Island and to the eastward of Knox Bay, they seldom exceed one to three knots per hour.

The magnetic variation in 1862 was 23° 40′ E., with a presumed annual increase of 2′.

From Chatham Point to the west end of Thurlow Islands the soundings in mid-channel are very deep,—in several places no bottom being found with 150 fathoms of line. Hence to Hardwicke Island the bottom is irregular, and beyond it again deepens. There are *heavy tide-rips* near Helmcken Island, and just west of Chatham Point is an *overfall* which at times produces a considerable swell. North from Chatham Point the northern shore of the strait is formed by the Thurlow Islands, extending westward from Nodales Channel, and formerly supposed to consist of but one island. Though still not entirely surveyed, there are reasons for believing that the land is divided into at least two islands by narrow passages yet unexplored. The Vancouver shore bordering on Johnstone Strait is rocky and irregular, and extends some fourteen miles in a westerly direction from the entrance of the strait.

Thurlow Islands.

W. by **N.** three and a half miles from Chatham Point lie the **Pender Islands,** [a] rugged and barren, one hundred and fifty feet in height, through the passages between which the tide sets strongly. *Foul ground* exists to the east and west of them for nearly half a mile, and their south side should not be approached within two cables length. Six miles to the westward from Chatham Point, on the Vancouver shore, is **Ripple Point,** off which are *heavy tide-rips* in blowing weather. It is bold-to, and directly abreast of it is an unexplored opening in the Thurlow shore.

Knox Bay.

On the northern shore of the strait, seven miles **W.** ¼ **N.** from Chatham Point, is Knox Bay, two-thirds of a mile deep in a northwesterly direction and having about the same width. It affords anchorage in fifteen to seventeen fathoms two cables from its head, on the edge of a bank which is steep-to. This anchorage is open to southerly though protected from other winds.

DIRECTIONS FOR USING KNOX BAY.

If intending to anchor in the bay the head of the bay should be steered for and the lead kept going; directly sixteen fathoms are had the anchor should be let go. It is recommended that this bay be used only as a temporary anchorage, as should a southerly wind spring up the vessel would ground from the steepness of the bank.

Off the **SW.** point of the bay *foul ground* extends for a cable length from the shore and follows the course of the point for half a mile. Beyond Knox Bay the Thurlow shore is almost straight, extending in a **W SW.** direction for nearly six miles, when it turns to the northwest, where a small bay exists too deep to afford anchorage except for small craft at its head, and open to the westward.

To the north from it is **Eden Point,** the northwestern extreme of Thurlow, bold and cliffy, forming the southern headland of the entrance to Chancellor Channel. Westward from this point Johnstone Strait becomes wider, and so continues except where obstructed by islands. Its width at this point is nearly two miles. On the Vancouver shore, nine and three-quarter miles **W.** by **S.** ½ **S.** from Ripple Point, is **Camp Point,** sloping gradually to the sea, with a rocky beach off it; and from the point **NE.** half a mile lies *Ripple Shoal,* about half a mile in length from **E.** to **W.,** marked by kelp and having six to nine fathoms upon it, with deep water all around the shoal.

The north side of the strait in this vicinity is formed by **Hardwicke Island,** separated from the Thurlows by Chancellor Channel, and having its southern shore nearly straight for seven miles. East from *Earl Ledge* the shore is steep-to. **W SW.** from Eden Point two and a half miles lies Helmcken Island, in the middle of the strait, a mile and a half long in an **E.** and **W.** direction, and about half a mile wide, with a rugged and irregular coast line. It rises to the height of nearly two hundred feet, and has several small islets close-to on its northeast shore. On each side of the island is a clear passage half a mile wide. In the track of vessels using the northern passage lies *Speaker Rock,* which covers at less than half tide, and is situated two and a half cables **NE.** from the eastern point of the island.

Helmcken Island.

Speaker Rock.

The northern channel is known as **Current Passage,** and has deep water with about the same tide as **Race Passage,** which is more generally used, deep and clear of danger. The tide runs strongly through it, as much as seven knots at spring tides, and there are some *heavy tide-rips* in the eastern part.

Westward from Camp Point the Vancouver shore is almost straight for nearly four and a half miles. It then forms a slight indentation known as **Salmon Bay,** with extensive flats at its head, giving it an appearance of considerable extent, at high water; but there is *no anchorage,*—the bank at its head being bold-to. A large river, said to be navigable for several miles by canoes, empties into the bay from an

About ½ m. mid-ch. S.W. of is a low bare rock a few feet above h.w. & thick this is Sanding Rk. Breakers shown above h.w. water in locality mentioned on Lot ⓐ but there is kelp & dead-man's fingers & other H.S.

Eight to ten fathoms. It is supposed on the ~~[illegible]~~ of Lesser Id. & the S.W. pt. of Bay H.S.

Port Neville named by Vancouver I, 345

extensive valley which stretches away to the southeast, in the centre of which appears **Valley Cone**, a remarkable bare peak about eight hundred feet high. This valley forms the only break in the mountain range of the Vancouver shore.

Earl Ledge.

On the shore of Hardwicke Island, *one mile west of the western point of* Helmcken Island, is a small rocky point, directly to the eastward of which the *Earl Ledge* extends at right angles to the shore for about three cables, only uncovering at low water.

Hence to the western end of Hardwicke Island both shores of the strait are rugged, broken and nearly straight, and its width *is slightly contracted. Off the western end of* Hardwicke are **York Island**, high, round and half a mile in diameter, and another low islet half a mile farther west. Off these, **W NW.** from the outer islet a quarter of a mile, lies the *Fanny Reef*, awash at high water.

The entrance of Sunderland Channel between the reef and the north shore of the strait is subject to *heavy tide-rips.* The north shore is now constituted by the mainland of British Columbia and much indented by bays and inlets. Somewhat less than two miles **NW.** from York Island is Tuna Point, the southeast headland of **Blinkinsop Bay**, over a mile deep and half a mile wide, with extensive tidal flats at its head. The shores are high and the bay affords good anchorage, well sheltered and easy of access, in ten to twelve fathoms about *one-third of a mile* **NE.** *from its southwest point.* The bank on which anchorage may be had is rather steep and the only direction necessary is to anchor in mid-channel as soon as twelve fathoms are obtained. Half a mile **SW.** from the bay is Jesse Island, lying about two cables off shore, small and steep-to.

Port Neville.

About two miles **W.** of this island *is the entrance to* Port Neville, an inlet some seven miles in length, having a generally **NE.** direction, and being from a mile to a quarter of a mile in width. Its shores are high except near the eastern part of the entrance and at its head. It affords spacious and secure anchorage when once inside; but the entrance, where less than four cables wide, is obstructed by *Channel Rock,* a little over a mile from the entrance, of small extent and very dangerous, having only four feet of water over it, with twelve feet in the channel to the eastward of it and seventeen feet to the westward.

Channel Rock.

A detailed description of this port is unnecessary. Port Harvey and Blinkinsop Bay, both secure and easy of access, are adjacent to it, and the danger in entering Port Neville is so great that it renders it inadvisable to seek shelter there in preference. If necessary, a vessel may anchor in the entrance half a mile north of **Milly Island**, in four or five fathoms. This island is quite small and separated by a very narrow channel from the western headland of Port Neville entrance. (A plan of this port appears on British Admiralty Chart No. 630.)

The coast of the mainland hence **W.** by **S.** is irregularly formed with small indentations to the Broken Islands. **W.** by **S.** $\frac{1}{4}$ **S.** four miles from the entrance to Port Neville is the *Slimpson Reef*, a ledge of rocks a quarter of a mile off shore, covering at half-tide and marked by kelp in summer. **SW.** by **S.** three miles from this reef is Adams River, on the Vancouver shore, a small stream with extensive flats filling a small indentation in the coast, behind which rise high mountains, one peak attaining the height of five thousand feet. Nearly abreast of this indentation, on the north shore, are the **Broken Islands**, *lying off a point of the mainland*, with a boat passage between them and the shore, at the entrance to Port Harvey and Havannah Channel. They are small, rugged and low, and may be approached within a quarter of a mile to the south and southwest, but to the northward rocks, ledges and kelp, indicating shoals, extend three-quarters of a mile.

Slimpson Reef.

One and a third miles to the northward of these islands is the entrance to Havannah Channel, which runs in a northeasterly direction for four miles, connecting the eastern part of the entrance to Port Harvey with Call Creek Inlet. From Domville Point, the south headland of the channel, **N NW.** *about one mile, lies the inner entrance to* **Port Harvey**, which is here about half a mile wide and extends for two miles to the northward. There are several islets within it; the shores are rugged; from its head swampy ground extends northeastward, and a narrow gorge to the northwest partly fills at high water and joins Knight Inlet. The soundings at the entrance vary from *sixty to eighty fathoms, shoaling rapidly* toward the head. Taking in the outer entrance the port is about four miles long, varying from one-quarter to three-quarters of a mile in width, and affords good and well-sheltered anchorage half a mile from its head in seven to nine fathoms, muddy bottom.

Havannah Channel.

It is **H. W. F.** and **C.** at Port Harvey at 0^h 30^m, *and the tide ranges about ten feet.*

The small islets in Port Harvey are known as the Mist Islands.

SAILING DIRECTIONS

FOR ENTERING PORT HARVEY.

If intending to anchor in Port Harvey, the navigator should keep in mid-channel till within the Mist Islands, when the anchorage opens out, and a berth may be had in seven fathoms about half a mile from the head of the port.

Good anchorage in 12-15 fms. HZN. VL.

k The timber on Blinkhorn Island has been prostrated apparently by a windfall.

Sailing vessels of considerable size may beat in as far as the Mist Islands, standing in to a cables length from the western shore, but on the other tack should avoid standing to the eastward of the line of the Broken Islands, or into the bight between the inner eastern headland (Transit Point) and the Mist Islands.

A plan of this port appears on British Admiralty Chart No. 634.

DANGERS.

Two miles **W SW.** from the Broken Islands lies the *Escape Reef,* half a mile off the north coast of Johnstone Strait, with deep water between it and the shore. It is about a cable in extent, with least water four feet, and in summer is marked by kelp. It has deep water about it, and is a danger in the track of vessels bound into Port Harvey from the westward and into Forward Bay from the eastward. To avoid it in the first case the navigator should keep a mile off shore until the entrance of Port Harvey bears **N.** by **E.**, when that course carries clear of all dangers.

Four miles **W SW.** of the Broken Islands lies Forward Bay, a mile and a quarter broad and three-quarters of a mile deep, with Bush Islet, a small islet thirty feet high off its southwestern point, which is surrounded by a bank, and at its head are flats nearly three cables wide. This bay affords good anchorage, well sheltered from all winds except southeasters, and even these are said to send in no swell; it is easy of access for vessels of any class, and may be recommended as a good stopping place.

SAILING DIRECTIONS

FOR ENTERING FORWARD BAY.

I. ***From the Eastward.***—Vessels should keep in mid-channel to avoid the *Escape Reef* until Green Islet, on the eastern side of the bay, bears **NW.**, when the course is **W NW.** for the middle of the bay, anchoring off the bank at its head in ten to fourteen fathoms, two-thirds of a mile **NE.** from the **SW.** point of the bay.

II. ***From the Westward.***—Vessels should not approach the northern shore within half a mile, until the head of the bay opens out past Bush Islet, off the southwestern headland; when a course may be laid for the anchorage.

From this bay westward the northern shore of the strait—here formed by the southern shore of Cracroft Island, according to the later charts—becomes comparatively low, trending **W.** by **S.** for fifteen miles to the termination of the strait.

Boat Harbor, a small cove, affording shelter for boats, is six miles **W SW.** from Forward Bay,—the shore between them being bold-to for the most part, and may be approached to a quarter of a mile. Two and a half miles **S.** from Boat Harbor is an indentation of the Vancouver shore called Robson Bight. Beyond Boat Harbor, about three miles to the westward, are the **Sophia Islands,** of small extent, a quarter of a mile from the shore.

Cracroft Island. Cracroft Island extends from Chatham Channel, east of Port Harvey, westward to Blackney Passage, some nineteen miles in a **NE.** by **E.** ½ **E.** and **SW.** by **W.** ½ **W.** direction; though previously the name was applied to a much more contracted portion of this land. It is separated by Blackney Passage, a strait a mile wide, from **Hanson Island,** about one hundred feet high, with rocky shores, extending hence to the westward three miles. Off the western end of Hanson Island are a large number of islets and rocks extending off its southwestern point nearly half a mile. Abreast of this point are some *tide-rips,* and on the Vancouver shore is a small low islet called Blinkhorn Island. A mile and a quarter west from this is **Elia Point,** the southwestern headland of Johnstone Strait, with some rocks extending a quarter of a mile northward from it. There is a slight indentation, known as Bauza Cove, to the eastward of the point, with water too deep to afford anchorage.

At its western termination Johnstone Strait is a mile and a half wide, clear of obstructions, and hereabouts the tide runs from three to five knots.

GENERAL DIRECTIONS

FOR THE NAVIGATION OF JOHNSTONE STRAIT.

For a steamer, or a sailing vessel with a fair wind, the navigation of the strait presents few difficulties. It is only requisite to keep in mid-channel with the following exceptions: When past Thurlow Islands, going to the westward, vessels nearing Helmcken Island should keep within three

cables length of the southern shore until past the Ripple Shoal. The tides are strong near Helmcken Island, but not so much so as to interfere with the progress of a steam vessel of moderate power; to the westward they have no great strength. In beating through the strait from the eastward the shores to the eastward of Helmcken Island may be approached to one cable length, except for half a mile on either side of the Pender Islands, the southern shore of which should not be approached within two cables, as the tide runs strong in their vicinity.

Between Thurlow Islands and the western end of Hardwicke Island it is not advisable to beat, as there are several dangers, previously specified, and the tide runs strongly and irregularly.

From Hardwicke Island to the western end of the strait the southern shore may be approached to one cable and the northern, except near the Slimpson and Escape Reefs, to two or three cables.

BROUGHTON STRAIT,

connecting Johnstone Strait and Queen Charlotte Sound, is about fifteen miles in length east and west, the breadth varying from four miles near the eastern entrance to one mile near the western entrance. Its southern shore is formed by Vancouver Island and its northern shore by Malcolm Island; both, except near Beaver Cove, being moderately low. The eastern part is somewhat obstructed by islands, rocks and shoals, but a clear navigable channel exists, half a mile wide at its narrowest part, along the southern shore. At the eastern entrance of the strait the depths vary from sixty to one hundred fathoms, decreasing rapidly to the westward; abreast the Nimpkish River nineteen to twenty fathoms may be had; but the bottom westward from this becomes irregular with soundings in from fifteen to forty fathoms.

TIDES.

In Broughton Strait it is **H. W. F. and C.** at $0^h\ 30^m$,—the tide ranging fourteen to fifteen feet. In the navigable channel the streams run from one to four knots, in the Race and Weynton passages from three to six knots, turning everywhere about two hours after high and low water by the shore.

Beaver Cove, at the entrance of Broughton Strait, on the Vancouver shore, is a two-headed indentation of the coast, extending inland southward and westward over a mile, and half a mile in width. Its shores are high and bold-to except near the southern and western extremes. The water is too deep for convenient anchorage except within two cables length of the western head, where anchorage may be had in from ten to fifteen fathoms, well sheltered from all winds, unless it be squalls from the high land. Spring tides here rise fifteen feet. The northwestern headland of the cove is high and bold-to. It is known as **Lewis Point**, and is stated to be in

Latitude ..... 50° 32′ 47″ N.
Longitude ..... 126° 52′ 12″ W.

A plan of this cove is to be found on British Admiralty Chart No. 2067.

Three miles to the southwest from the cove, **Mount Holdsworth**, a remarkable conical peak, rises to the height of three thousand feet. For nearly seven miles to westward from the western point of Hanson Island the navigable part of the strait is sheltered to the northward by the **Pearse Islands**, by other islets, and by **Cormorant Island**. The latter rises to the height of three hundred and fifty feet, is two and a half miles long east and west, three-quarters of a mile wide, and bordered by a sandy beach. Two and a half miles **W.** by **N.** from Beaver Cove is its eastern extreme, known as Gordon Point.

Between Hanson, Pearse and Cormorant islands lie the narrow and dangerous **Weynton** and **Race** passages, through which the tides rush with great velocity. Abreast of Beaver Cove are some *tide-rips* in the middle of the passage. Abreast Cormorant Island and five miles **W.** by **S.** of Lewis Point, on the Vancouver shore, is the mouth of the Nimpkish River, which flows into a shallow bay off which are tidal flats extending nearly a mile. A narrow winding channel, carrying about five feet of water, extends into the river, which is only navigable for any distance by canoes. **Nimpkish River.**

At the mouth it is **H. W. F. and C.** at $0^h\ 30^m$, with a spring rise of fourteen feet.

Some six miles up the river, which passes through a broad valley bounded by mountains fifteen hundred to three thousand feet in height, is **Lake Karmutsen**, a large sheet of water, into which several large streams fall, and to the south of which the mountains rise over five thousand feet. On the northern bank of the river, at its entrance, is the ruined native village of Cheslakee.*

About a mile **NE. ½ N.** from the entrance of the river is **Green Islet**, stated to be four feet above high water, small and bare, and situated in

Latitude ..... 50° 34′ 12″ N.
Longitude ..... 126° 58′ 37″ W.

*Printed Cheslakee in the Vancouver Island Pilot and on British Admiralty Chart No. 581.

a. Green islet.

b. See remarks on Alert Bay, wood, water, etc. H. E. N.
c. Nothing very remarkable about the yellow cliff! H. E. N.

1. At Alert Bay is a flourishing trading station and wood wharf. The Indians have mostly moved over from Cheslakee to this place. W.H.D.

In navigating the strait this islet should not be approached within three cables length. Half a mile west of it, on the bank, is *a rock* which uncovers at low water. This rock is not shown on the plan of Nimpkish River on British Admiralty Chart No. 2067.

The magnetic variation in this vicinity was **23° 55′ E.** in 1862, with a presumed annual increase of **2′**.

In this part of Broughton Strait a current of one to three knots is reported running for two hours after high and low water by the shore, flooding to the eastward.

Alert Bay.

Directly abreast of Green Islet is **Alert Bay**, on the southern shore of Cormorant Island. **Yellow Bluff**, forming the southwestern headland of the bay, is recognized by a remarkable yellow cliff at the extreme of the point. The bay is half a mile deep **N.** and **S.** and nearly a mile wide, easy of access, and affording good and well-sheltered anchorage in five to nine fathoms, muddy bottom, the shores being everywhere free of dangers. No directions are necessary for entering it. A plan of this bay may be found on British Admiralty Chart No. 2067.

Sunken Ledge.

The northwestern angle of Cormorant Island is known as Leonard Point, from which **W.** by **S.** a mile and a quarter is *a kelp patch* in four fathoms. Two and a half miles nearly **W SW.** is **Haddington Island**, small and steep-to, except on its northern side, where *a bar* extends toward Malcolm Island across the strait with as little as six feet on it in some places. Between this island and the ledge running eastward from the northern headland of Port McNeill, is a clear passage, three-quarters of a mile wide, carrying seven fathoms in mid-channel. **W SW.**, two miles from the western point of this island, lies **Ledge Point**, from which a narrow *ledge*, covered by three to five fathoms water and marked by kelp in summer, extends to the **E NE.** for a mile and a quarter.

Port McNeill.

The point is moderately high and slopes gently toward the water. This point is the northern headland of Port McNeill, which enters the Vancouver shore in a **W SW.** direction for two miles,—being about three-quarters of a mile wide. It is bordered by a sandy beach, which forms a tidal flat three-quarters of a mile wide at the head of the port. Nearly a mile **S SW.** from Ledge Point, and about two cables off the southern shore, lies the *Eel Reef*, which covers at three-quarters flood.

SAILING DIRECTIONS

FOR ENTERING PORT McNEILL.

If intending to enter Port McNeill, vessels should not approach the southern shore within half a mile until Ledge Point bears **NE.** half a mile, when good and well-sheltered anchorage may be had in five or six fathoms, sandy bottom. In leaving the port bound to the westward, vessels should stand to the eastward until within half a mile of Haddington Island before attempting to reach to the northward of Ledge Point.

Malcolm Island.

The northern shore of Broughton Strait to the northward of Ledge Point and Cormorant Island is formed by the southern shore of Malcolm Island. This island extends **E NE.** and **W SW.** for thirteen and a half miles, with an average breadth of over two miles. The shores are mostly low, with a sandy beach which extends off a short distance. The eastern extremity of the island is **Donegal Head**, high, cliffy, and bordered by a beach with strong tides in its vicinity. Seven miles westward from Donegal Head is **Dickenson Point**, connected by a bar with Haddington Island. On some parts of this bar only six feet are reported. Immediately to the westward of Dickenson Point is Rough Bay, a small indentation in which vessels may anchor in eight fathoms.

Five miles **W SW.** of this bay is **Pulteney Point**, the southwestern extreme of the island. From this point to the northward foul ground, marked by kelp, extends a quarter of a mile off the western shore of Malcolm Island, and **W.**, about one mile from the point, is *a shoal patch* of four and a half fathoms, extending thence half a mile in a westerly direction, and also marked by kelp. Abreast of the point, on the Vancouver shore, are several peaks exceeding a thousand feet in height.

GENERAL DIRECTIONS

FOR THE NAVIGATION OF BROUGHTON STRAIT.

In navigating the strait from the eastward, when abreast Beaver Cove, in mid-channel, a **W. ½ S.** course, passing not more than two cables south of Cormorant Island, until the western point of the latter bears **N.** by **E.**, clears the *Nimpkish bank;* the southwestern shore of Haddington Island should be rounded within half a mile, to avoid the reef off Ledge Point.

The wharf is gone and mine abandoned; coal poor. M.B. 1880.

When the northern shore of Haddington is in one with Yellow Bluff of Cormorant Island, bearing **E.**, a vessel may stand out of the strait by mid-channel, clear of all obstructions. Only small craft should go to the northward of Haddington Island, and vessels of large size are recommended not to attempt to beat through Broughton Strait.

QUEEN CHARLOTTE SOUND.

This extensive arm of the sea connects the inner channels north of Vancouver Island with the Pacific Ocean. Under this name are generally included the waters between Vancouver Island on the south, Malcolm and Numas Islands on the east, the mainland to Cape Caution on the northeast and north, and westward between Vancouver Island and the parallel of Cape Caution to the meridian of **128° 30′ W.** These boundaries would give the sound a maximum length east and west of over fifty miles, and a width varying from ten to twenty-five miles. The northern and northeastern shores are little known, and are bordered by innumerable rocks and islands; but along the southern shore are two broad and navigable channels to the Pacific.

This sound and its approaches are delineated on British Admiralty Charts Nos. 555, 581, 582, 1917 and 2448.

Broughton Strait enters the sound at its southeastern part. Hence to **Thomas Point** the Vancouver shore extends nine miles in a **W.** by **N.** direction; it is low, without notable indentations, with a continuous sand or shingle beach, and with *foul ground* extending off shore for nearly a mile in some places, and marked by kelp.

Su-quash Anchorage.

W SW. three miles from Pulteney Point lies Su-quash Anchorage, on the bank which here fringes the Vancouver shore. This anchorage is somewhat protected from westerly winds by **Single Tree Point**, a small projection of the shore, and derives its only importance from the fact that a coal mine is worked in the immediate vicinity. The anchorage is within the three-fathom line, the end of the wharf bearing **SW. ½ W.** two and a half cables distant, and the outer edge of Single Tree Point **W. ⅓ S.** about four cables. Details in regard to this unimportant locality can be obtained from British Admiralty Chart No. 581 (corrected to August, 1872) on which a plan of it is given; from which it appears that the approximate position of the anchorage is

Latitude	**50° 38′.5 N.**
Longitude	**127° 14′.7 W.**

It is **H. W. F. and C.** at **0ʰ 30ᵐ**, with a spring rise of sixteen feet.

Beaver Harbor.

Nine miles **W.** by **N.** from the western termination of Broughton Strait is situated Beaver Harbor, on the Vancouver shore, with an entrance three miles across, including the islands, and reaching a depth of two miles. The harbor is formed by a group of four or five islets and numerous rocks extending across and within the entrance, which lies between Thomas Point on the southeast and Dillon Point to the northwest. The shores of the harbor are low, with a gently shelving tidal flat extending nearly half a mile out from the beach of the southern bight of the harbor. The southwestern shore is flanked by a range of seven hills rising from four to six hundred feet above the sea. There is good anchorage in the southwestern part of the harbor, but northeasterly winds send in a heavy sea, preventing a landing on the southern shore for days together. On the southern shore is a large Indian village and **Fort Rupert**, a post established by the Hudson Bay Company. Near the post a portion of land has been cleared and a garden established, where it is stated that the fruit and vegetables suited to the climate are produced in great abundance.

The astronomical station on Shell Islet is stated to be in

Latitude	**50° 42′ 36″ N.**
Longitude	**127° 25′ 07″ W.**

by the more recent authorities.

TIDES.

It is **H. W. F. and C.** at **0ʰ 30ᵐ a. m.**, according to observations made in May, 1860, and the rise about sixteen feet.

The variation of the compass in 1862 was **24° 10′ E.**, with a presumed annual increase of **2′**.

Foul ground.

Thomas Point, the southeastern headland of the harbor, is low and rocky, with some rocks lying a quarter of a mile to the westward from it. Three-fifths of a mile **N NW.** from the point is **Deer Island**, two hundred and forty feet high, wooded, half a mile in diameter, and of a rounded shape. **SE.** from it lie some islets, bold-to. The channel between this island and Thomas Point is clear of dangers and somewhat less than half a mile wide. From the northwestern shore of the island a broad reef extends to the **NW.**, having from one to ten feet on it, and marked by kelp. To the northward of this reef, and separated from it by a boat passage, are some islets surrounded with *foul ground*, except on their northwestern side.

1 Round Island has only a few trees upon it. M.B.

2 Charlie Islets are bare Rocks. M.B.

3 For "high and rocky" read "low, much broken, wooded and rocky" M.B.

4 There are at least six of the Masterman Islands. For "four in number" read "a group of several moderately high and wooded islets and rocks" M.B.

Four cables **N.** by **E.** from Deer Island is **Round Island**, small, but high, conspicuous from the eastward, and bold-to, except for a short distance on its **S SW.** extreme. **W SW.** half a mile from the western edge of Deer Island are the **Cattle Islands**, one hundred and eighty feet high, small and wooded, connected at low water by bars and foul ground; the southernmost, known as Shell Islet, is the astronomical station, from which *a reef* extends southward a cable and a half, awash at high water. Westward from the entire group a bank with less than three fathoms on it extends nearly a cable. A quarter of a mile westward from Shell Islet is *a shoal patch* with three and a quarter fathoms, and **W SW.** about two cables from the patch is *Cormorant Rock*, covered at high water, with a small shoal about it. The passages between these shoals, the Cattle Islands and the shore are clear and carry about six fathoms.

Peel Island, in the northern part of the harbor, is three-quarters of a mile long **NE.** and **SW.**, and a third of a mile wide. It is about two hundred feet high and wooded; two cables northward from it lie the two small Charlie Islets. The passage to the westward of Peel Island is known as the Dædalus Passage, is two cables wide in its narrowest part, and carries seventeen fathoms. There are several shoaler patches in it, but none with less than four fathoms. The southeastern shore of Peel Island is steep-to, and there is a good passage two cables wide between it and the reefs and rocks northwestward from Deer Island.

Dædalus Passage.

Dillon Point, the northwestern headland of the harbor, is high and rocky, with rocky shores and some small islets lying close inshore.

SAILING DIRECTIONS

FOR APPROACHING BEAVER HARBOR.

Navigators intending to enter Beaver Harbor from the eastward should not approach the Vancouver shore within a mile, until up with Thomas Point bearing nothing to the northward of **W.** by **S.**, and if beating to windward, great caution should be observed in standing to the northward,—the depth of water and existing dangers in this part of the sound being but little known.

FOR ENTERING THE HARBOR.

The harbor is easy of access for sailing vessels or steamers. There are three passages into it, but the southeastern one is generally used, is wide enough for a vessel to beat through, and the only direction needed in entering it is that Thomas Point should not be approached nearer than two cables. When the point bears **SE.** half a mile, the course is **SW.** ½ **W.** until Shell Islet bears **NW.** ½ **W.** and Thomas Point **E.** or **E.** by **N.**, when anchorage may be had in ten or twelve fathoms. Good anchorage, better sheltered from northwesterly winds, may be had in six to nine fathoms westward of the Cattle Islands, but in rounding Shell Islet it should not be approached from the southward nearer than two cables to avoid the reef before mentioned. Sailing vessels cannot easily work through this passage, but with a fair wind or for a steamer the only direction required is to keep in mid-channel.

A plan of this harbor is given on British Admiralty Chart No. 2067, corrected to 1867, from which minor details may be had.

Northwestward from Dillon Point three-quarters of a mile lie the **Masterman Islands**, four in number, small and with foul ground between them and the shore. Immediately to the southward of these islands lies **Hardy Bay**, separated by Dillon Point from Beaver Harbor. From Dillon Point westward to Duval Point the width of the entrance is three miles,—the bay having about the same length in a **N.** by **W.** and **S.** by **E.** direction. It narrows toward the head, where, for a mile or more, it becomes exceedingly contracted, and in this portion are some outlying rocks. A wide sand-flat abuts on the termination of the bay. The shores are rugged and the depth of water too great for anchorage, except in the contracted portion, which should not be entered without good local knowledge. **Duval Point**, the western headland of the bay, is on an island separated from the Vancouver shore by a narrow passage. This island forms the southern headland of the eastern entrance to the southern or Goletas Channel between the inner and the outer portions of Queen Charlotte Sound.

For vessels not desiring to enter Beaver Harbor, the course from the western entrance of Broughton Strait to the eastern entrance of Goletas Channel is **W.** by **N.** ¾ **N.**, twelve and one-half miles; and to the entrance of New Channel, **NW.** by **W.** ¾ **W.**, fourteen miles.

GOLETAS CHANNEL

extends from Duval Point to Cape Commerell, along the northern shore of Vancouver Island in the direction of **W.** ½ **S.** and **E.** ½ **N.** for twenty-two miles, with a variable breadth of one to two and a half miles. The northern shores are formed by a group of islands through which there are several

1 The Gordons are a regular row of haystacks M.B. Not so apparent when coming through Labouchere Channel. H.E.N.

2 After "numerous small" add "high" M.B.

3 Doyle Island is rocky with a few straggling stunted trees M.B.

4 Of the Noble Islets the S.E. one has two dead and two live trees, the N.W. one is covered with trees. M.B

navigable passages. The shores are high, rugged and mostly steep-to except in the western part, and may generally be approached to a quarter of a mile. The soundings throughout the passage to its western entrance are very deep, varying from eighty to one hundred and ninety fathoms; but at the western extremity the bottom suddenly rises from forty to seven, and in one place to less than three fathoms, forming a bar which stretches completely across the channel and prevents, in a great measure, the rising of any heavy sea inside the channel during westerly gales.

TIDES.

It is **H. W. F. and C.** at 0^h 30^m throughout Goletas Channel, and the range of the tide averages thirteen feet. The currents in the eastern part of the channel run from one to three knots, but near the western entrance, in the vicinity of the bar, they are much stronger, reaching two to five knots, and turning by the shore shortly after high and low water.

The variation of the compass in this vicinity in 1862 was 24° 15′ **E.**, with a presumed annual increase of 2′.

This channel, with New Channel and Shadwell Passage, is delineated on British Admiralty Charts Nos. 555 and 582. Bull Harbor and Shushartie Bay are given in larger proportions on No. 2067.

At the eastern entrance Goletas Channel is separated from New Channel to the northward by the Gordon Group of numerous small islands running in an easterly and westerly direction for five miles. They are high, rugged and steep-to. A remarkable peak, called Miles Cone, three hundred and eighty feet high, appears on the eastern or Doyle Island, which is slightly more than two miles northward from Duval Point. About one mile south from the Gordons, and three miles **NW.** by **W.** ¾ **W.** from Duval Point, is **Duncan Island,** half a mile in diameter and three hundred feet high. **The Gordons.**

A little over a mile to the westward from Duncan Island are the Noble Islets, thirty feet high, between which and the Gordons some dangers are supposed to exist. **NW.** about a mile from the islets, between Hurst Island of the Gordon group and Balaklava Island, is the **Christie Passage,** half a mile wide, running in a **N NW.** direction, and connecting Goletas and New channels. The shores are free from dangers, except two shoals extending about two cables eastward from George Islet, of small extent, on the Balaklava shore; which shoals are marked by kelp, with nine fathoms close to them; and have upon them one and three fathoms water respectively. The depth in midchannel varies from thirty-five to forty-five fathoms. The tides run through it with a strength of one to three knots, flooding to the southward. Vessels intending to go through the channel may pass on either side of the Noble Islets, though the best passage is westward from them. ***Dangers.*** ***Shoals in Christie Passage.***

To the westward of the passage lies **Balaklava Island.** This island is two miles and a half long in a **NW.** by **N.** and **SE.** by **S.** direction, and averages three-quarters of a mile in width. It is rugged and irregular, with three peaks, and forms the northeastern shore of Browning Passage, which separates it from Galiano Island and connects New and Goletas channels. This passage is about three miles long, trending **NW.** and **SE.,** and is two cables wide in the narrowest part. There are some small rocks and islets along its shores and off its **NE.** and **SE.** headlands, but it is deep, and a midchannel course through it free from danger. The tide in this passage is very weak. **Browning Passage.**

At the southern entrance **Boxer Point,** the southwestern headland of the passage, is also the southern extreme of Port Alexander, a long and narrow indentation of Galiano Island. This port is a mile and two-thirds in length in a **NW.** and **SE.** direction, and less than half a mile wide. There is a small islet in the middle of it **NW.** ¾ **N.** nearly a mile from Boxer Point, and another close to the point. **Port Alexander.**

This port is easy of access to steamers and sailing vessels with a fair wind, requiring no directions for entering, and affording good anchorage in twelve to thirteen fathoms half a mile **SE.** from its head, well sheltered from all but southeasterly winds. The shores are bold and rocky, and it is protected to the northeastward by a high and narrow peninsula of Galiano Island. **Galiano Island.**

This, the largest of the islands which contribute to form the northern shore of Goletas Channel, is of sub-triangular shape, about eight miles long in an **E.** and **W.** direction and over three miles broad,—its longest side fronting to the southward. Its northern and eastern shores are very much broken, the southern and northwestern shores nearly straight and with few indentations.

About four miles westward from Boxer Point is a small cove, where shelter might be found by small craft in westerly winds. A mile and a third to the westward from the head of the cove, and somewhat more than half a mile inland from the southern shore of the island, lies **Mount Lemon,** a remarkable conical peak twelve hundred feet high. Within a mile of the western extreme of the island are two peaks between seven and eight hundred feet high, a third of a mile apart, **N.** and **S.,** the southern peak close to the shore of the channel. These form the so-called **Maginn Saddle,** used as a landmark in the navigation of Shadwell Passage.

The southern shore of Goletas Channel, high, very rugged, rocky, steep-to and without important indentations, extends in a westerly direction from Duval Point fourteen and a half miles to Shushartie Bay, a small indentation of the Vancouver shore, about half a mile in extent either way and open to the northward. Its shores are high except at its southern extremity, where there is a tidal flat a fifth of a mile in width, behind which is a little low land. Close to its eastern headland is a small rocky islet which is stated to be in

Shushartie Bay.

Latitude	50° 51′ 22″ N.
Longitude	127° 51′ 20″ W.

This islet is known as Halstead Islet and the point behind it is referred to as Halstead Point, but is not named on the charts, which also differ in the spelling of the name of the bay, which is in some cases denominated Shucartie instead of Shushartie.*

TIDES.

The rise and fall of tides in this bay is stated to be twelve feet.

There is a limited but tolerable anchorage just inside Halstead Point in about thirteen fathoms, a cable **W.** from the eastern shore; however, on account of the steepness of the bank it cannot be highly commended.

A cable and a half **W.** from the northern edge of Halstead Islet lies *Dillon Rock*, covered at one-quarter flood and having about nine feet over it at high water. This constitutes *a danger* for vessels entering the bay from the eastward.

SAILING DIRECTIONS

FOR ENTERING SHUSHARTIE BAY.

I. ***From the Eastward.***—If Dillon Rock be covered, an attempt to enter should not be made until the eastern peak of Shushartie Saddle (a remarkable double-topped mountain 1900 feet high, situated southward from the bay) bears **S.** ¾ **E.** in one with an Indian village at the head of the bay, when the course in lies on that bearing until Halstead Point bears **E.** by **N.**, when the vessel may be headed for the eastern shore, anchoring directly fourteen fathoms are obtained, about one cable distant from the bank, with the headlands of the bay bearing respectively **NE.** and **NW.** by **W.**

II. ***From the Westward.***—In entering from the westward the western shore should be kept aboard until Halstead Point bears **E.** by **N.**, when the course will be as above stated.

A plan of this bay is to be found on British Admiralty Chart No. 2067, with corrections to September, 1867.

Beyond Shushartie Bay the coast rounds out to the northward without indentations. Two miles to the westward from Dillon Rock lies **Shingle Point**, low and with a beach running off a short distance. This point is one of the landmarks for crossing the bar at the western entrance of Goletas Channel, and to the westward of it a landing on the Vancouver shore is difficult to make except in fair weather.

W SW. from this point five and a half miles is Cape Commerell, the northernmost (true) part of Vancouver Island and the southern extreme of the western entrance of Goletas Channel. The cape is low and fringed about with rocks which extend, in some places, two cables off shore. There is an Indian village on the eastern side of the cape. To the eastward from Cape Commerell the Vancouver shore forms a large bay three miles wide in a **W. SW.** and **E NE.** direction and penetrating the shore about one mile, with two and a half to six fathoms water over a rocky bottom, unsuitable for anchorage. The shoaler patches in this bay are marked by kelp, and extend to the southeastward from a point **NE.** by **E.**, two miles from Cape Commerell. They are known as *Tatnall Reefs*. In the western third of the bay there is also a small islet called Weser Islet, eight feet high and a quarter of a mile off shore.

Cape Commerell.

Immediately abreast of Shushartie Bay, and one and three-quarter miles **N NW.** from Halstead Point, is the entrance to Shadwell Passage, which separates Galiano Island from Hope Island, connecting Goletas Channel with the open waters of Queen Charlotte Sound. The northern portion of Shadwell Passage is divided into two parts by **Vansittart Island**, and the **NE.** portion is known as **Bate Passage**. The main passage is three and a half miles long in a north and south direction, and varies in breadth from half a mile to a mile and a half. The eastern shore, formed by Galiano Island, is nearly straight, but the western is irregular and broken, with some rocks and islets off the indentations of the southwestern part, and foul ground extending nearly half a mile from shore between Turn Point and Cape James.

Shadwell Passage.

* Called **Shucartie Bay** on the original edition of the present form of British Admiralty Chart No. 2067. It was surveyed by Mr. W. W. DILLON, Master H. M. S. *Dædalus*, 1850, and called by him **Port Shucartie**. The later charts all adopt the spelling Shushartie.

U.S.S. "Suwanee" lost here July 1869. H.E.N.

always use Boat passage H.E.N.

At the southern entrance is **Willes Island**, a quarter of a mile in diameter, two hundred feet high, steep-to, and close to the western extreme of Galiano Island. **SE.** by **S.** from it, about a quarter of a mile, is Slave Islet, low and of small extent. The western headland, bold, two hundred feet high, rocky, fringed with kelp and presenting a cliffy appearance, is known as Heath Point. Two miles northeastward is Turn Point, about midway through the passage, backed by a summit three hundred feet high and of a similar character. Between these are irregular indentations with some rocks and islets. From Turn Point, **NW.** by **N.** ⅓ **N.** about two miles, is **Cape James**, a rocky bluff ninety feet in height, the northwestern headland of the passage, with foul ground occupying the bight between it and Turn Point.

Center Island, a third of a mile **N.** by **E.** ½ **E.** from Turn Point, is small, with a rock immediately to the southward of it, and another, *Suwanee Rock*, four feet above low water, in mid-channel, **W.** by **S.** ½ **S.**, a cable distant. About these and the shoals on the Hope Island shore kelp extends some distance. There is a clear passage only on the side eastward from Center Island, and this is not recommended.

Vansittart Island, in the middle of the northern part of the passage, is nearly a mile long, two hundred and sixty feet high and three quarters of a mile wide. To the westward from it rocks, islets and foul ground extend for more than half a mile north of One-Tree Islet, and from the northern point of Vansittart the Nicolas Islands, two wooded islets seventy feet high, stand off to about one-third of a mile.

One-Tree Islet, somewhat more than half a mile **N.** from Center Island, is very small, about forty feet high, bearing one tree on its summit, which is very conspicuous when seen from the northward and affords a good mark to identify the passage. The islet, except for an adjacent small dry rock, is steep-to on its western side, but between it and Vansittart is *foul ground*. The soundings in the southwestern part of the passage are from forty to a hundred fathoms, decreasing rapidly to the northward, reaching as little as seven fathoms near One-Tree Islet.

TIDES.

The flood tide runs southward through the passage with a strength of about four and a half knots; while the ebb reaches about two knots in a contrary direction; or, **SE.** from Center Island, runs as strong as the flood. Between Vansittart and Center Islands are sundry tide whirls or ripples while the tide is running.

This passage may be used by steamers or sailing vessels with a fair wind. It would be inadvisable to attempt to beat through it, as there is generally a strong tide and heavy swell in its northern part. It is the passage generally taken by the Hudson Bay Company's vessels when bound north from the inner waters north of Vancouver Island, yet it is not recommended by the Admiralty surveyors.

To the eastward of Vansittart, Bate Passage is deeper and nearly straight. It appears easier to navigate, and is in most respects preferable to the western passage, and the tides form no strong ripples.

The Shadwell and Bate passages are delineated on British Admiralty Chart No. 582, and on an enlarged scale on No. 555, (corrected to November, 1871.) The latter edition differs quite materially from the original edition of 555, issued in November, 1869.

SAILING DIRECTIONS

FOR THE USE OF SHADWELL PASSAGE.

I. ***From the Southward.***—In rounding the southeastern point, Willes Island should be kept aboard. In passing eastward of Center Island it may be approached to about a cable length, and the western edge of One-Tree Islet to about two cables, after which the course is **N NW.**, leading out clear of all dangers.

If the eastern or Bate Passage is preferred, the navigator has merely to keep in mid-channel.

The best anchorage in Shadwell Passage, according to the Vancouver Island Pilot, is near the middle of the passage, in nine fathoms, with One-Tree Islet bearing **NE.** by **N.**, Center Island **SE.**, and Turn Point **S.**; *but these bearings do not plot in a satisfactory manner on any chart.*

II. ***From the Northward.***—In entering the passage the course is **S SE.** for the eastern edge of Center Island in one with the southern peak of Maginn Saddle, passing it and the other islands as before mentioned.

Hope Island.

The western shore of Shadwell Passage is formed by Hope Island, the westernmost of the group which forms the northern shores of Goletas Channel. It is moderately high, with very irregular shores, six miles in greatest length and three and three-fourth miles in greatest breadth, with a general trend of **SW.** by **W.** and **NE.** by **E.** The southern shore is steep, and may be approached to within a quarter of a mile; but near its western extremity foul ground

This passage is very seldom used. H.E.N.

runs off three cables. The sea breaks heavily along its northern and western shores, off which are several islets and rocks,—the ten-fathom curve reaching two miles from the shore in some places.

Two miles to the westward from Heath Point is Gallows Point, the southeastern headland of Bull Harbor, on the southern side of Hope Island, a contracted but perfectly land-locked anchorage. It runs in a northerly direction for a mile and a half across Hope Island, its head being only separated from the northern shore of Hope Island by a strip of low land four hundred feet wide. The breadth of the entrance is half a mile, but at half the distance to the head it contracts to a cable, after which it again increases in width to two cables. A cable and a half to the northward of the narrowest portion lies **Indian Island**, which, though small, completely shuts in the anchorage on the southward, leaving a passage to it on the eastern side a cable in width. Between the island and the western shore are only eleven feet of water. The anchorage is to the northward of the island, in four or five fathoms, muddy bottom, but there is room only for one or two vessels of moderate size to lie moored. Only small sailing vessels or steamers should use this anchorage, as it is difficult of access to long vessels from the narrow and tortuous entrance.

Bull Harbor.

DIRECTIONS FOR ENTERING BULL HARBOR.

The only directions necessary for entering are to pass to the eastward of Indian Island and moor as soon as the vessel is north of it, anchors north and south.

The **NW.** point of Indian Island is stated to be in

Latitude	**50° 54′ 47″ N.**
Longitude	**127° 56′ 03″ W.**

The variation of the compass in 1862 was **24° 20′ E.**; **H. W. F.** and **C.** at **0ʰ 30ᵐ A. M.**,—the spring tides rising twelve and a half feet. Wood and fresh water can be obtained here with ease.

The harbor is shown on a large scale on British Admiralty Chart No. 2067, corrected to September, 1867.

To the westward from this harbor the shore of Hope Island is rocky and fringed with kelp.

Two and two-third miles to the westward of Gallows Point the western extreme of Hope Island is formed by **Mexicana Point**, off which a reef extends to the southwest a quarter of a mile. To the southward, across the western entrance to Goletas Channel, between this point and Cape Commerell, extends the Nahwitti Bar,* or ledge, narrowest somewhat to the northward of mid-channel and expanding toward either shore, especially to the southward, where it includes the *Tatnall Reefs*. This bar is of sandstone formation, rising suddenly from forty to nine fathoms on the eastward, but diminishing very gradually in depth from the westward. The narrowest portion of this bar between the ten-fathom curves is about a mile in width. Northward of the Tatnall Reefs the depth varies from six to nine fathoms.

Nahwitti Bar.

In heavy westerly gales the sea breaks on this bar from shore to shore. On the western edge of the bar the tides run from two to five knots.

SAILING DIRECTIONS

FOR PASSING THE NAHWITTI BAR.

I. ***From the Eastward.***—Vessels bound to the westward, after passing Bull Harbor, should keep Boxer Point, Galiano Island, open to the northward of Shingle Point until Mexicana Point bears **N NE.**, when the vessel will be to the westward of the bar. In beating out of Goletas Channel the shores of Hope Island may be approached to within a quarter of a mile until nearing Mexicana Point, which should not be approached nearer than half a mile, to avoid the heavy swell and uneven ground. In standing to the southward the vessel should tack when Shingle and Lemon points are in one, about **E.** by **N.**, to avoid the Tatnall Reefs.

II. ***From the Westward.***—For vessels bound to the eastward, a course **E.** by **N.**, with Lemon Point open to the northward of Shingle Point, Vancouver Island, leads over the bar in the deepest water, seven to nine fathoms, well to the northward of the Tatnall Reefs. Another course is to keep Boxer Point, Galiano Island, open, with Shingle Point **E. ¼ N.**, which leads in on nearly the same line. In making for the entrance the Vancouver shore should not be approached within the ten-fathom curve until Cape Commerell bears **SE.** by **E.** or to the southward of that bearing.

If the weather be clear, in crossing the bar in the deepest water, Mount Lemon, a high conical peak, should appear nearly midway between Shingle Point and Heath Point on the opposite shore, or nothing to the southward of midway between them.

* Sometimes written **Nahwhitti**.

K. There is a N.E. current in Hecate Strait from Queen Charlotte Sound running 1-2 kn. Geo.

NEW CHANNEL.

To the northward of the Goletas Channel, and separated from it by the islands which form the northern shore of that passage, **New Channel**, about twelve and a half miles long and varying from one and a half to four miles in breadth, is an extensive clear passage to the open waters of Queen Charlotte Sound. Its northern limit is formed by the Walker Group to the eastward and by a few low rocks and islets to the northwestward. Its least depth in the shoalest part is forty-five fathoms near the eastern end, and its shores, except in the vicinity of the Gordons, may be approached to nearly half a mile. Generally a heavy swell sets through New Channel from the westward, and, with the exception that there is more room for a large vessel to work in or out than in Goletas Channel, there is no reason for using it in preference to the latter unless, when running in before a heavy westerly gale, the sea were breaking on the Nahwitti Bar, across the western entrance of the Goletas Channel.

This being the case, after giving general directions for its use, it seems unnecessary for present purposes to describe the rocks and islets about this channel in detail.

SAILING DIRECTIONS

FOR USING NEW CHANNEL.

I. ***From the Eastward.***—If the wind be fair, a mid-channel course about **W.** by **N.** will carry a vessel clear. If working through, when between the Walker and Gordon groups the navigator should avoid approaching the southern shores of the former within half a mile, and should keep the southern part of the **Crane Islets** closed on the Gordons **E.** by **S.** ¾ **S.**, or nothing to the eastward of that bearing, until the eastern edge of Redfern Island bears **NW.** by **N.** ½ **N.**, to avoid the *Grey Rock*, which covers at a quarter flood.

In the vicinity of Galiano and Hope islands the navigator should tack when about half a mile off shore, avoid entering Shadwell Passage and Roller Bay, and, until two miles west from Pine Island, should not bring it to bear to the eastward of **E.** by **N.**

II. ***From the Westward.***—The above directions also apply. When **Boyle Islet** bears **S.**, the vessel will be to the eastward, clear from *Grey Rock*.

HECATE STRAIT.

From the western entrances of Goletas and New channels two courses are open to the navigator bound for Dixon Entrance or the north. One of these, **Hecate Strait,*** is a broad sheet of water extending between the Queen Charlotte Islands on the west, and the inshore portion of the Columbian archipelago on the east. Its length from the Scott Islands to its northern entrance abreast of the Butterworth Rocks is about two hundred and twenty miles; it gradually diminishes in width from ninety miles, at Cape St. James, to twenty at the northern entrance. It has been but slightly explored, and the few soundings which are on record, principally from H. M. S. *Hecate*, in 1862, show that the bottom is very uneven, and lead to the suspicion that thorough investigation might reveal serious dangers. Between the entrance to Skidegate Inlet of the Queen Charlotte group and Bonilla Island are some channel rocks whose position appears to be doubtful. Little is known of the shore of the archipelago fronting the strait from the eastward, but several harbors and channels have been examined by the Royal Navy in Queen Charlotte Islands. All that is known in regard to this strait may be found on British Admiralty Charts Nos. 1923 and 1923 A, covering the region from Cape Caution to Port Simpson, and Dawson's geological map of the Queen Charlotte Islands. The southern half of this region is shown on 1923 and the northern on 1923 A. It does not seem necessary to enter into details in regard to a passage at present so little known and the use of which presents no particular advantages. K.

The other course, and that which is usually adopted by steamers and others desiring to make the inland passage from Queen Charlotte Sound to Dixon Entrance, is by way of Fitzhugh Sound, Lama Passage, Seaforth Channel, Milbank Sound, Finlayson and Grenville channels, and Chatham Sound to Dixon Entrance.

SAILING DIRECTIONS

FOR THE NAVIGATION OF QUEEN CHARLOTTE SOUND.

I. ***From the Southward.***—After clearing the Nahwitti Bar at the entrance of Goletas Channel, as previously directed, when **N.** from Cape Commerell one and a half miles, the course, across the eastern part of Queen Charlotte Sound, for Cape Caution is **N.** ¾ **E.**, eighteen and a quarter miles.

* **Vancouver Strait** of Berghaus and other German geographers.

1 Add course from Christie Passage M.B.

2 After "is" add "low and" M.B.

From a position at the northern entrance of the Shadwell Passage, **E.**, one-half mile from Cape James, the course for Cape Caution is **N.** by **W.** ½ **W.**, thirteen and two-thirds miles.

From a position near the entrance of New Channel and Bate Passage, **NW.** by **W.** from Greeting Point two and a half miles, with the western edge of Vansittart Island bearing **S.** by **W.** ½ **W.**, the course for Cape Caution is **NW.** by **N.** ½ **N.**, twelve and two-thirds miles. Either course is clear of all dangers.

Cape Caution.

Cape Caution, the most westerly projecting part of the continent in this neighborhood, except Neck Point, terminates in rugged, rocky, low hummocks. The shores of the mainland, taking a northerly and easterly direction, make it a conspicuous cape, which received its name from Vancouver on account of the dangerous navigation in its vicinity. It is covered with dwarf-pine and other small trees. It is placed by English authorities two miles and a half south of Vancouver's position for it, in

Latitude	51° 9′ 36″ **N.**
Longitude	127° 48′ 12″ **W.**

From **Neck Point**, which is situated about two and a half miles north from Cape Caution, his bearings for the outer reefs would agree with later authorities, which they do not do if platted from Cape Caution of the charts. It is probable that some confusion of Vancouver's real position with another of the numerous points in this neighborhood led to the erroneous bearing, if the English charts are accurate in this respect.

This vicinity is represented on a large scale by British Admiralty Chart No. 2448.

DANGERS

BETWEEN CAPE CAUTION AND THE ENTRANCE TO FITZHUGH SOUND.

A line drawn from Cape Caution in the direction of **NW.** ½ **W.** passes outside of all dangers south of Egg Island.

Iron Rocks.

Egg Island, a small, rocky, round island, two hundred and eighty feet high, lies **NW.** ¼ **N.**, five and a quarter miles from Cape Caution. On the same line lie the *Iron Rocks*, about four miles from the cape. The *South Iron* is marked by kelp and seldom breaks; the *North Iron* dries seven feet above low water. Eastward from the *South Iron*, nearly a mile, is a *rocky patch*, marked by kelp and known as *Hoop Reef*.

Rocks and breakers.

S. from Egg Island, six cables, lies a sunken rock, known as the *Denny Rock*, which seldom breaks; and to the **NE.** from it and **S SE.** from Egg Island lie three islets, thirty feet high, called **Egg Rocks.** **W.** ½ **N.**, eight miles from Cape Caution, is the southern edge of the patch known as the *Hanna Rocks*.* These rocks are awash at high water and constitute a serious danger, but are usually marked by breakers. They form an oblong patch about half a mile in diameter in a **N.** and **S.** direction.

Two miles and a half **N.** from this patch lies the *Channel Reef*, of similar character, except that it rarely breaks, and has six feet upon it at low water.

James Reef.

N NE. from Egg Island, about a mile, is **Table Island**, about one hundred feet high, with foul ground extending from it half a mile west, and numerous rocks and islets to the westward and northward of its western shore, prolonged to the northward across the entrance of Smith Inlet for two miles. **NW.** ¾ **N.** from Table Island, about two miles, are the **White Rocks**, two islets thirty-five feet high and close together; two-fifths of a mile **N NW.** from the southern one of these is the *John Reef*, a rock three feet out at low water; and about **N.** by **W.** from the White Rocks a mile and a quarter is the *James Reef*, a sunken rock which breaks at low water, and of which the position is a little uncertain.

Five and a quarter miles **NW.** ¼ **W.** from Channel Reef lies *a breaker*. From this, curving to the northward and westward for nearly two miles, lie the **Pearl Rocks**, fifteen feet high. Nearly a mile **N NE.** from these and **S SW.** from the land about Cape Calvert lies the *Devil Rock*, on which the sea seldom breaks. It is a sunken rock forming a serious danger.

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* Named for Captain James Hanna, who explored on this coast in 1786, but erroneously called the **Hannah Rocks** on the charts. On British Admiralty Chart No. 2448 it is called Hannah Rock.

Off Cranstown Point, the southeastern headland of Fitzhugh Sound, the **Canoe Rocks**, in part above water, extend **W SW.** a mile and a quarter from the point, and between them and the mainland to the eastward extends rocky and foul ground for a mile and a half,—the rocks mostly visible. Behind Cranstown Point is **Open Bay**, of small extent and disturbed by the oceanic swell, but in which anchorage may be had in seven to twelve fathoms. There are also a few rocks close in under Cape Calvert, the southwestern headland of the sound.

Rocks and breakers.

SAILING DIRECTIONS

FROM CAPE CAUTION TO FITZHUGH SOUND.

Having followed the previously given directions for approaching Cape Caution from any one of the points of exit from the interior channels north of Vancouver Island, on coming up with the cape the navigator should avoid approaching it within half a mile.

From a position three miles **W SW.** from the cape a direct course may be laid for the entrance to Fitzhugh Sound. This course is **N.** by **W.** ¾ **W.**, thirteen and three-quarter miles, when the Sorrow Islands south of Cape Calvert will bear **W.**, three and a quarter miles, and the vessel will be somewhat to the eastward of mid-channel. This course carries clear of all dangers.

In foggy weather, if the existence of current be suspected, after making Cape Caution, a course may be laid to pass about a mile to the westward of Egg Island, which from its height is readily recognized. From a position one mile **W SW.** from the cape a **NW.** course for six miles carries clear of all dangers, passing at nearest about a mile and a quarter **W.** ¾ **S.** from the island and three-quarters of a mile westward from the reefs to the southward of Egg Island.

When Egg Island bears **E.** ¾ **S.** from the vessel a **NW.** by **N.** ½ **N.** course for eight and three-quarters miles will bring the navigator up with the Sorrow Islands off Cape Calvert,—these bearing **W.** one mile. This course lies nearly in mid-channel. In beating in toward Fitzhugh Sound, until within four miles of Egg Island, vessels should not stand to the westward after the southern edges of Egg and Table islands are in one bearing **NE.** ¾ **N.**, (according to British Admiralty Chart No. 2448,) to avoid the dangerous ground to the westward. When Egg Island bears **NE.** ¾ **N.** four miles, in tacking to the westward the navigator should keep within three and a half miles of the island until it bears **E SE.**, after which it will be advisable not to bring it to bear to the southward of **S SE.** nor to the eastward of **E SE.** until up with the Sorrow Islands bearing **W.**, to avoid the reefs and foul ground on either hand.

TIDES.

There are no accessible data as to the currents of this locality. The soundings vary from forty to eighty fathoms. The establishment near the entrance of Smith Inlet is said to be $1^h\ 0^m$, with a rise for springs of fourteen feet and for neaps of eleven feet. The locality is shown on British Admiralty Charts No. 1917 and 1923 (editions of 1874) and on an enlarged scale on No. 2448, April, 1872.

The extreme southwestern headland of Fitzhugh Sound is formed by Mosman Island, the southernmost of the Sorrow Islands, a small, rather low islet, two-thirds of a mile to the southward of the southern point of Calvert Island. It is wooded, and the group extending between it and Calvert Island comprises numerous rocks and islets, one being of considerable extent. The opening which separates them from Calvert Island bears the name of **Grief Bay** (Telakwas) on the English Charts.

Sorrow Islands.

From seaward these islands are hardly to be distinguished from Calvert Island. The southernmost islet is situated, according to English authorities, in

Latitude	51° 24′ 30″ **N.**
Longitude	127° 55′ 53″ **W.**

Two-thirds of a mile **N NE.** from it is Cape Calvert of the Admiralty Charts of 1867,* being the southern extreme of Calvert Island. It presents a broad face **NE.** and **SW.** of rocky shore line, about three hundred and fifty feet high, covered with a thick growth of spruce, hemlock and pine trees, but backed by mountains from two to nearly three thousand feet high on Calvert Island. A view is given of this cape in the U. S. C. S. Coast Pilot of Alaska, Part I, 1869.

Cape Calvert.

E. ½ **S.** five miles from the cape lies **Cranstown Point**, a rocky peninsula with an open bay to the eastward of it, and guarded to the **SW.** by rocks and foul ground. This point and Cape Calvert form the southern headlands of Fitzhugh Sound.

* Subsequently named **Cape Mosman** by the U. S. Coast Survey.

Excellent harbor. The north entrance point of Safety Cove has two small lying off it which are useful in identifying the entrance, especially when from the northward in thick weather. H.E.N.

It is the bad wind of Queen Charlotte Sound H.E.N.

FITZHUGH SOUND.

This passage, formed by Calvert and other islands to the westward and the mainland to the eastward, extends in a **NW.** by **N.** direction for about forty miles, with an average width of more than three miles. The soundings indicate very deep water, apparently increasing in depth toward the northern portion of the sound. The shores appear in general bold and rocky, the western ones free from outlying rocks; the slopes are wooded and steep, and the elevations of the peaks vary from one thousand to thirty-five hundred feet. A number of passages, some still unexplored, lead to the eastward and westward from the sound.

About **NE.** ½ **N.** from Mosman Island, seven miles, is **Karslake Point**, situated on an island and forming the southern headland of the entrance to Schooner Retreat, an indentation of Penrose Island, protected to the westward and southward by numerous rocks and islands. The entrance to the anchorage trends in a **N NE.** direction from the vicinity of Karslake Point, where it is about half a mile wide, diminishing to about two hundred yards between **Sea Bluff** and the **Grey Islets**, six and a half cables to the northeastward from Karslake Point. The protection of the entrance to the **N NW.** is principally formed by **Ironside Island.** The latter is of irregular shape and rises to the height of two hundred feet. Inside the narrows Frigate Bay expands, six cables long **NE.** and **SW.** and about two cables wide, with soundings in from five to twenty fathoms. **N.** by **E.** from Karslake Point, a mile and three-quarters, Quoin Hill, on Penrose Island, rises nearly nine hundred feet above the sea.

Schooner Retreat.

N. by **E.** ⅓ **E.** from Karslake Point about one mile, in Frigate Bay, is an islet known as **Center Islet**, of small extent, and having a shoal with two fathoms on it extending from its eastern end over a cable **NE.** by **N.** toward the shore of Penrose Island. There are several islets and rocks in the eastern part of the bay, from which a boat passage extends to the **SE.**, joining the entrance of Rivers Inlet.

A sketch of this vicinity is given on British Admiralty Chart No. 1901, corrected to October, 1871, by which it appears that Center Islet is situated in

Latitude	51° 28′ 10″ N.
Longitude	127° 44′ 38″ W.

It is **H. W. F.** and **C.** at 0^h 30^m,—springs rising fourteen and neaps eleven feet.

The variation of the compass was **25° E.** in 1868, with a presumed annual increase of **2′** or **3′**.

To the northward of Ironside Island are several protected sheets of water, but with exceedingly narrow and difficult entrances, which render it inadvisable to seek shelter in them.

SAILING DIRECTIONS

FOR ENTERING FRIGATE BAY.

From a position two cables **NW.** from Karslake Point, Quoin Hill bearing **N.** by **E.** ½ **E.**, the course is **NE.** ½ **N.** for the narrows, which should be passed in midchannel—least water eight fathoms—or, keeping the eastern shore, which is bluff and bold-to, well aboard until the bluffs are passed, to avoid the foul ground on the western shore. A course **N.** by **E.** ½ **E.**, Karslake Point in midchannel line, clears all dangers, and when the northern edge of Ironside Island bears **W.** by **S.** ¼ **S.** anchorage may be had in twelve to twenty fathoms.

Penrose Island, which forms the northerly protection of Schooner Retreat, lies in the mouth of Rivers Canal or Inlet, a branch of the inlet passing on either side of it. Point Addenbrook* forms the southern extreme of the shore on the western side of the northern entrance to the inlet. From Karslake Point this point bears **NW.**, distant nearly four miles. **NW.** ¼ **N.** from Point Addenbrook, four miles, is **Point Hanbury**, on the southernmost of a group of several islands, the eastern part of which, with an opening behind them, is unexplored. One of these islands is known as **Addenbrook Island** and extends to the westward into the sound, narrowing the passage between it and Calvert Island to less than two miles.

W. by **S.** ½ **S.** from Point Addenbrook, four and a half miles, is the entrance to Safety Cove, named by Vancouver, and consisting of an indentation of the shore of Calvert Island about a mile long **W SW.** and **E NE.**, and three or four cables in width. At its head is a muddy tidal flat, over which a stream, affording salmon in the season, empties into the cove. The shores are high, rising nearly a thousand feet, wooded, rocky and steep-to, except at the head. It is open to the **E NE.**, but affords good holding-ground in fifteen to twenty-five fathoms, soft mud.

Safety Cove.

There are a few rocks outside, close inshore, near the northern headland, visible above water. It affords a convenient refuge for vessels waiting for good weather to cross Queen Charlotte Sound, and requires no directions for entering.

*Named by Vancouver in 1792. See his Voyage, vol. I, page 378. In his atlas it is spelled **Addenbrooks**, a spelling followed on the British Admiralty Charts.

1 Low water slack at 6 P.M. May 7, 1880 M.B.
According to pilot W. E. George the tide floods to the N. in Fitzhugh Sound. M.B.
High water about 8 P.M. Aug. 4, 1881. H.E.N. About 4 A.M. June 23/82 H.E.N.

2 Goldstream Harbor is of little value to pilot W. E. George M.B.
Often used by the very small trading steamers and by them considered a very good harbor for one vessel. H.E.N.

3 Namu Harbor is a good harbor to pilot W. E. George. M.B.

A sketch of this cove appears on British Admiralty Chart No. 1901, corrected to October, 1871, on which it is stated that the astronomical station at the **NW.** angle of the cove is in

Latitude ..... **51° 31′ 49″ N.**
Longitude ..... **127° 56′ 23″ W.**

It is **H. W. F.** and **C.** at **1h 0m**,—springs rising fourteen and neaps eleven feet.

Kwakshua Opening.

NW. ½ N. from the entrance to Safety Cove, about seven and a half miles, is another indentation of the Calvert Island shore, known by the native name of Kwakshua,* and according to the latest authorities is prolonged to Hecate Strait.

Vancouver states that the opening presented the appearance of a very fine harbor, and in his chart it is indicated as divided into two arms. A small islet or rock exists off the northern headland, and one hundred and eighty-three fathoms, muddy bottom, are reported off the entrance, which is indicated to be three-quarters of a mile wide. The interior of this opening has not been explored.

Goldstream Harbor.

About **NW. ½ N.**, five miles from Kwakshua entrance, lies the entrance to Goldstream Harbor, at the northern extremity of Calvert Island, and protected by an island less than half a mile in extent, which lies off it to the **N NW.** This harbor is of very small extent and is entered by a very narrow and somewhat winding channel. The shores are rocky and fringed with kelp; the entrance is infested with rocks and islets, most of which, however, are visible. The total length of the harbor and entrance is about half a mile; the channel is hardly fifty yards wide. The least water in the passage appears to be about five fathoms; at the anchorage (which is only sufficient for one small vessel) nine to fourteen fathoms, sandy mud, may be had. At the **NW.** corner of the anchorage there opens to Hakai Strait a passage which appears not to be navigable. From **Kelp Point**, the northwestern headland of the entrance, foul ground, covered with kelp in two and a half fathoms, extends a cable to the northward. The geographical position of **Hawser Point** is reported to be

Latitude ..... **51° 43′ 19″ N.**
Longitude ..... **128° 00′ 34″ W.**

H. W. F. and **C.** occurs at **1h 0m**,—springs rising fifteen feet and neaps twelve feet.

The variation of the compass in 1868 was **25° 15′ E.**, with a presumed annual increase of **2′** or **3′**.

From the existing dangers it cannot be recommended that vessels should enter this harbor except in charge of a pilot or with good local knowledge. It is represented on British Admiralty Chart No. 1901, corrected to October, 1871.

Hakai Strait.

Immediately to the northward of the small island north of Goldstream Harbor, a strait, over a mile wide at its **NE.** termination, trending thence **SW.** by **S.** about seven miles, widening to nearly four miles at its **SW.** end, and called by the natives Hakai, extends from Fitzhugh Sound to Hecate Strait. It is obstructed by numerous rocks and islets, according to British Admiralty Chart No. 1923, (corrected to December, 1874,) but a clear passage exists a little **SE.** from midchannel, nearly a mile wide, and with over forty fathoms water, through which Vancouver reached the sea in 1792.

The obstructions on the **SE.** shore of this strait are called the **Starfish Islets**, and among them is situated **Welcome Harbor**, of small extent, shown by a plan on British Admiralty Chart No. 1462. In its vicinity are numerous dangers.

H. W. F. and **C.** at **0h 0m**; springs rise fifteen or sixteen feet and neap tides twelve or thirteen feet.

The variation of the compass here was **24° 45′ E.** in 1872, with a presumed annual increase of **2′** or **3′**.

The northern shore of this strait is chiefly formed by **D'Agelet Island**,† about four and a half miles long **N.** by **E. ½ E.** and **S.** by **W. ½ W.**, three miles wide and six hundred and fifty feet high. It is separated from Hunter Island, of the Calvert group, by another strait called Nalau, which appears to be choked up with rocks and islets, but has not been completely surveyed.

The eastern shore of Fitzhugh Sound, from Addenbrook Island, fifteen and a half miles **NW.** by **N. ½ N.**, to Kiwash Island, is abrupt, bold-to, and with but few and inconsiderable indentations, none of which appear to afford anchorage.

Namu Harbor.

Kiwash Island, of small extent, two hundred feet high and wooded, lies immediately abreast of Namu Harbor. This harbor or anchorage is included between Cliff and Kiwash islands to the westward, Plover Island and the mainland to the south, east and north. From the central portion of this sheet of water there is an extent of three and a quarter cables in every direction, free of dangers, and averaging twenty-two fathoms in depth. To the

* This was supposed by Vancouver to be the **Port Safety** of Duncan in 1788, but others identified Vancouver's **Safety Cove** with Duncan's Port. According to Duncan, at the mouth of his Port Safety the sound was six or seven miles wide, but as it nowhere appears to have any such width, this must have been an erroneous estimate on his part.

† Here named for Lepaute D'Agelet, the astronomer who accompanied La Perouse in his explorations on this coast in 1786.

a. Fog Rocks, apparently 3 in number, about 10 feet high, low, flat-whitish color. The westernmost one is the largest and on its northern end is a clump of trees. Several small rocks close to the south island uncover at low water probably foul ground all around them. H.E.N.

X The small island off Campbell Point appears to be part of the mainland until close to. H.E.N.

b. Pointer Island may be 100 feet high to the tops of the trees but it certainly of itself is not over 20 feet high H.E.N.

northward two contracted inlets extend a mile into the mainland. **Harlequin Basin** is the terminal expansion of the more northern inlet; the other, infested with rocks and extremely narrow, is called **Rock Creek.** The entrance to the latter, which is somewhat expanded, is marked by two islets: **Sunday Islet** to the northward and **Clam Islet** to the southward, **N. ¾ W.** and **S. ¾ E.**, a quarter of a mile from one another.

Loo Rock.

The entrance between them is known as **Whirlwind Bay**, and here more protected, but very contracted, anchorage may be had in nine to fourteen fathoms. East of the opening between Sunday Islet and Observation Point, and **SE. by S. ¼ S.** one cable from Green Islet in the mouth of Rock Creek, is *a sunken rock* with two fathoms on it and deep water all around it, known as *Loo Rock.*

This vicinity is represented on British Admiralty Chart No. 1901, which gives as the position of the astronomical station, Observation Point,

Latitude	**51° 51′ 44″ N.**
Longitude	**127° 52′ 23″ W.**

It is **H. W. F.** and **C.** at $1^h\ 0^m$,—springs rising fifteen and neaps twelve and a half feet.

Two or three miles to the eastward of the harbor a chain of mountains, varying from twenty-six hundred to thirty-three hundred and eighty feet in height, stretches in a **N NE.** and **S SW.** direction for six or seven miles.

SAILING DIRECTIONS

FOR THE USE OF NAMU HARBOR AND VICINITY.

There is a clear passage either side of Kiwash Island three or four cables wide. No directions are necessary for entering. Anchorage may be had in twenty-one fathoms half a mile **E NE.** of Kiwash Island. A quarter of a mile farther, in the same direction, a more protected position may be taken up, in ten or twelve fathoms, midway between Sunday Islet, bearing **NW.**, and the point opposite in Whirlwind Bay. Squalls from the high land and the vicinity of the *Loo Rock*, in addition to the still more contracted space, render it inadvisable to bring Sunday Islet to bear to the westward of **W NW.** in entering this bay.

About two miles **N. by W.** from Kiwash Island lies **Point Edmund**, of the Admiralty Charts, the southern headland of Burke Canal, which extends hence to the northward.*

Fog Rocks.

Across the entrance, two miles **NW. by W.**, lies **Point Walker**, the northern headland, situated on a small island, from which, **NW. ¼ N.** three miles, are the Fog Rocks, nearly in the middle of the sound, with deep water around them and indicated as visible at all times. The passage between them and the shore of Hunter Island is about a mile wide. To the eastward of these rocks, and stretching along the shore of King Island as far as Point Walker, are a number of rocks and islets, behind which is an indentation in the shore line looking as if it might afford anchorage, but of which no information is on record. From the Fog Rocks to the northern termination of Fitzhugh Sound as here understood, the general direction of the eastern shore is **N NW.** and the distance about six miles.

The shore of Hunter Island from the strait (called by the natives Nalau) which separates it from D'Agelet Island, extends in a general direction of **N. by W. ¼ W.** for twelve miles, with only two small openings, neither of which appear to afford anchorage. The shore is backed by mountains which at one point attain a height of nearly three thousand feet.

The Trap.

Thirteen miles from the southeastern point of the island a small islet lies off an indentation of the shore, forming what has been termed by the U. S. Coast Survey **The Trap.** On the British Admiralty Chart No. 2430, of 1856, with corrections to 1868, an opening is indicated in this vicinity, and navigators not possessing the later and much improved charts (corrections to 1874) might be tempted by the appearance of an opening, especially at night, to enter this cove. It is, however, extremely contracted, not affording room for a steamer to turn, and dangers are supposed to exist in the passage around the islet, for which reasons it should be avoided.

A mile and three-quarters farther to the northward is a very small islet, one hundred and thirty feet high, known as **Pointer Islet**, forming a landmark for the entrance of the Lama Passage and the northwestern headland of Fitzhugh Sound. The sound really is continuous for eight miles farther to the northward, but to this part of it is applied the name of **Fisher Channel**,† which afterward divides into two or more arms.

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*This is not the **Point Edmund** of Vancouver, which, as demonstrated by his bearings, was farther to the north and east in the canal.

† It may be observed that the name of Fisher Channel on different charts is very differently extended, and might profitably be restricted solely to the northwestern arm, the northeastern having been named **Dean Canal** by Vancouver and the remainder being practically identical with Fitzhugh Sound.

* The hill back of Port McLaughlin and the hill south of it have been cleared and are now pastures for cattle. H.E.N.

"Waukohas" = Port McLaughlin. H.E.N.

a and a village of about 20 houses of Bella Bella Indians, also a mission residence and church. H.E.N.

There is a rock reported and noted on the charts on the opposite side from Port McLaughlin and about one cable off shore. A course a little west of midchannel clears it.

The H. B. Co. agent, Mr. Clayton, and also the Indians who were about the ship say that the rock does not exist. H. B. M. S. "Rocket" searched for it last year, when the fact came out that the rock reported was four miles north of this place, probably Dall Patch shoal off Kynumpt Harbor. I sent a boat to the spot marked on the charts and found only deep water. H.E.N.

In latitude 52° 04′ N., between Hunter Island on the south and Denny Island on the north, Lama Passage opens from Fitzhugh Sound to the westward, extending to the Seaforth Channel and describing nearly a right angle in its course. From the entrance at the sound it takes a generally W SW. direction for seven miles, then, between Campbell Island on the west and Denny Island on the east, NW. by N. ½ N. for five miles, when it again turns to the N. by E. ½ E. for two miles and enters Seaforth Channel. At the first angle, **Plumper Channel**, a much obstructed passage, extends toward Hecate Strait, between Hunter and Campbell islands.

Lama Passage.

The Lama Passage is rather narrow near its eastern entrance, being only half a mile wide, but increases in width to the westward to over a mile. The northern shore appears to be bold-to and but slightly indented; the southern, on the contrary, after the first three miles is penetrated by a large number of narrow indentations, some of which afford shelter. Hereabouts are numerous rocks and islets, though no concealed dangers are indicated. The shores of Campbell and Denny Islands, bordering on the northern part of the passage, are irregular, with a number of small coves. The passage contracts off the western extreme of Denny Island to less than a quarter of a mile, but widens to the north and south.

From **Start Point**, at the eastern entrance, the passage is clear, with very deep water, shoaling to twenty-five fathoms. About two miles from the point, close in on the southern shore, are some rocks or islets above water with shoals in front of them extending off a cable length. Hence to the northwestern extreme of Hunter Island a clear passage along the northern shore exists from half a mile to a mile wide. **Ship Point**, the southeastern extreme of Campbell Island, is backed by a hill three hundred and eighty feet high, abreast of which, on the Denny shore, are some rocks above water and one only two feet above low water.

Hence the clear channel hugs the Campbell Island shore N NW. about three miles to McLaughlin Bay, a small cove indenting Campbell Island a couple of cables, and three and a half cables in extent N NW. and S SE. The shores are rocky, except at the southwestern corner of the bay, where a small stream comes in. There is a bare hill two hundred feet high to the westward of the anchorage. The soundings in the passage off the bar vary from twenty to thirty fathoms. Within the bay they are somewhat irregular, varying from seven to sixteen fathoms. A small rocky platform in the northern portion of the bay, separated from the shore at high water, was the British astronomical station, and is stated to be in

McLaughlin Bay.

Latitude	52° 08′ 37″ N.
Longitude	128° 10′ 13″ W.

It is H. W. F. and C. at $1^h\ 0^m$; springs rise fourteen and neaps ten feet.

The best place for anchoring appears to be SE. two cables from the Observation rock, in ten or twelve fathoms, sandy mud. W NW. from the bay are several peaks averaging over a thousand feet in height; one of them, Mt. Hand, being 4164 feet high according to British Admiralty Chart No. 2449. A Hudson Bay Company trading-post is established here.

This bay is represented on British Admiralty Chart No. 1901.

At the northern termination of Lama Passage, where it meets Seaforth Channel, it becomes considerably widened and obstructed by islands and rocks. The main passage for vessels passes to the westward of all these. The northern shore of Denny Island is penetrated by several indentations, some of which afford shelter. To the eastward, **Gunboat Passage**, a narrow, crooked and obstructed channel, about seven miles long, connects the head of Seaforth Channel with Fisher Channel.

SEAFORTH CHANNEL.

Seaforth Channel extends in a westerly direction from Denny Island to Milbank Sound, between Denny, Campbell and the Wright group of islands on the south, and on the north **Meares**,* Sunday and Salmon islands and a prolongation of the mainland, on the Admiralty Charts called Don Island, though not insulated. The channel has an average width of somewhat over a mile, and is a mile in width at its narrowest part. Its shores are very irregular, Deer Passage, Return and Spiller channels extend from it toward the north, and Hecate Channel, between Campbell Island and Hergest Island, of the Wright group, to the south, of which channels only the last has been fully explored. The depth of water in Seaforth Channel in general exceeds thirty-nine fathoms, but the shores appear to bristle with rocks and islets and should not be closely approached without great caution. In latitude 52° 12′, on the northern end of Campbell Island, among numerous indentations, two are indicated as harbors.

Caution.

* Here named for John Meares, who visited this coast on a trading voyage in 1788, and published maps and an account of the voyage.

a. Dall patch was <u>not</u> marked by kelp Aug 8, 1881 Nor in 1883 as shown on the chart. H.E.N.

b. Poles gone from Grassy Id. It may be distinguished by having two fir trees on its western end. H.E.N.

Ormidale Harbor is triangular in shape, widest at the mouth, which is sheltered by Nevay and Thorburne islands, westward from the first of which is a narrow but navigable channel. Thorburne Island, the easternmost of the two, is separated from Campbell and Nevay islands by narrow and shoal passages. The navigable entrance lies **SW.** ¾ **S.** nearly a mile from **Grassy Island,** twenty feet high, lying in the middle of Seaforth Channel and forming a fair landmark. The entrance is a cable and a half in width, with not less than thirteen fathoms; a strictly midchannel course in appears free from dangers. Once within, anchorage may be had two cables **S SE.** from Nevay Island in about seventeen fathoms, sandy mud. The passage in is longer, but the berth more commodious than in Kynumpt Harbor, directly west of this one.

Ormidale Harbor.

SAILING DIRECTIONS FOR AVOIDING DALL PATCH SHOAL.

In leaving Ormidale Harbor, bound north, the navigator should keep within two cables of Defeat Point until Angle Point, on the northern shore of Seaforth Channel, bears nothing to the westward of **NW.** ½ **W.** to clear the *Dall Patch shoal,* or a **NW.** by **N.** ½ **N.** course may be kept until Grassy Island bears **E.,** when a **W.** course clears all dangers.

This vicinity is well shown on British Admiralty Chart No. 2449,* dated October, 1872.

Immediately to the westward of this harbor lies Kynumpt Harbor. This harbor penetrates Campbell Island to the extent of half a mile in a **S SE.** direction from the entrance, which is a quarter of a mile wide, but the harbor narrows to a cable length at its head. The western headland is marked by a white rock twelve feet above high water, and is called **Shelf Point,** from which the land rises to two hundred feet. The opposite headland, two hundred feet high, is known as **Defeat Point.** A third of a mile **N.** from Defeat Point, nearly in mid-channel, marked by kelp, lies *Dall Patch,* a shoal with a sunken rock at either end, and about a cable and a half in length in an **E.** and **W.** direction.

Kynumpt Harbor.

Dall Patch.

At the southern angle of Defeat Point, **Low Island,** a rocky islet, is connected by a reef with the shore, and **S.,** about a cable from it, is **Berry Point,** two hundred feet high,—the astronomical station being at its **SW.** angle. The cove between them has shoal water on its southern shore,—a three-fathom bank extending about eighty yards **N.** by **W.** from Berry Point. There are shoals near the head of the harbor, and the five-fathom line from the western shore extends nearly half-way toward Berry Point. Good anchorage may be obtained here in midchannel, Berry Point bearing **E.,** in a muddy bottom and eight fathoms water, but with only two hundred yards between the vessel and the shore on either hand.

This harbor is represented on British Admiralty Charts Nos. 2449 and 1901. On the latter Berry Point is stated to be in

Latitude	52° 12′ 20″ N.
Longitude	126° 11′ 37″ W.

It is **H. W. F.** and **C.** at 0^h 30^m,—springs rising fourteen and neaps eleven feet.

No directions are necessary for entering it except to avoid *Dall Patch Shoal,* which is marked by kelp and lies four cables **NE.** by **N.** from the middle of the entrance.

NE. ¾ **N.** about a mile from the entrance lie *Regatta Rocks,* awash at high water. **Grassy Island,** twenty feet high and bearing poles,† holds a similar relation to the entrance of Ormidale Harbor. This islet may serve as a guide to the entrances of these harbors. It bears **NE.** by **E.** ¼ **E.** from the middle of Kynumpt entrance.

Kynumpt Harbor is separated from Wood Bay to the southwest of it by a peninsula with a narrow neck less than a cable wide. The bay has from twenty-five to fifty fathoms in it.

Immediately to the westward of Campbell Island, and separating it from Hergest‡ Island of the Wright Group, which is unexplored to the south and west, is **Hecate Channel,** a passage about a mile wide, and eleven miles long **N.** and **S.,** leading toward Queen Sound, and considerably obstructed at the southern end by islets and rocks. The **NE.** point of Hergest Island is known as **Point George,** bold-to, with land behind it rising a thousand feet. **W.** ½ **S.** from Point George, two miles, is the entrance to **Dundivan Inlet,** an irregularly-shaped bay with a number of arms, affording anchorage. The inlet contains a number of islets, and has over thirty-eight fathoms in the entrance and twelve to thirty inside. Beyond this inlet, and three miles to the westward of Point George, is **Idol Point,** bold-to, with high land behind it. **SW.** by **W.** ¾ **W.** from this point the shore of Hergest Island

* For tides hereabouts see Kynumpt Harbor.

† Indicating a former dwelling or burial place of the Bellabella Indians, who inhabited this vicinity.

‡ Here named for Lieut. Hergest, commander of Vancouver's supply ship *Dædalus,* who was murdered in the Sandwich Islands in 1792.

extends about three miles and a half to the obstructed entrance of Gale Creek, which is supposed to extend in a southerly direction, meeting Boddy Creek from the **SE.**, and thus to separate Hergest Island from the rest of the Wright group. The shore extends in the same direction from the entrance of Gale Creek, **SW.** by **W.** $\frac{3}{4}$ **W.**, two and a half miles, to Sound Point, Milbank Sound, mostly compact and fringed with rocks, and should not be approached within half a mile anywhere westward from Idol Point. Gale Creek, which is an unnavigable, inconsiderable inlet, is the only marked indentation of this strip of shore line.

The northern shores of Seaforth Channel are much more irregular in outline. Separating Sunday and Meares islands, directly **NW.** from Point Dumas, is the entrance of **Deer Passage**, a large and unexplored opening with several islands in it; and to the westward there are several islets along the shores. The western extreme of Sunday Island is **Angle Point**, a narrow, high promontory, nearly four miles **W.** $\frac{1}{2}$ **N.** from Point Dumas. Three-quarters of a mile west of this promontory are the **Jumble** and **Dearth islands**, separated from Salmon Island north of them by a strait about a mile wide. From this expansion of Seaforth Channel, **Return** and **Spiller Channel**, two large arms, extend to the northward, encircling Salmon Island on the east and west respectively, and connected with a multitude of unexplored channels. North from Idol Point nearly two miles, between the western point of Dearth Island and the southern angle of the mainland to the westward of it, are numerous sunken rocks known as the *Hyndman Reefs*. The mainland, (under the name of Don Island,) forming the northern shore of Seaforth Channel, from this vicinity to Milbank Sound is surprisingly irregular, fringed with islets and rocks, most of which are visible, and should not be approached within half a mile.

Sunken Rocks.

The waters of the channel offer no unseen obstacles to navigation except *Dall Patch*, *Regatta Rocks*, and those in the vicinity of the shores. There is a clear passage on either side of the mid-channel islets in the eastern part. The shores are wooded and mostly low, and the high land does not attain such an altitude as near the more interior passages. There are numerous Indians resident in this vicinity.

Sound Point, the northwestern extreme of the Wright group, is indicated as in

Latitude	**52° 14′ 20″ N.**
Longitude	**128° 27′ 45″ W.**

It is low and marked by an islet. Three and two-fifth miles **N.** $\frac{2}{3}$ **W.** from this point lies **Point Rankin**, the northwestern extreme of Seaforth Channel, separating the latter from the entrance to Mathieson Channel.

MATHIESON CHANNEL,

separates Lady and Dowager islands from the mainland, (Don Island.) The channel is some thirteen miles long in a northerly and southerly direction, and averages over a mile in width. About three miles northward and eastward from Point Rankin is the entrance to Port Blakeney, a rather contracted anchorage between Mary Island, on which Point Rankin is situated, and that part of the mainland called Don 'Island.' This and its approaches is exhibited by a plan on British Admiralty Chart No. 1462, of December, 1872, on which it is stated that the observation spot, Port Blakeney, is in

Port Blakeney.

Latitude	**52° 18′ 47″ N.**
Longitude	**128° 22′ 42″ W.**

H. W. F. and C. is reported at $0^h\ 0^m$, with a spring rise of thirteen and a neap rise of eight feet. The range of the neaps is from two to four feet.

About four miles northward from Point Rankin, and westward from Lake Island, in Mathieson Channel, is the entrance of **Moss Passage**, extending thence in a west-southwesterly direction about four miles, to Milbank Sound. The eastern part of this passage is very contracted and cannot be recommended. The western part will average half a mile in width, and contains, on its **SE.** shore, Morris Bay, a small indentation of Lady Island, affording anchorage except in westerly winds. It is of small extent, with stony bottom and ten to sixteen fathoms. It is represented on the same plan with Port Blakeney, British Admiralty Chart No. 1462, and the tidal memoranda are the same.

Morris Bay.

The variation of the compass was **25° 20′ E.** in 1872, and the position of the anchorage is given as

Latitude	**52° 21′ 00″ N.**
Longitude	**128° 28′ 30″ W.**

> Alexandra Passage. See my remark book H.E.N.

> Alexandra Passage

DANGER.

S. $\frac{1}{4}$ **E.** from Point Rankin nearly one mile, and **W.** by **S.** $\frac{1}{2}$ **S.** from Ivory Island, a quarter of a mile off Rat Rock, lies *Mouse Rock*, showing a breaker, which should be avoided in entering the Seaforth Channel from the northwest. On this account vessels wishing to enter the channel should not approach Ivory Island within one mile until its southern edge bears to the northward of **E NE.**

The western entrance of Seaforth Channel opens on

MILBANK SOUND,

a sheet of water comprehended between the Wright group and the mainland to the eastward, Lady and Dowager islands to the northward, and Price and Swindle islands to the northwest and west. It is over eight miles wide **E.** and **W.**, opening into Seaforth, Mathieson and Finlayson channels to the eastward and northward, and fronting on Hecate Strait to the south by an opening nearly eight miles wide. The southeastern headland, formed by islets on the extreme of the Wright group, is Cape Swaine, of Vancouver,* from which **Point Day**, the northwestern headland, bears **NW.** by **W.** $\frac{1}{2}$ **W.** about nine miles. **S SW.** from Point Day rocks and islets extend for two miles. **SW.** by **W.** $\frac{1}{3}$ **W.**, a little over three miles from Point Rankin, is a *sunken rock*, which breaks in bad weather, and immediately westward from it are the White Rocks, two islets, of which the northern one is six feet high and called Bare Rock, while **S.** by **W.**, about half a mile from it, is the larger White Rock, some fifty feet in height.

Cape Swaine.

White Rocks.

NW. by **W.** $\frac{1}{4}$ **W.** from Point Rankin, about two miles, is **Point Cross**, on Lady Island, the western headland of the entrance to Mathieson Channel, off which rocks extend **S SW.** about a mile. Three miles from Point Cross, and about **N NW.** four miles from the dry White Rock, lies *Vancouver Rock*, awash.

DANGERS.

Eastward from this line the **SW.** shores of Lady and Dowager islands are infested by a multitude of rocks and islets. These shores should not be approached within a mile and a half.

SAILING DIRECTIONS

FOR MILBANK SOUND.

I. ***From the Eastward.***—On leaving Seaforth Channel the navigator should keep in midchannel until Sound Point bears **SE.** by **S.** $\frac{1}{2}$ **S.**, to avoid the rocks near Ivory Island. A clear passage exists on either side of the White Rocks, but the one usually taken is that to the northward,—not approaching them within a mile. From a position in midchannel, between Ivory Island and Sound Point, the course is **W NW.** seven miles, when a due north course will carry clear of all dangers into Finlayson Channel, in midchannel. This course leads about a mile to the northward and eastward of the White Rocks. The southwestern shores of the Wright group are almost unknown and should not be approached within a mile. No information is at hand in regard to the currents of this vicinity, against the effect of which the navigator should be on his guard, especially in foggy weather.

The variation of the compass is stated to have been **26° 10′ E.** in 1868.

II. ***From the Northward.***—From a position in midchannel, with North Islet bearing **E NE.**, two and a quarter miles, the course is **SE.** by **E.** $\frac{1}{4}$ **E.**, eight miles, for the entrance of Seaforth Channel, passing a mile to the northward of the reef near the White Rocks.

An obstructed channel, called **Schooner Passage**, leads to the **W NW.** from the northern part of Milbank Sound, cutting off Price from Swindle Island, and directly to the eastward from this entrance lies **Point Jorkins**, the northwestern headland of the entrance to Finlayson Channel.

The land upon which Point Jorkins is situated is known as Swindle Island, (though several islands may be included in it,) and forms a portion of the western shores of Finlayson Channel.

FINLAYSON CHANNEL

extends between Dowager and Roderick islands on the east and Princess Royal Islands on the west, twenty-four miles, in a generally **N NW.** direction from its entrance to Carter Bay. The name might, without detriment, be held to cover that portion of the same channel extending from the vicinity of Carter Bay to Point Kingcome, a distance of some thirty miles more, after which it takes a sharp bend to the **W SW.**

* Incorrectly spelled **Swain** on the Admiralty Charts.

Becoming covered with grass, 1882 [illegible]

x to Top of Trees. H.E.N.

a Sometimes called Bell-bone Id. H.E.N.

The first portion of the channel averages two miles in width, with more than one hundred fathoms of water. The shores are bold-to, clear of dangers, and only in two localities are there any rocks or islets in the channel, and these are insignificant. The shores are densely wooded, the timber extending to the height of fifteen hundred feet on the mountain sides, while the peaks, closely approaching the shores of the channel, rise in a precipitous manner to the height of nearly three thousand feet on either hand, with higher mountains beyond them.

Patches of snow in the ravines are reported in August, and probably exist throughout the year. From these and from various lakes at a high altitude cascades of remarkable height and beauty fall down the abrupt mountain flanks, and in some cases swarm with salmon in their season, affording a bountiful supply of food to the Indians of this region. The tides in this part of the channel are little known, but the flood runs to the northward with a force at times of several knots. The least water reported in this part of the channel is forty fathoms, rocky bottom, and in many places the depth is over a hundred fathoms.

From the southern entrance of the channel **Stripe Mountain** is visible on the northwestern angle of Dowager Island—high, pyramidal, and marked down its southern flank by a great white streak destitute of timber and soil.* It is otherwise wooded to the summit, and this streak forms a very prominent and distinctive mark. At its base is a comparatively level plateau, probably due to glacial action, sparsely covered with herbage, and remarkable in this region of forests for its absence of timber. The mountain is about two thousand and twenty feet high, with still higher peaks to the southward. Its position, according to English authorities, is

Latitude ..... 52° 26′ 40″ N.
Longitude ..... 128° 25′ 00″ W.

Its peak is less than a mile from the water, and northward from it **Oscar Passage** leads from Finlayson to the northern entrance of Mathieson Channel. In the bight called **Open Bay**, between the point **W SW.** from the peak of this mountain and **Low Point**, the eastern headland of the entrance to Finlayson Channel, are some rocks and islets extending two-thirds of a mile off shore, with deep water near them. Oscar Passage, above mentioned, separates Dowager Island from Roderick Island,—a mass of land which may prove to consist of several islands, separated from the main by Portlock† Channel. Over three miles **NW. ¼ N.** from Parker Point, the southern point of Roderick Island, in Finlayson Channel, are two islets called The Sisters, ninety feet high, connected by rocks.

Roderick Island.

Northeastward from them about two and a half cables is **Indian Island**, of irregular form, nearly a mile in length **W NW.** and **E SE.**, and sheltering the entrance to Nowish Cove, an indentation of Susan Island forming part of the Roderick group. This is a snug but contracted cove about a cable and a half in extent, with anchorage in fourteen fathoms. It is entered by a passage between Indian and Susan Islands, about four cables long **E.** by **S. ½ S.** and **W.** by **N. ½ N.**, diminishing from two and a half cables at its mouth to less than one cable just before reaching **Fell Point**, the western point of entrance of the cove. The depth of water in the entrance varies from five to forty or more fathoms. It is clear of obstructions. There are no concealed dangers, and no directions seem necessary for entering it. Half a mile northward from the cove a peak rises to about fourteen hundred and twenty-five feet. Fell Point is stated to be approximately in

Nowish Cove.

Latitude ..... 52° 31′ 25″ N.
Longitude ..... 128° 27′ 15″ W.

It is **H. W. F.** and **C.** at $0^h\ 0^m$, and spring tides rise twelve feet.

This cove is represented by a plan on British Admiralty Chart No. 1462, dated to December, 1872.

Hence northward the shore has been only superficially examined for fifteen miles, and in this stretch are the entrances to several unexplored bays, inlets or passages. In about Latitude 52° 37′ N., on the eastern side of the channel, is the entrance to Mary Cove, of small extent, with nine fathoms water and good protection except from the southward.

Mary Cove.

The western shore of Finlayson Channel northward from Point Jorkins is compact and bold-to, rising to nearly two thousand feet within a short distance of the passage. About seven miles northward from the point is a narrow entrance between the shore of Swindle Island and the southern termination of Cone Island, which forms a narrow conspicuous promontory. The island derives its name from **Bell Peak**, a peculiar conical mountain, which is situated on the island in Latitude 52° 34′ ¼ N., about a mile northward from the point, and which attains a height of twelve hundred and eighty feet.‡

Cone Island.

* It was called **Quartz Mountain** by the U. S. Coast Survey in 1869.

† Here named for Captain Nathaniel Portlock, who visited this coast on a trading voyage in 1787 and published maps and an account of his voyage.

‡ It is **Cone Point** of the earlier Admiralty Charts, and probably the "**Cocked Hat**" of the U. S. Coast Survey party of 1867. On later charts a **Cone Mountain** appears west of Tolmie Channel, which is a different peak.

Cone Island extends somewhat more than three and a half miles in a **NW.** and **SE.** direction, with a width of about half a mile, and between it and Swindle Island is an exceedingly narrow passage, having eight to thirty fathoms water, and known as Klemtoo Passage. This passage possesses the advantage of affording anchorage almost anywhere, and in it the strength of the tide does not appear to exceed a knot an hour at any time. Klemtoo Passage extends parallel with Cone Island for three and a half miles in a **NW.** and **SE.** direction. The shores of Cone Island appear bold-to. Within a reasonable distance no dangers are indicated. The opposite shores of Swindle Island are, on the contrary, considerably indented with coves of small extent and bordered for some distance by islets. Navigators will do well to keep within three-quarters of a cable of the Cone Island shore, unless intending to anchor on the western side.

Klemtoo Passage.

The clear passage seems to be almost exactly one cable in least width, and the average width is about a cable and a half. The southern points of entrance to the passage are **Bare Point**, the southeastern extreme of Cone Island, having a rock at its base and represented as bold-to, and **Islet Point**, **W.** by **S.** about four cables from the former. This consists of some small rocky islets connected by reefs with a small promontory, high, parallel with Swindle Island, with which it is connected by low land, and having a cove with a sandy beach **SW.** from its northwestern and another **W.** from its southeastern extreme.

In line with and **NW.** from the ridge forming this promontory, and between it and **Base Point**, of the Swindle Island shore, a distance of a mile, is a line of *islets and reefs*. In the openings between them are several anchorages. The southernmost islet is Fish Island, about two cables long **NW.** and **SE.**, somewhat over half a cable wide, and having *a two and a half fathom shoal* extending nearly half a cable **NW.** from its northwestern extreme. **W NW.** from the latter, just outside of the shoal, boat anchorage may be had in seven to nine fathoms, sand and shells. The place is, however, very contracted, with hardly room to swing.

Fish Island.

A cable and a half **NW.** from the **NW.** end of Fish Island is **Needle Rock**, beyond which is Stockade Islet, with other islets or rocks forming a chain which terminates with the northwestern end of Star Island, six cables from the **NW.** end of Fish Island. This is fringed for half a cable with kelp, in which are *some rocks*.

At the northern extreme of Star Island, and connected by rocks with it at low water, is Observation Islet, an insignificant rock, situated in

Latitude	**52° 34′ 22″ N.**
Longitude	**128° 32′ 09″ W.**

TIDES.

Here it is **H. W. F.** and **C.** at $0^h\ 0^m$; spring tides rise thirteen and neap tides eight feet, but the range of neap tides is stated to be only about three and a half feet.

NW. from this islet, a cable and a half, is Clothes Bay, a cove affording boat anchorage in five fathoms. In the channel abreast of this bay vessels may anchor in twelve to fifteen fathoms, shelly bottom. A run of fresh water is found on the Cone Island shore conveniently near this anchorage.

Clothes Bay.

A mile **NW.** by **N.** from Base Point is **Berry Point**, the rather high, rocky, southeastern headland to the entrance of Trout Bay, a cove of moderate extent, sandy or muddy shores, and affording six to eleven fathoms near the entrance. Two streams fall into this cove. Six cables **N NW.** from Berry Point lies **Legge Point**, on the Cone Island side, whence to **Wedge Point**, the northwestern extreme of Cone Island, is about six cables in a **N NW.** direction. On the northern side of Wedge Point, close in, is a rocky islet, and the shore about the point is fringed with kelp, extending off less than half a cable.

Trout Bay.

The northern entrance of Klemtoo Passage at this point is about two cables wide. Half a mile **N NW.** from Wedge Point lies **Jane Island**, a mile long **NW.** and **SE.** and less than half a mile wide. It is separated from Cone Island by a passage having eleven to forty fathoms water and half a mile wide called **South Passage**. Between Jane Island and the land westward from it the furrow of Klemtoo Passage is continued, widened to a third of a mile and deepened to over forty fathoms.

At the southern extreme of the island, just within the South Passage, is *a kelp patch*, extending a cable from shore, and marking *a sunken rock*. Berry Point, open from Legge Point, and bearing **SE.** by **S.** ½ **S.**, leads clear of this obstruction if South Passage be entered only within three and a half cables of Wedge Point. In **North Passage**, at the northern end of Jane Island, *a similar danger* exists, marked by kelp, and within a cable and a half of the Jane Island shore. This passage is half a mile wide, with deep water, in which whirls are sometimes caused by the tide. It is bounded on the north by the southern end of Sarah Island, which extends some fifteen miles to the **N NW.**, with a greatest width of two and a half miles, rising in peaks from fifteen hundred to two thousand feet in height.

Sunken rock.

a At the place where this "sunken rock" is marked on chart 1923 there is a small islet 15 or 20 feet high and covered with trees. The pilots know of no sunken rock in Tolmie Channel. H. E. N.

b. Probably the ridge of which Hewitt Rock is the highest peak H. E. N.

TOLMIE CHANNEL.

Between Sarah Island and the shore to the westward, parallel with the island, is the commodious though narrow Tolmie Channel, which reunites with the northern extension of Finlayson Channel somewhat more than a mile beyond the point where the latter is obstructed by the dangerous *Hewitt Rock*. Tolmie Channel averages about a mile in width, with very deep water, forming a virtual continuation of the depression known as Klemtoo Passage, without serious obstructions, and apparently preferable for navigation to the northern part of Finlayson Channel. Three or four miles northward from its southern entrance are unsurveyed openings on its western side, apparently leading toward Laredo Channel.

TIDES.

Hereabouts the establishment is $0^h\ 0^m$, the flood to the northward, the ebb running out an hour and a half after slack water in Finlayson Channel.

DANGER.

Less than half a mile southward from the northern extreme of Sarah Island, close in under the eastern shore in Tolmie Channel, is a *sunken rock*, whence, in this vicinity, the navigator should keep in or west from midchannel.

From Mary Cove northward, for twelve miles, to the entrance of the narrow part of Finlayson Channel, the eastern shore has been but partly examined. There is one large opening, provisionally called **Watson Bay**, and several streams fall in from the sides of the mountains. At the northwestern corner of Roderick Island are a couple of small indentations. The southern of these is **Goat Cove**, a quarter of a mile in extent, with twenty-three fathoms water and a lagoon at its head; high land north and south of it. The northern indentation is **Kid Bay**, three cables in extent, with twenty-three and twenty-five fathoms water, surrounded by high land, with a stream falling in at its head. Around Fawn Point the northern headland of this cove is Sheep Passage, separating Roderick Island from the mainland and joining Portlock Channel at the entrance of Mussel Inlet, eight miles to the northward.

Sheep Passage.

A mile from Fawn Point **NW.** is situated the entrance of Carter Bay,* on the shore of the mainland. This bay opens to the southward and trends in a general **N.** and **S.** direction for seven cables, with an average width of three and a half cables. The shores are bold-to and free from dangers; a stream flowing by a cascade from a lake to the northward and eastward, forms a small bank at the head of the bay. The eastern shore is straight, trending **N.** by **W.** $\frac{3}{4}$ **W.**, and conversely. The western shore is less regular and the astronomical station of the English observers was situated on a small point near the northwestern angle of the bay. The mountains rise to more than two thousand feet on either hand. The soundings off the entrance are deep, exceeding thirty-eight fathoms; the water in general is deeper toward the western shore. About four cables from the head the bottom begins to rise with some rapidity from thirty to eighteen and then to thirteen fathoms. The best anchorage is had in the middle of the bay, about two cables from either shore, in fifteen fathoms, muddy bottom. The edge of land to westward will then bear **SW.** by **S.** $\frac{1}{3}$ **S.** and to eastward **SE.** $\frac{2}{3}$ **S.** Three fathoms can be carried to the edge of the flat, and ten fathoms close to the shore on either hand. There are no dangers of any kind; no directions are necessary for entering, and it forms one of the most convenient anchoring places in the whole Inland Passage. The stream abounds with trout; clams are found on the flat at low water; wood and fresh water are easily obtained.

Carter Bay. **Astronomical Station.**

This bay is represented on British Admiralty Chart No. 1901, from which it appears that the astronomical station is in

Latitude	**52° 49′ 41″ N.**
Longitude	**128° 24′ 34″ W.**

The variation of the compass in 1868 was **26° 20′ E.**, with a presumed annual increase of **2′** or **3′**.

The passage leading to the northwest, westward from Carter Bay, for about twenty miles, is denominated by English authorities Graham Reach and Hiekish Narrows. The width here diminishes to less than a mile, with very precipitous shores. The narrows connect Finlayson Channel with the Reach, and are about five and a half miles long **NW.** by **W.** and **SE.** by **E.**, and half a mile wide. Some incongruities appear in the different accounts of this passage, as will be seen.

Graham Reach.

Vancouver states that at a distance of four miles from the entrance, **N. 55° W.** (true), the channel having narrowed to a fourth of a mile, the *Chatham* suddenly found only six fathoms water on *a shoal* stretching from the continental shore into midchannel, which he passed on the western side in eighteen and twenty fathoms water. This, the narrowest part of the channel, was made so by a high, round, projecting part of the southwestern shore, appearing like an island. An island is indicated at this point on his chart.

Rock reported by Vancouver.

* Named by Vancouver for one of his crew, who died from eating poisonous mussels, and was buried here June 15, 1793.

a This islet is quite a respectable island and it is so close to the western shore that the fact of its being an island is not apparent except on close observation H.E.N.

1 Pilot W.E. George says he has beat through and sounded here and knows of no such shoal. Hewitt Rock is in line between a land-slide and the end of the small island. The Br. Adm. Ch. is correct teste W.E.G. M.B.

No Sir! H.E.N.

On Aug. 8, 1881 I sounded at slow speed past Hewitt Rock. It was just H.W. and when abeam of the land slide got bottom in $11\frac{3}{4}$ fathoms (rocky) with no bottom each side with 15 fathoms. This would give about 9 fathoms at low water. South of this were strong tide rips and eddies. No tide rip in 1882. H.E.N.

June 20, 1882 found 15 fathoms hard in a line between landslide and the south end of the island reduction to L.W. about 12 fms H.E.N.

May 14, '83 found $\frac{6}{15}$ from just below landslide to abreast island.

May 14/83 Tides in Grenville Channel did not run according to the chart. The flood followed to Cardena Bay and drifted on beyond, the Hassler anchoring there. H.E.N.

b Good salmon fishing. An Indian summer village at the river two miles below. H.E.N.

c. Fisherman Cove of chart 1923a. H.E.N. Only room for small boat. A 70-ton Schr. anchored in 20 fms. tails on to the beach. Pilot George.

By British Admiralty Chart No. 1923, corrected to December, 1874, it appears that five miles **N. 51° W.** from the entrance, a slight distance from midchannel, toward the western shore, is the *Hewitt Rock*, with ten feet on it at low water, to the westward of which, close to the shore of Sarah Island, is an islet.[a] The direction given by the chart for this locality is to *keep the northern shore aboard*. At this point, according to the report of Assistant George Davidson, U. S. Coast Survey, "the passage is contracted and the depth of water shoals to a few fathoms." The Admiralty Chart, however, gives thirty-one and forty-five fathoms close to the rock. Further data are needed to reconcile these apparently diverse accounts,—the great precision of Vancouver's work entitling his observations to careful consideration.

Hewitt Rock.

A mile **W NW.** from Hewitt Rock is the northern entrance of Tolmie Channel. **N NW.** two miles from the northern point of Sarah Island, on the continental shore, is an unsurveyed opening denominated Green Inlet. In the vicinity of Latitude **53 N.** the width of the passage is a little less than two-fifths of a mile. About two miles to the southward of the entrance to Swanson Bay thirty-eight fathoms are reported, six and a half miles to the northward from Hewitt Rock.

On the continental shore, in Latitude **53° 01′ N.**, is situated an insignificant cove, named **Swanson Bay**, with forty-four fathoms in the entrance and anchorage in the northern corner in nineteen fathoms. Hereabout the passage is walled in by lofty mountains, ranging from two to four thousand feet in height, with bold rocky shores, and carries, in most cases, over one hundred fathoms of water.

Six miles **NW.** from Swanson Bay is an opening, still unexplored, on the continental shore, and separated from another to the northward by a peninsula about two miles wide, rising to the height of two thousand feet. Both these are supposed to afford anchorage.* Off the second opening soundings in one hundred and thirteen fathoms, sand and gravel, are reported, and a note on British Admiralty Chart No. 1923A, corrected to December, 1874, states that here the "*tides meet*,"—the flood from the southward meeting that from the region of Wright Sound.

Unexplored openings.

Northward ten miles from Swanson Bay, on the shore of Princess Royal Island, here forming the western boundary of the passage, is **Red Cliff Point**, off which the soundings shoal to forty-five fathoms, sand, and the passage, three-fifths of a mile wide, suddenly expands to a mile and a half, with mountains rising three thousand feet on either hand. A lake sends a large stream[b] into the southern bight of this expansion, and an unexplored bay puts in on the northern side, apparently of considerable extent. It is reported to afford anchorage and to have the native name of Klekane.

In the middle of this broad part of the passage lies **Warke Island**, a mile and a half long east and west, very narrow, high, and with deep water on either side. About **W. by N. ½ N.** from the western end of Warke Island the passage, under the name of Fraser Reach, extends ten miles, with a width varying from half a mile to more than one mile, and with very even shores, to **Point Kingcome**, where it divides and becomes much wider. One arm, under the name of Ursula Channel, stretches some eight miles to the northward, when it divides and takes an irregular course. Three miles **N NW.** from Point Kingcome, at the mouth of Fisherman[c] or Ribachi Creek, an anchorage is indicated by Tebenkoff. The other arm, known as McKay Reach, takes a generally **W SW.** direction seven miles to Wright Sound. The Reach averages a mile and a half wide, bold-to, with rocky shores and high land on either shore. The northwestern extreme of Princess Royal Island, seven miles **SW. ¾ W.** from Point Kingcome, is called Nelly Point. The opposite headland, the southern point of Gribbell Island, about two and a half miles distant in a **NW. by W. ½ W.** direction, bears the name of **Point Cumming**.

Fraser Reach.

McKay Reach.

Directly **SE.** from Nelly Point lies **Holmes Bay**.† This bay or cove opens to the west, and indents the shore of Princess Royal Island to the extent of half a mile with a width of about four cables. The shores are bold and the water deep, except at the head and along the southern shore, where there is a tidal flat formed by the detritus from several streams. Anchorage may be had off this flat, a distance not much over two hundred yards, in fourteen to twenty fathoms.

On a small rocky point on the southern shore is the English astronomical station, which is stated to be in

Latitude	**53° 16′ 25″ N.**
Longitude	**129° 05′ 19″ W.**

It is H. W. F. and C. at 1ʰ 0ᵐ,—springs rising thirteen and neaps ten feet.

The variation of the compass in 1868 was 26° 40′ E., and there is a presumed annual increase of 2′ or 3′.

The anchorage is represented on British Admiralty Chart No. 1901. No directions are necessary for entering it.

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* **Khutss and Aaltanhash are the presumed names of these inlets.**

† **This is the name which appears upon the plan on British Admiralty Chart No. 1901, both the old and new editions. On the old edition of 1923 it is also called Holmes Bay, but on the latest edition Homes Bay, probably by accident. On the very imperfect British Admiralty Chart No. 2430 it is called Horne Bay.**

a The Farrant Island shores of Wright Sound and Granville Channel show an unusual amount of low and level land.

' Turtle Pt. has no very marked hill on it. W.H.D.

The irregular sheet of water which intervenes between McKay Reach and the entrance to Grenville Channel is known as Wright Sound, from which, besides the foregoing, Verney Passage and Douglas Channel extend northward, and Whale Channel, Lewis and Cridge passages to the southward. Whale and Squally channels, with Lewis Passage and Wright Sound, surround **Gil Island**, named by Caamano in 1792, according to Vancouver. It is fifteen miles long **N NW.** and **S SE.**, nearly six miles in width, and rises near its northern end in a peak, called Mount Gil,* to the height of three thousand feet.

Wright Sound.

The tides hereabouts are stated to *flood to the northward*, and the depth of water is very great. Vancouver found anchorage on the northeastern side of Gil Island two miles from its northern extremity, in forty fathoms, stones, shells and sand, about a cable from the shore; and also in thirty-three and forty-three fathoms, sand and mud, southwesterly from Turtle Point, the **NW.** extreme of Gil Island,—the adjacent shores bearing from **S.** by **E.** round by **E.** to **NE.** by **E.**, the opposite shore about half a league distant.

Anchorage, Gil Island.

About **N.** ½ **W.**, two and a quarter miles from Turtle Point, is Cape Farewell, the southern extreme of **Promise Island.** This island is about two miles long **N NW.** and **S SE.** and over a mile wide, (according to the plan,) rising to seventeen hundred feet, and separated from the mainland at the **SW.** extreme of Douglas Channel by a narrow passage, known as **Coghlan Anchorage.** The **SW.** extreme of Promise Island, forming the eastern headland of this passage, is called **Thom Point**, and must not be too closely approached, *rocks* extending off nearly half a cable **S SW.** from it. Hence to the opposite headland, **SW.** by **S.** one and a half cables, the water is deep, the rocks appearing to be steep-to. From Thom Point **Observation Point** lies **W NW.** half a mile, and according to British Admiralty Chart No. 2189 (December, 1872) is situated in

Rocks off Thom Point.

Latitude	**53° 22′ 44″ N.**
Longitude	**129° 16′ 15″ W.**

Thence **N NW.** lies *Harbor Rock*, directly in midchannel, drying six feet at low water, and having twelve feet of water over it in springs and eight feet in neap tides at high water. There is a clear passage on either side of it about a cable in width with eight to seventeen fathoms water.

Harbor Rock.

From Observation Point the anchorage bears nearly **NW.** by **N.** ¼ **N.** six cables. The lower part of the passage has bold shores, ten to more than thirty fathoms water, and averages about a quarter of a mile in width; just beyond the anchorage it makes a rather short turn to the **NE.** and narrows to less than a cable with a depth of nine to fifteen fathoms. In this narrow part *the tides meet;* the shores are rocky and mostly steep-to. This portion is termed **Stewart Narrows.**

At the anchorage the shores slope a little more gradually, and a vessel will have a swing of barely a cable in every direction while anchored in seven fathoms, sand. At this point it is **H. W. F.** and **C.** at 0^h 30^m, springs rising eighteen and neaps fourteen feet. There seem to be no concealed dangers except *Harbor Rock.* From the distance between the entrance and the anchorage this is not a very convenient resort. It would not seem advisable to attempt an entrance from the **NE.** except with a steamer.

SAILING DIRECTIONS

FOR ENTERING COGHLAN ANCHORAGE FROM THE SOUTHEAST.

After passing Thom Point in midchannel keep the eastern shore aboard until Mount Gil, on Gil Island, is in one with Thom Point astern, bearing **SE.** ¼ **E.** A **NW.** ¼ **W.** course then leads directly to the anchorage clear of all dangers.

In quitting the anchorage, Thom Point under the peak of Mount Gil **SE.** ¼ **E.** until Observation Point bears **S.**, thence in midchannel, leads out clear of all dangers.

About seven miles **W.** ½ **S.** from Point Cumming is Yolk Point, on Farrant Island, forming the southern headland of

GRENVILLE CHANNEL,

which extends W NW. forty-five miles, without any bend or curvature of importance. Its width varies from a mile and two-thirds, near the western entrance, to a quarter of a mile in about latitude 53° 31′ N., the depth of water varying from fifty to one hundred fathoms or more in the main channel. The southern shore is formed by Pitt Island for the greater portion of the way and presents no conspicuous indentations. The northern or continental shore is penetrated by four partly unexplored inlets at nearly regular intervals from one another.

*The name is usually misspelled **Gill.**

* The southern shore on and near Farrant Id. however, is unusually low. W.H.D.

** This hill is merely the bare spur of a higher wooded peak West from it.

Passed this at night. H.E.N.

* South from Nabannah Bay a fine waterfall is conspicuous on the Pitt Island shore and two and a half cables W.N.W. from it a small knob not marked on the charts projects and indicates a boat landing behind it.

See p.30. tides.

Farrant Island, on which Yolk Point is situated, for somewhat over four miles forms the southern shore of the channel, and is separated from Pitt Island by a narrow unexplored gorge, called **Union Passage.** The mountains on either side of Grenville Channel rise to a height varying from fifteen to thirty-five hundred feet, and their proximity to the shore and general abruptness give an appearance to the channel of being even narrower than it really is. At a distance of about twenty-three miles **W NW.** from Yolk Point the tides, which have hitherto flooded to the north and west and ebbed to the south and east, are met by tides flowing in an opposite direction, from the north and west. The shores are everywhere wooded, the mountain sides seamed with snow- and land-slides, which have carried away the timber in their paths. Numerous cascades and streams are visible, fed by mountain lakes or the snow in the higher ravines, which is not entirely melted late in the summer, and probably exists throughout the year in greater or less quantity.

{ 10 miles June 5. 1880 }

Lowe Inlet.

About fourteen miles from Yolk Point is the entrance to Lowe Inlet, on the northern shore; three-quarters of a mile within this entrance bottom is found in twenty fathoms, where anchorage may be had. The approach to this inlet from the eastward is indicated by a Bare Hill, four hundred feet high, on the southern shore, from which **NW.** $\frac{3}{4}$ **N.** two miles, the entrance lies fronting to the south.

The entrance, two and a half cables wide **W NW.** and **E SE.**, lies between Hepburn Point on the east and James Point on the west. At certain stages of the tide whirls are formed in this vicinity. On the *Whiting Bank*, in midchannel, two cables from the entrance, anchorage may be had in eight or ten fathoms, sand and shells.

Rocks awash.

The inlet extends to the northward over a mile and a half, widening to four cables, and afterward contracted to one cable by David Point, beyond which it forms a rounded harbor, called Nettle Basin, into which enters a waterfall from lakes to the **NE.** Anchorage may be had in the widest part of the lower inlet in twenty fathoms, and in sixteen fathoms in the basin. Four cables **N NW.** from the entrance and a cable and a half **W.** from Don Point, on the eastern shore, are *two rocks awash* at high water.

This harbor is represented on British Admiralty Chart No. 2189, (December, 1872,) from which it is found that James Point is in

Latitude	**53° 32′ 30″ N.**
Longitude	**129° 35′ 48″ W.**

It is **H. W. F.** and **C.** in Lowe Inlet at **0ʰ 30ᵐ**, spring tides rising seventeen and neaps fifteen feet, and running one to four knots.

The variation of the compass in 1872 was **26° E.** The land on either side of the inlet rises to two thousand feet, mountainous and wooded. No directions are necessary for entering.

Large area of Foul Ground.

Eight miles nearly **W NW.** from Tom Islet at James Point, on the northern shore, is **Evening Point**, abreast of which the flood-tides from **NW.** and **SE.** meet, and from which a number of rocks and islets extend in a **NW.** by **W.** direction. Between James and Evening points the depth of water in Grenville Channel averages from fifty to seventy fathoms. Behind Evening Point, in an **E NE.** direction, the land rises to nearly nine hundred feet. This point forms the **SE.** extreme point of **Nabannah Bay**, about three cables in extent, indented at right angles to Grenville Channel in a northeasterly direction, and practically closed to navigation by a chain of islets, rocks and foul ground, which extend in a **NW.** by **W.** direction across the entrance, forming a barrier, behind which the bay affords one to fourteen fathoms water over sandy bottom. Nearly half a mile **NW.** by **N.** from Evening Point is the outer extremity of **Morning Point**, which forms the northwestern headland of the bay, and consists of a moderately elevated, rounded promontory, fronting to the **SW.**, and before which extends *a large area of foul ground*, marked by kelp and several rocks, constituting the *Morning Reefs*, the **SW.** limit of which has a continuous trend with the northern shore of the channel **NW.** by **W.** about eight cables from Evening Point. The clear passage **SW.** from it is of the same width as the portion of Grenville Channel **SW.** from Evening Point, and here the tides run four knots at springs.

are reported to/

The landmarks for passing northward clear of this foul ground are Bare Islet (in Klewnuggit Inlet) open from Camp Point **NE.** $\frac{3}{4}$ **E.**, according to British Admiralty Chart No. 2189, (December, 1872,) from which it is found that the geographical position of the observation spot on Morning Reef, close to Morning Point, is

Latitude	**53° 39′ 24″ N.**
Longitude	**129° 44′ 51″ W.**

It is H. W. F. and C. at 0ʰ 30ᵐ, and the spring tides rise seventeen feet. The ebb tides N. and S. separate near the NW. extreme of these reefs.

The variation of the compass hereabouts is about 26° E.

Half a mile N. from Morning Point is Camp Point, a small lumpy rock connected by a beach with the main shore, and forming one of the landmarks for passing the reefs. W SW. from it about fifty fathoms is a small *submerged rock*. This point forms the southern headland of **Klewnuggit Inlet**, an irregular indentation of the main shore, dividing into several arms, some of which have not yet been fully examined. The principal of these have a generally NW. and SE. direction, transverse to the entrance and parallel with Grenville Channel. In that arm which extends to the NW. protected anchorage is afforded. The other, extending SE., called Exposed Arm, is obstructed by rocks and islets. **Camp Point.**

The entrance to Klewnuggit Inlet is about six cables wide N NW. and S SE. The shore opposite Camp Point rounds gradually to the eastward and westward without forming any noteworthy point or angle, and rises rapidly to the height of more than twelve hundred feet.

Six cables NE. ¼ E. from Camp Point lies Bare Islet, of small extent, connected with the shore by a rock platform, and forming one of the landmarks for clearing Morning Reef. It is really a part of **Leading Island**, about one hundred and twenty feet high, of triangular outline, which extends from Bare Islet about half a mile in a NW. by N. ½ N. direction to its northern angle, and is separated by a narrow and unnavigable passage from the mainland. Behind this island is a passage two and a half cables wide, separating it from the mainland NE. from the island. This passage is prolonged to the NW., becoming somewhat narrower, and terminating at a broad *tidal flat* over which streams flow into the harbor. **Bare Islet.**

The anchorage is in midchannel NE. from the middle of Leading Island, in twenty to twenty-five fathoms, muddy bottom,—the SE. shore of the island bearing S. ½ E. The shores are everywhere bold-to. There appear to be no concealed dangers, and no directions seem necessary for entering. **The Anchorage.**

It is H. W. F. and C. at 0^h 30^m, and spring tides rise seventeen feet.

This anchorage is shown by a plan on British Admiralty Chart No. 2189, (December, 1872.)

From the vicinity of Camp Point to the vicinity of the Gibsons the northern shore of Grenville Channel extends about twenty-one miles in a generally W NW. direction, and appears less elevated than it is to the southward. W.M.B. It is mostly compact and steep-to, with two unsurveyed openings, apparently of small size and little importance. In this portion the tides are moderate, averaging a knot an hour, and flood from the northwestward.

Twenty-six miles from the entrance of Lowe Inlet on the Pitt Island shore lies Stuart, or Stewart Anchorage. **Stuart Anchorage.**

Before reaching this point two small indentations occur which might be mistaken for the anchorage, which, in coming from the eastward, may be known by being situated two and a half miles to the westward from the entrance of the westernmost unexplored inlet on the northern shore,—the misleading indentations being one on either side of a point immediately abreast of the above-mentioned entrance. **Marks.**

The anchorage is sheltered to the SE. by **Bonwick Point**, rocky and of small extent, with an islet near it; to the southward by **Pitt Island**, and to the northward by *a four-fathom shoal* putting off from *Stag Rock* for three cables, parallel with the shore and marked by kelp. This rock lies four and a quarter cables W NW. from Bonwick Point and about the same distance N. by W. ¼ W. from the mouth of a stream on the Pitt Island shore. The rock dries to the extent of thirteen feet, and a cable south of it, marked by kelp, is *another rock* dry at low water. ***Rocks and shoals.***

SW. by W. ½ W. half a mile from Stag Rock is the English astronomical station, situated, according to British Admiralty Chart No. 1901,* on the Pitt Island shore, in

Latitude	53° 52′ 05″ N.
Longitude	130° 05′ 11″ W.

The variation of the compass was 27° 25′ E. in 1868, with a presumed annual increase of 2′ or 3′.

In this vicinity it is H. W. F. and C. at noon to 1^h p. m., springs rising twenty feet.

Between the rock and Bonwick Point there is fifteen to twenty-seven fathoms, between it and the mouth of the stream before mentioned there is six to twelve fathoms, while between the shoal and the Pitt Island shore the depth varies from seven to twenty-four fathoms. In entering from the eastward the only direction necessary is to keep about a quarter of a mile from Bonwick Point and the shore south of the anchorage until the mouth of the stream bears SE. half a mile, when anchorage may be had in from ten to fifteen fathoms. This anchorage is delineated on British Admiralty Chart No. 1901. (October, 1871.) ***Direction for entering.***

Five miles west of Stuart Anchorage, at the NW. extreme of Pitt Island, is **Hill Point**, a somewhat low point, separating the entrances of Grenville and Ogden channels and backed by slowly rising hills to the southward, which reach nearly twenty-eight hundred feet in height. Grenville

* February, 1868, but not on later editions.

Ogden Channel, see Brundige p. 154

Add sailing directions for Queen Charlotte Sound. M.B. What for? H.E.N.

b Telegraph passage is dangerous. In rounding Gibson Id. for the western passage up to the sound, give the island a good berth to avoid Watson's Rock which covers at high water springs. It was covered when the Hassler passed. H.E.N.

Port Fleming and Telegraph channel, see Brundige, p. 154.

H.B. vessels always use Telegraph Passage but cross into Chatham Sound to southward from Kennedy Id. H.E.N.

Chismore Passage very good stage. Enter through Bloxam Pass. chart correct H.E.N.

Capt George recommends Cardera Bay as a very good anchorage; holding ground good. During heavy gales vessels swing broadside to the current; this is the only objection. See Brundige, p. 154 Good T. Nichols 1883. in SE. gale. in 7½ fms. hw. 30 fms chain. Maracock Id & Daring Pt 69°31', Daring Pt. & Kennedy Id 90°43'.

a A good place to wait at night or in case of a fog in Chatham Sound, but not good in bad weather. Hassler anchored there Aug. 9 at 1 A.M. H.E.N.

Channel here attains a width of four miles, with a group of comparatively low wooded islands in the middle of the passage, called the **Gibson Islands.**

The passage northeast from the Gibsons has not more than six fathoms in it, and is infested with several shoals, from which reasons the passage to the south of the Gibsons, which is clear, with plenty of water, has come to be generally used. Here the water rapidly deepens from forty to eighty fathoms toward the westward.

From the sheet of water at the termination of Grenville Channel three other passages open,—two to the north and west, between Porcher Island on the **SW.** and the mainland on the **NE.**, with Kennedy Island and the Gibsons dividing the included waters into two passages; the third,

OGDEN CHANNEL,

between Porcher and Pitt islands, leads to the Hecate Strait in a southerly direction. It varies from less than half a mile to more than two miles in width, and is about fifteen miles long. Its southerly extreme has lately received separate names. A passage has been sounded through it, but the shores are yet imperfectly known, and there are numerous *dangers and obstructions*, most of which, however, are visible. **S.** by **W.** ½ **W.** from Hill Point four and a half miles is Alpha Bay, on the eastern shore of Ogden Channel and on the Pitt Island shore. It is situated at the mouth of a stream proceeding from a deep valley, and the anchorage is off the edge of a bank at the mouth of the stream, in ten or twelve fathoms, about two hundred yards from low-water mark. It presents no advantages as an anchorage, and better ground for that purpose may be had within a few miles. North Point, four cables **N NW.** from the anchoring ground, is stated to be in

Alpha Bay.

Latitude	53° 52′ 01″ **N.**
Longitude	130° 17′ 34″ **W.**

The variation of the compass was 27° 25′ **E.** in 1868.

It is **H. W. F.** and **C.** between 12ʰ noon and 1ʰ p. m., springs rising twenty feet.

It is represented, and also Ogden Channel, on a large scale on British Admiralty Chart No. 1901, (October, 1871.)

Two and a half miles **W SW.** from the larger Gibson Island is **Peninsula Point,** a small, low, wooded point making out half a mile, with deep water on its southern side, but anchorage in eight or ten fathoms near the mouth of the Oona River, on its northern side. The point is composed of metamorphic rocks, sandstones and shales. In this vicinity the surface-water changes to a dirty white, apparently coming from the river Skip through Port Essington, and probably derived from glaciers at its head waters.

Anchorage at Oona River.

Of the two northern passages **Telegraph Passage** is continuous with the shallow passage **NE.** from the Gibsons, and has been but partially examined. It is about a mile and a half wide, and joins at its northern termination the entrance to Port Essington. It is sheltered on the west by the Gibson, Bedford, Marrack and Kennedy islands. On the other side of these is the **Arthur Passage,** clear along the shore of Kennedy Island, but obstructed on the west by numerous islands parallel with the shore of Porcher Island, between which and them is the narrow and contracted Chismore Passage. This is obstructed by foul ground at the southeastern end, is less than half a mile wide, six and a half miles long **NW.** by **W.** ½ **W.**, and affords anchorage in five to twelve fathoms. It is only accessible at its narrow northwestern entrance and by the short and narrow Bloxam Passage leading into it from Arthur Passage.

Chismore Passage.

Arthur Passage is about five miles long, with a clear passage in deep water not over half a mile wide along the shore of **Kennedy Island.** This island rises to the height of nearly three thousand feet, is of oval shape, five and two-thirds miles long in a **NW.** and **SE.** direction, and about three miles wide. At its southeastern end, miscalled **Cardena Bay,** (for there is no bay, but a mere open roadstead,) holding-ground may be had in four to nine fathoms.

At the **NW.** entrance to Arthur Passage **White Cliff Island,** of small extent, lies in the middle of the passage, bold-to except at its rocky **S SE.** end, two hundred and sixty feet high, and with a clear channel on either side.

SW. by **S.** ½ **S.** from the southern part of this island about a mile lies Chalmers Anchorage off a bight at the **NW.** end of Elliott Island, open to the **NW.**, with anchorage in fourteen fathoms. **NW.** ¾ **W.** from the anchorage about a mile and a half is the northeastern edge of *some reefs* which lie immediately eastward three cables from **Bamfield islets,** which are also surrounded by rocky shelving shores. The islets lie about a quarter of a mile from the northern shore of Elizabeth Island. Deep but narrow passages exist between this, the islets and the reef. From *the reefs* to *Cecil Patch* the passage is six cables wide with plenty of water.

Chalmers Anchorage.

In leaving the Arthur Passage to the westward of White Cliff Island for Chatham Sound through **Malacca Passage,** the middle peak of White Cliff Island should be brought to bear **E.** ½ **S.** and kept so until the northwestern **Lawyer Islet** bears **NE.** This carries out in midchannel.

a except the North Skeena Passage. H.E.N.
Port Essington see Boundiger

Cecil Patch, marked by kelp and having four fathoms on it, lies one mile **W.** by **S.** from the main peak of White Cliff Island. It is in one with the eastern edge of Elliott Island bearing **SE.** ½ **E.** There is deep water between it and Elizabeth Island.

DIRECTIONS FOR CLEARING DANGERS.

A due **W.** course from the northern edge of White Cliff Island five miles will carry clear of all dangers. The latter, as far as known, are mostly visible, but great caution should be observed, especially in foggy weather.

Malacca Passage begins at White Cliff Island, and extends west for about six miles with an average clear width of a mile and a quarter. Its northern limits are formed by *foul ground* stretching to the westward for more than two miles from the northwestern end of Kennedy Island, and the Genn and Lawyer islets, extending with the same trend three miles and a half farther. The southern limit of Malacca Passage is formed by the shore of Elizabeth and Porcher islands, extending to the westward six miles from the entrance of Arthur Passage to **Point Hunt**, (Quil-mass,) which has an islet off it called Grace Islet. **Malacca Passage.**

There is an abundance of water in the channel, which is nowhere shoaler than forty fathoms; the dangers previously enumerated are near the shores, mostly visible and easily avoided. To the northward of the Lawyers the waters have not been sounded out. The shores to the northward are those of the **Chim-sy-an*** **Peninsula**, bounded to the eastward principally by **Port Essington** and **Work Channel**, and to the westward by

CHATHAM SOUND.

This great sheet of water extends in a **NW.** by **N.** and **SE.** by **S.** direction for thirty-five miles, with an average width of seven or eight miles. To the eastward the Chim-sy-an Peninsula; to the southward Porcher and Stephens islands; to the westward the Dundas Islands; and to the northward the mainland and adjacent islets and islands form the limits of the sound. The principal passages extend northward. One is the Edye Passage, with numerous islets in it, from the southern extreme of the sound to Hecate Strait, between Porcher and Stephens islands. Another is called the Brown Passage, eight miles wide and in part clear, between Stephens Island and the Dundas group, near the entrance of Hecate Strait.† Lastly may be mentioned the broad opening at the **NW.** extreme of the sound, where its waters meet and mingle with those of Dixon Entrance. In the southern half of the sound are a number of islets and islands, the principal of which are the **Lucy, Rachael** and **Kinnahan islands**, each group containing several islets, which are high, averaging two hundred feet. Only a small part of the sound has been examined, and there the depth is quite irregular, varying from eleven to more than one hundred fathoms. The shores of the sound have been but slightly examined, especially on the **NE.**, between the Telegraph Passage and Lima Point, and all statements in regard to its navigation are necessarily based upon scant material, which will doubtless in the future require revision. No serious concealed dangers are indicated on the latest charts (1872) in the northeastern part of the sound between the Lawyer and the Lucy islands. In the northern part of the sound several sunken rocks are indicated, but of which the positions are somewhat doubtful. **Edye Passage.** **Brown Passage.**

Thirteen and a quarter miles **NW.** ¾ **N.** from the western extreme of Point Hunt is the southern point of Tugwell Island, so-called, though united at half-tide by a *sand-bar*, a mile and a quarter long, with the Chim-sy-an Peninsula. This island is about two hundred feet high, wooded, with bluff shores to the beach, whence, except to the eastward, *foul ground, sand-bars and kelp* extend seaward from half to three-quarters of a mile. The southern end is called Point Dawes, and the northwestern Point Chopman. The island is about a mile and a quarter long, and, at its widest part, half a mile broad. From the northern shore *a sand-bar*, covered at half-flood, extends **NE.** by **E.** ½ **E.** a mile and a quarter to the mainland, which it joins at Observation Point. **Tugwell Island.** ***Sand-bar.***

SW., about four miles from Point Dawes, is the Lucy group of islets, small, bold-to and two hundred feet high. According to British Admiralty Chart No. 1923A, (December, 1874,) **S.** by **E.**, somewhat more than five miles from Point Dawes, is the *Alexandra Patch*, a mile in extent, with eleven to seventeen fathoms, sand and mud, surrounded by deep water. To the eastward from Tugwell Island and the bar lies Metla-katla Bay,‡ where is situated the well-known village and mission of **Metla-katla.** The bay is about three ***Alexandra Patch.***

* Variously spelled **Chim-sain, Tsimpsean,** &c.; properly accented on the last syllable.

† Both of these are represented in detail on British Admiralty Chart No. 2453, (October, 1872,) with plans of anchorages in them. It lies outside the scope of this work to enter into description of these passages, which for the Inland Passage are only of subordinate importance.

‡ Spelled **Metlah-Catlah** on British Admiralty Charts.

Metlakatla is only fit for small vessels as it is very narrow inside. Steamers of any size are obliged to remain some distance outside. Brundige R.N. p.155.

Duncan Bay is an open roadstead with a fair anchorage. It is sheltered from the east round to south but open from southwest round to northwest. At the north entrance to this bay Hodgson reef extends off shore about two miles. Good ground was found along this coast to the entrance of Big Bay. Brundige p.155.

miles in extent N. and S., and a mile and a half wide,—the contracted upper portion of it near the mission taking the name of **Venn Creek**. It is protected by the mainland, Tugwell Bar and Island on all sides, except the south. In the inner part of the bay completely sheltered anchorage may be had in Venn Creek, requiring, however, good local knowledge or a pilot to pass safely between the reefs, rocks and islets by which the bay is infested. The shores throughout are bordered by *shoals* or *foul ground*. At the eastern part of the entrance lie the three Cridge Islets, of small extent, respectively two feet, one hundred and one hundred and fifty feet high. Northward from them for nearly a mile to Straith Point, are rocks, reefs and foul ground. Nearly midway between these islets and the kelp ground about Point Dawes are the *Alford Reefs*, in the middle of the entrance, with *dangerous sunken rocks*, usually marked by kelp, with a small dry patch at lowest water. Inside the reef is a clear ground of about a mile in extent, where anchorage may be had on rather uneven bottom in seven to twenty fathoms. To the northward of this numerous reefs and islets occur. The more important of these are as follows: **Devastation Island**, one hundred and fifty-feet high, wooded and less than a quarter of a mile in extent, nearly a mile NE. by E. from Point Dawes; three-quarters of a mile farther, on the same bearing, lies **Pike Island**, also wooded and one hundred feet high, against the eastern shore of the bay, with **Shrub Islet**, a small wooded islet, NW. a cable and a half from it. Between Pike and Devastation islands, about midway, and a little to the S SE. of a line joining their extremities, lies **Knight Islet**, a small bare rock, bold-to and ten feet high. Half a mile north of Devastation Island is **Carr Islet**, sixty feet high, wooded and of very small extent. The buildings are situated on **Mission Point**, three-quarters of a mile northward from Pike Island. All the adjacent land is wooded.

Metla-katla Bay.

Alford Reefs.

This bay, with Duncan Bay, is represented on British Admiralty Chart No. 364, (with very important corrections from earlier editions to April, 1872,) from which it is learned that **H. W. F.** and **C.** occurs at **noon**,—spring tides rising twenty-one feet. The variation of the compass in 1865 was 27° 40′ E., with a presumed annual increase of about 2′.

Duntze Head, Esquimalt Harbor, being taken as in longitude 123° 26′ 45″ W., the position of the astronomical station on Observation Point was fixed by the English observers in

Latitude	54° 20′ 10″ N.
Longitude	130° 27′ 30″ W.

SAILING DIRECTIONS

FOR ENTERING METLA-KATLA BAY.

I. ***Westward from Alford Reefs.***—A course bringing Knight Island midway between Shrub and Pike islands N NE. ¼ E. leads clear of the reefs. When the vessel is in one with Dawes Point bearing W NW., and the largest Cridge Island bearing E SE., a N. by W. course about one mile leads to the anchorage in ten to fifteen fathoms, mud, NW. from Devastation Island.

The channel to the inner or Venn Creek anchorage is buoyed, but should not be attempted without a pilot. Three and a quarter fathoms can be carried into it over the bar at low water, but within the bar there is anchorage in ten or twelve fathoms, sand and shell, with a swing of one cable in every direction.

II. ***Eastward from Alford Reefs.***—A course bringing the Mission flag-staff in one with the west point of Pike Island N. by E. leads clear of the reefs. When within the line joining Dawes Point and the larger Cridge Islet, anchorage may be had in seven to twenty fathoms midway between Straith and Dawes points.

Duncan Bay lies northward from Tugwell Island and its associated shoals, affording a much better and less obstructed anchorage than Metla-katla, but open to westerly winds. The shores, as in Metla-katla Bay, are everywhere foul or bordered by shoal water. The foul ground extends off the northern shore of Tugwell Island, and the shore of the mainland, in some places, over six cables length.

The Hodgson Reefs, a series of dangerous rocks and shoals, are separated from the shoals of the mainland by a narrow and inadvisable passage. The southern extreme of these reefs is situated somewhat over a mile and a half W. by S. from Point Ryan, whence they extend in a N. by W. direction nearly two miles with an average width of more than half a mile. A large patch in the southern portion is uncovered after half-ebb. They do not seem to have been very thoroughly examined.

The Hodgson Reefs.

The entrance to Duncan Bay, however, is clear and free from dangers, and there are no impeding islets or rocks in the more convenient portion of the anchorage. This bay and vicinity are represented with Metla-katla on British Admiralty Chart No. 364, April, 1872, with important corrections of the older editions.

Big Bay has good anchorage at its head in four to ten fathoms and fairly sheltered. The entrance however is not good being much obstructed by foul ground. The entrance should not be attempted without good local knowledge. Bounding

Mr. Williscroft has a saw mill near Salmon R. in Big Bay. H.E.N.

SAILING DIRECTIONS

FOR THE USE OF DUNCAN BAY.

From a position at the entrance, Point Chopman, Tugwell Island, bearing **SE.** nearly a mile, and Point Ryan **NE.** by **N.** a little more than a mile, the course is **E.** a mile and a half to the anchorage. At the position mentioned, nearly in midchannel, the entrance, clear of foul ground, is about a mile wide, and eight fathoms is the least water to be found on the course given. At the anchorage seven or eight fathoms, sandy and muddy bottom, may be had; the three-fathom curve over a cable distant to the north or south. About two cables farther in on the same course lies *Hecate Rock*, in ten and a half feet, with Point Chopman bearing **SW.** by **W.** ¼ **W.** and Carr Islet **S.** by **E.** To avoid this danger navigators should anchor before Point Ryan bears to the westward of **NW.** ¼ **W.** In leaving the bay, bound to the northward, the course from the anchorage is **W.** until Point Ryan bears **E NE.**, or nothing to the northward of **W.** by **N.** until two and a quarter miles to the westward from Point Ryan.

From Duncan Bay northward toward the eastern part of Dixon Entrance Chatham Sound is protected by the Dundas Islands, and at its northern entrance is beset with numerous little-known rocks, reefs and islets.

For six or seven miles **N NW.** from Tugwell Island the shore of the mainland is fringed with foul ground and should not be approached within two miles without extreme caution. In the vicinity of **Tree Bluff** these westerly extending reefs project to a mile and a half. The bluff is marked by some cultivated ground and rises inland to two hundred and fifty feet.

Immediately northeastward from the bluff the shore is indented, forming Big Bay, about two and a third miles wide at the entrance, **N NW.** and **S SE.**, and extending some three miles in an easterly direction. Its native name is reported to be Lak-hou.* The northern headland is formed by South Island, about a cable and a half in extent, one hundred and fifty feet high, wooded and connected with the mainland by *a sheet of foul ground*, dry at low water and a mile in width. **S.** by **W.** from this island, *foul ground*, marked by kelp, extends three and a half cables. The western shores are also foul and should not be approached within two cables.

Big Bay.

The southern headland of Big Bay is **Point Trenham**, the northern angle of Tree Bluff, off which, about **W.** by **N.** ¼ **N.**, the three-fathom line is only reached at the distance of a mile. The shores of the bay are all foul, and in its entrance, about midchannel, is the *Ripple Bank*, **S.** by **W.** ¾ **W.**, nearly a mile from South Island, including a patch with only two fathoms on it; and the *Escape Reefs*, two patches, marked by kelp, about two cables each in extent, and somewhat within the Ripple Bank. These reefs bear from South Island respectively **S.** by **W.** and **S.** by **E.** about a mile,—both having small lumps dry at low water.

Reefs and banks.

Besides these, other dangers exist within the bay, which, it will readily be seen, is not to be recommended. In its eastern portion, near the northern shore, **Swallow Islet**, of small extent, rounded and rather high, is used as a landmark in entering Big Bay.

About two and a half cables **N.** from the northern part of South Island, and connected with it by foul ground at low water, is **Burnt-Cliff Island**, half a mile long **N NW.** and **S SE.**, averaging two cables wide, and rising, at its northern summit, one hundred and fifty or two hundred feet.

Within the bay it is **H. W. F.** and **C.** at $1^h\ 30^m$,—springs rising seventeen to twenty-two feet and neap tides fourteen to seventeen feet, according to British Admiralty Chart No. 2426, (March, 1872,) upon which this vicinity is delineated in detail.

The geographical position of the **S.** end of South Island appears to be, according to British authorities,

Latitude	54° 29′.1 **N.**
Longitude	130° 28′.4 **W.**

SAILING DIRECTIONS

FOR ENTERING BIG BAY.

According to British authority, by keeping the **S.** edge of Swallow Islet in one with a sharp peak which may be distinguished inland **E.** by **N.**, the navigator may enter Big Bay clear of all dangers, and with not less than six fathoms water, anchoring in eleven or twelve fathoms, mud, when South Island bears **W NW.** and the outer edge of Point Trenham **S.** by **W.** ¼ **W.**

FOR CLEARING THE DANGERS AT THE ENTRANCE OF BIG BAY.

Navigators bound **N.** toward Cunningham Passage will clear *Ripple Bank* by keeping the northern end of Burnt-Cliff Island in one with **Mount Griffin, N.** by **E.** ⅓ **E.**, until South Island bears **NE.**, when a due northerly course two and a quarter miles, according to the charts, will carry in clear of all dangers.

* On British Admiralty Chart No. 2430 this bay is called **Pulley Gulf.**

x Sparrowhawk Rock has 12 feet on it at low water with 22 feet rise & fall of tide.

From Burnt-Cliff Island, **NW.** nearly four cables, lies **One-Tree Island,** of small extent and a hundred and fifty feet high, with rocks extending from it a quarter of a mile **N.** by **W.** ½ **W.**, and separated on its southeastern side by only a narrow boat-passage from the foul ground northward from Burnt-Cliff Island.

One-Tree Island forms the southern point of entrance to Cunningham Passage and the western shelter of Pearl Harbor, which opens by two channels toward the passage, one on either side of *a patch of rocks* and islets known as the **Flat-Top Islets,** three in number, of very small extent, the northeasternmost being called Green Mound Islet, and the whole connected into one mass by a congeries of rocks forming a bank four cables long **NE.** by **N.** ½ **N.** and **SW.** by **S.** ½ **S.** and two and a half cables wide. **S SE.** from these islets lies the harbor, protected to the southward and eastward by the rocky platforms extending from the main shore to and around Burnt-Cliff Island. The shores are everywhere foul, but in the basin thus formed, and which has an extent of about half a mile, good holding-ground may be had in ten fathoms, Green Mound Islet bearing **N.** by **W.** ¼ **W.** and One-Tree Island **SW.** by **W.**, with a free swing of about two cables in any direction.

Pearl Harbor.

SAILING DIRECTIONS

FOR ENTERING PEARL HARBOR.

The only advisable channel is that between One-Tree Island and the Flat-Tops. Having followed the preceding directions for clearing *Ripple Bank* by keeping the due north course thereby indicated until the western Flat-Top Islet bears **E.** by **N.**, a **SE.** by **E.** course will carry in clear of all dangers with a least water of ten fathoms.

At the northern termination of the passage between the Flat-Tops and the mainland is an indentation of the main shore, known as **Otter Anchorage,** open to the **W.** and **N NW.**, and affording a contracted anchorage near a beach on the shore of the mainland, where wood is cut for the use of the steamers, &c.

Three cables **NW.** ¾ **N.** from Green Mound Islet, in Cunningham Passage, anchorage may also be had in twenty-five fathoms, hard bottom. From One-Tree Island **N.** by **W.** ¾ **W.** nearly a mile is **Fortune Point,** forming the northern extreme of the southern entrance of Cunningham Passage, low and wooded. The point is surrounded by *rocky ground* extending off shore and drying at low water from one to more than two cables in width. Due south from the point two cables is *Dodd Rock,* rarely covered by water, and which forms the southern buttress of the rocks about Fortune Point, as the latter extend but a very short distance beyond it, when they drop suddenly to five fathoms. Between this and the northern extreme of the rocks about One-Tree Island a passage exists four and a half cables wide **NW.** by **N.** ¼ **N.** and **SE.** by **S.** ¼ **S.**

Dodd Rock.

Nearly in midchannel, however, somewhat westward from a line joining Dodd Rock and One-Tree Island, lies *Sparrowhawk Rock,** a serious danger, bold-to and surrounded by kelp, in ten and twelve fathoms. It lies **SW.** by **W.** ¾ **W.** from Green Mound Islet and **NW.** ¾ **W.** from One-Tree Island.

Sparrowhawk Rock.

Cunningham Passage.

N NE. from it is the southern entrance of Cunningham Passage, which separates Finlayson Island from the mainland. This passage is nearly four miles long in a generally **N NW.** and **S SE.** direction, two and a half cables wide in the clear at its narrowest part, and widens toward the northern entrance to nearly a mile. The depth of water varies from ten to over thirty fathoms, averaging over twenty. The shores are everywhere foul for a short distance off, but a mid-channel course through the passage, except for the *Sparrowhawk Rock* at the southern entrance, is free from dangers. The immediate shores are compact, wooded and but moderately elevated, but on the mainland, toward the interior, eastward, the land rises into high peaks, among which is **Mount Griffin,** a mile and three-quarters **NE.** ¼ **E.** from Fortune Point and over fourteen hundred feet high. **Leading Peak** is **E.** ¾ **N.** from Fortune Point three miles, and twenty-two hundred feet high, while **Basil Lump** is nearly three thousand feet high and a mile and a half **E.** from the last.

Finlayson Island.

The western shore of the passage is formed by Finlayson Island, not fully surveyed, but of ovate shape, about three miles long **NW.** and **SE.** and a mile wide. It rises about two hundred feet above the sea, densely wooded and of rather even contour, with rocky shores. Its northeastern extreme is **Sarah Point,** a mile and one-third **N.** by **W.** ¼ **W.** from Fortune Point, low, bluffy, and from which rocks extend about a cable **N NE.** from the shore.

The northern extreme of Finlayson Island is **Point Gordon,** in about latitude **54° 34′, off which** *rocks and reefs,* marked by kelp, radiate to a distance of nearly two cables.

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*Named from a British gunboat which struck upon it. There is no statement of its depth below the surface on any chart at hand.

SAILING DIRECTIONS

FOR ENTERING OR LEAVING CUNNINGHAM PASSAGE AT ITS SOUTHERN ENTRANCE.

A due **N.** or **S.** course laid to carry **E.** from the *Sparrowhawk Rock*, a little over a cable distant, will carry in or out clear of all dangers. In entering the more frequented passage northward from the *Sparrowhawk*, when Fortune Point, Finlayson Island, is in one with Red Cliff Point on the main shore bearing **NE.**, this course should be maintained until Leading Peak, in one with the northern side of Green Mound Islet, bears **E.** by **N.** ½ **N.**, which course carries into the entrance clear of dangers. This may be maintained until Sarah Point just comes out behind the northeastern angle of Fortune Point, **N.** by **W.** ½ **W.**, when a northerly midchannel course may be safely steered through Cunningham Passage.

In leaving the passage by the same channel a midchannel course between the Flat-Top Islets and Fortune Point may be safely maintained until Leading Peak is in one with the northern side of Green Mound Islet, astern, when a **W.** by **S.** ½ **S.** course carries out all clear.

On account of the more thorough survey which has been made of Cunningham Passage, which is represented in detail on British Admiralty Chart No. 2426, (March, 1872,) most navigators adopt it in preference to passing westward from Finlayson Island.

Birnie Island.

N. ½ **W.** a mile and a half from Point Gordon, the northern end of Finlayson Island, is the southern end of Birnie Island, seven or eight cables long **N.** and **S.**, nearly three cables wide, and rising to a height of more than three hundred feet.

A mile and a third **E.** by **N.** ½ **N.** from Point Gordon lies the northeastern extreme of Cunningham Passage, known as **Village Island**, separated from the mainland only at high water, which covers a low rocky isthmus and for the time converts the point into an island. It is about three cables long **NW.** and **SE.** and one cable wide, rising to fifty feet, and having along its shores numbers of Indian houses of the T'linkit pattern. On its northern point is the observation spot from which most of the positions given on the British Admiralty Charts for this vicinity are computed, and which, according to British Admiralty Chart No. 2426, is situated in

Latitude	**54° 33′ 51″ N.**
Longitude	**130° 26′ 36″ W.**

See more position for 1872-3.

Hankin Reefs.

From the western extreme of Village Island, **SW.** ¼ **W.** about two cables, lie the *Hankin Reefs*, marked by kelp, and of which the westernmost patch has five fathoms close to it and dries six feet at low water. These reefs are about two cables in extent, with a very narrow six-fathom passage between their eastern boundary and the western edge of the rocks off Village Island. Fortune Point shut in **S.** by **E.** ½ **E.** by the eastern edge of Sarah Point leads westward of *Hankin Reefs* in passing through Dodd Passage.

Dodd Passage.

Dodd Passage, between Cunningham Passage and Port Simpson, is bounded by Village Island and *Hankin Reefs* on the **E.** and **SE.** and *Harbor Reefs* on the **NW.** and **W.** It is about a cable and a half in width and half a mile long **NE.** and **SW.**, carrying six or eight fathoms, and is used by the Hudson Bay Company's steamers. The western limits of Dodd Passage are constituted by the *Harbor Reefs*, an extensive patch of rocks and foul ground marked by kelp, and lying almost centrally between Gordon Point, Birnie Island and Village Island, but somewhat nearer the last mentioned. *A patch of rock* just **W NW.** from Dodd Passage is only occasionally covered; others farther westward are dry at low water. **SW.** from these reefs, between their outer limit and Point Gordon, lies the northern entrance to Cunningham Passage, which has a width of a third of a mile in the clear between the kelp on either side. At the outer edge of the kelp, about the northern end of Finlayson Island, the two-fathom curve extends to nearly two cables from the shore, and then the bottom drops rapidly to ten and twenty fathoms.

Harbor Reefs.

Inskip Passage.

NW. by **N.** ½ **N.** from the Harbor Reefs, between them and Birnie Island, lies Inskip Passage, half a mile in width, and deepening in midchannel to nearly thirty fathoms. This is the main entrance to Port Simpson and used by most vessels. Directions for its navigation will be found under those for entering Port Simpson.

Northward from Birnie Island, and lying between it and the mainland, is *Choked Passage*, six cables wide, and so much obstructed by rocks and reefs as to be practically not navigable, unless for small craft and with good local knowledge; although in at least one place a narrow strip of fourteen fathoms water may be carried through.

NW. a mile and a half from the northern end of Birnie Island lies **Parkin Island**, composed of two small high rocks, which is used as a landmark in entering Fort Simpson through the Inskip Passage. About **NE.** ½ **E.** from the southern end of Birnie Island two miles lies **Lizzie Hill**, a conical hill on the mainland, eight hundred and seventy feet high, also affording a landmark for navigators.

Eastward from Birnie Island Port Simpson extends in triangular form, indenting the mainland. The northern shore, extending from Choked Passage in an **E SE.** direction about three miles, is fringed by a rocky beach without off-lying dangers, compact and backed by rapidly rising high land. The southern shore is more irregular and less steep-to, the rocks exposed at low water near the eastern part of the bay, extending off from high water mark nearly a third of a mile in some places. This shore from Village Island has a general trend of **E NE.** for about two miles to the head of the bay. From seaward the port is protected by Birnie Island and the reefs. In most of the protected portion the soundings will average about fifteen fathoms, or over twenty fathoms eastward from Birnie Island and northward from Harbor Reefs.

Port Simpson.

SAILING DIRECTIONS

FOR ENTERING PORT SIMPSON FROM CUNNINGHAM PASSAGE.

I. ***Through Dodd Passage.***—After passing Sarah Point a course which will keep Fortune Point shut in by the eastern edge of Sarah Point astern about **S.** by **E.** ½ **E.** will lead **W.** from the Hankin Reefs. When the vessel is in one with the northern edges of Point Gordon and Village Island bearing, respectively, **W.** by **S.** ¾ **S.** and **E.** by **N.** ¾ **N.**, a **NW.** by **N.** ¼ **N.** course will carry through Dodd Passage into the port clear of dangers. When, on this course, Parkin Island is seen inside Birnie Island bearing about **NW.**, a **SE.** course leads to the anchorage.

II. ***Through Inskip Passage.***—After leaving midchannel abreast of Point Gordon on a **NW.** course, when Lizzie Hill bears **NE.**, a **NE.** course carries in through Inskip Passage clear of all dangers. When Parkin Island **NW.** comes out inside of Birnie Island, a **SE.** course leads to the anchorage.

FOR ENTERING PORT SIMPSON FROM CHATHAM SOUND.

Navigators bound north may pass outside of all the islands, at an average distance from the shores of not less than two and a quarter miles, until up with Finlayson Island, which may be approached, with caution, to a mile. When Lizzie Hill bears **NE.**, a **NE.** course carries in through Inskip Passage, as before mentioned.

Navigators bound south usually pass by the main channel westward and southward from the Pointers, though a commodious passage exists eastward from them.

On approaching Inskip Passage from the northward, when **Ben Hill**, one hundred and thirty feet high, on the southern shore of the port, comes out north of **Bath Point**, bearing about **E.** by **S.**, an **E.** by **S.** course will carry in clear through the Inskip Passage, and at a safe distance from the northern edge of Harbor Reefs. When Parkin Island comes out inside of Birnie Island, as before, a **SE.** course leads to the anchorage.

No attempt should be made to enter the Choked Passage with a vessel unless in charge of a good local pilot.

From Point Gordon three miles **W NW.** lie *The Pointers*, three rocks, of which the southwestern one rises about three feet above high water and the rest are marked by kelp and breakers. There is ten or twelve fathoms quite close to the kelp over a rocky bottom. These rocks constitute a serious danger, but when recognized form a landmark for Port Simpson; the entrance of the main or Inskip Passage bearing from the Pointers **E.** ¼ **N.** three miles.

The Pointers.

Five miles **W SW.** from Point Gordon is the **Connis Rock**, rising fifteen feet above high water and apparently bold-to. Between this and the Pointers is the **Main Passage** from the northwestward into Chatham Sound. It is about three and a quarter miles in width and is of considerable depth, no bottom being reported in one place at one hundred and twenty-eight fathoms.

The passage westward from Connis Rock is known as the Oriflamme Passage, and between the rock and certain islets eastward from Dundas Island has a width of about two miles and a considerable depth of water.

Oriflamme Passage.

The commodious passage between the Pointers and Parkin and Birnie islands, though nearly three miles wide and with plenty of water, has received no special designation.

Having referred to the passages of approach and entrance to Port Simpson, it remains to describe more particularly the anchorage and establishment here situated.

The settlement is situated upon **Fort Simpson Cove**, a small indentation within the low, sandy and rocky Fort Point. It consists of Fort Simpson itself, and of about one hundred houses of the Chim-sy-an Indians, of whom about a thousand reside here. This is the most important trading post in this region. It consists of a quadrangular stockade 200

Fort Simpson.

a. There is gold placer mining up the Skeena River. There is a considerable mining camp at the mouth of the North Skeena passage. H.E.N.

b. Coast Survey station of 1881 was situated see Miss. notes, H.E.N.
H.B.Co have built a fine wharf goofing extending from the gate of shoreline out to 3 fms. low. H.E.N
See Hall. obs of July '82. nichols.

by 160 feet, with bastions at its southeast and northwest angles, within which are situated the dwellings, warehouses and post buildings; and a large garden, fenced in, outside of the stockade, where root crops are successfully cultivated.

The land in the immediate vicinity of the fort is comparatively low, and so are the adjacent islands, but high land exists to the northward. The rocks are regularly stratified, mica schists passing into gneiss and granite, containing garnets, pyrite and quartz veins. Gold is reported to exist in the vicinity, but the statement requires confirmation. Except where cleared, the land is covered with a dense growth of timber and the soil is mossy and wet.

The beach to the eastward of the jetty affords, in consequence of the great range of the tides, good facilities for laying large vessels out for purposes of cleaning or repairs.

The cove, port and immediate approaches are shown on British Admiralty Chart No. 2426, (corrected to March, 1872,) from earlier editions of which it appears that the stockade has been located by English observers* in

Latitude	**54° 33′ 30″ N.**
Longitude	**130° 26′ 11″ W.**

According to British authorities it is **H. W. F. and C.** at 1^h 30^m, springs rising 17 to 22 feet and neaps 14 to 17 feet.

The magnetic variation was reported at **27° 50′ E.** in 1865, with a presumed annual increase of about **2′**, but in the edition of 1872 it is indicated as **27° 10′ E.**

The anchorage is situated **NW.** by **N.** ¼ **N.** from the entrance of the stockade, somewhat over a quarter of a mile, and about a cable length from the three-fathom curve in any direction.

The bottom is sandy and the depth eight or nine fathoms. The situation is well protected from most winds. This is the most northern seaboard port and anchorage on the British Columbian coast and the seat of considerable barter and trade. *

* Observations by the U. S. Coast Survey in 1867, with an assumed latitude of **54° 33′ 35″ N.**, resulted in placing the longitude of the astronomical station at **130° 23′ 36″ W.** of Greenwich. The station was on the west side of the principal gate between the outer fence and the stockade.

* It embraces over four square miles of water from four to twenty fathoms deep, with muddy bottom and good holding ground and free from rocks and shoals. It is easy of access from the sea, having no tidal currents but only rise and fall, well sheltered from all winds except from the west which here seldom blows. The prevailing winds are SW. and NW. from which the harbor is perfectly protected. During seven months (including the winter 1879-80) the highest sea in the harbor was 9 inches, measured on the tide staff in the most exposed part of the harbor. From three months observations the rise and fall of tide was found to be 23 ft at springs and 15 to 16 ft at neaps, very regular and scarcely influenced by winds. I have no hesitation in saying it is one of the best harbors I was ever in. (Report of Capt. J. C. Brundige p. 158)

THE COAST OF ALASKA.

THE COAST AND INLAND WATERS OF THE ALEXANDER ARCHIPELAGO.

I. DIXON ENTRANCE TO CROSS SOUND.

In the present state of knowledge it is impracticable to attempt to do more than give a very brief outline of the hydrographical characteristics of that congeries of straits, inlets, islands, rocks and passages composing the

ALEXANDER ARCHIPELAGO,

which extends northward from latitude 54° 30′ N. through nearly five degrees of latitude and seven of longitude. The information on record is, in nearly all cases, of the most general character. The incomparable Vancouver is still the chief and most trustworthy authority, and for the rest it is necessary to glean from the atlas and memoranda of Tebenkoff and a great number of scattered authorities details in regard to special localities; which details—often recorded by persons not specially qualified for, or interested in, exploration, except so far as it related to their own commercial enterprises—must usually be taken as approximations only.

Conflicting statements, confusion of names, discrepancies between charts and verbal descriptions are so abundant and so perplexing as to render the attempt to harmonize them both difficult and unsatisfying. Hence it is premised that, in all cases where a definite authority is not cited, the information here given is the resultant of an examination of the various authorities whose names will be found in Appendix 1, and for the accuracy of which it is impossible to vouch. It is believed, however, that reference has been made to almost every authority on the subject whose observations are entitled to consideration, and that, however imperfect the result of this inquiry may be, it nevertheless represents fairly the present state of the knowledge of this region.

Another difficulty has arisen which it is not believed could find a solution which would prove universally acceptable. The irregularity of the channels passing through the archipelago is such as to render the order in which they should be taken up difficult to decide. For some reasons it seemed advisable to follow the main lines of commerce from Dixon Entrance to Sitka and Wrangell, and make the rest subsidiary, at the cost of losing all geographical continuity in the description.

It has been decided, however, not to adopt this course, but, while summarizing the commercial routes, to take the various portions of the archipelago in geographical sequence from the south northward, by groups naturally distinguished among the islands, and from the shore of the mainland seaward, or from the east to the west.

The archipelago, as a whole, extends in a generally NW. and SE. direction more than two hundred and fifty miles; the inland waters which may be said to belong to its system extend at least a hundred miles farther. The greatest breadth from the mainland to the ocean, SW. and NE., is about eighty miles. The number of islands included in it is very great; an approximate estimate of those definitely placed on the charts puts it at eleven hundred, which, were all existing rocks and islets enumerated, would doubtless be a very inadequate estimate.

These islands are situated in a series of natural groups formed by the intersecting channels. These groups are again separated into two great groups by the sheet of water extending from the Hazy Islands to the mouth of the Stikine River, a strait which has received the name of **Sumner Strait.*** This passage having but one important curve is the only direct northeasterly channel from the Pacific to the mainland, included in the region between Cross Sound and Dixon Entrance. This region it divides into sub-equal portions.

* In honor of the lamented statesman, to whose endeavors is chiefly due the acquisition of this Territory by the United States.

The groups of islands included in the southern portion, enumerated in the order in which they will be taken up, are as follows:

Islands at the eastern end of Dixon Entrance.
Revillagigedo and associated islands.
Etolin, Zarembo and associated islands.
Prince of Wales and associated islands.

Those groups to the northward of Sumner Strait are—

Mitkoff and associated islands.
Kuprianoff and associated islands.
Kuiu and associated islands.
Baranoff and associated islands.
Admiralty and associated islands.
Chichagoff and associated islands.

The islands to the northward of Sumner Strait have a general trend of **NW.** and **SE.**, while those to the southward of the strait trend more nearly **NW.** by **W.** and **SE.** by **E.**

The topographical features of the archipelago are similar to those of the mainland to the eastward, but less elevated; and its hydrographic characteristics are such as would be developed by a submergence of the lateral ridges of a sharply broken and much elevated system of coast ranges, such as exists from Puget Sound to the Aliaska Peninsula, without important topographical modifications of any kind. Most of the islands are high, the peaks and ridges showing a remarkable uniformity in general altitude. A few peaks rise conspicuously above the rest, but these are marked exceptions. The country is exceedingly rough and broken,—the sharper inclinations, on the whole, facing toward the mainland. The higher summits are sharp, notched, irregular, and showing little if any modification by erosion. The lower summits are more frequently somewhat rounded, but, together with the flanks of the former, are so masked in a dense growth of timber as to conceal most of their characteristic features. Deep and narrow gorges; precipitous cliffs; steep mountain sides, scored by avalanches and land-slips; small level plateaus of accumulated washings from the highlands; occasional districts of moderately low but rolling country,—these are prominent features in the topography.

The snow-line in mid-summer reaches an altitude varying, according to local conditions, from two thousand to five thousand feet. Glaciers are formed in favorable localities, such as are abundantly afforded by narrow gorges of the coast ranges whose walls perennially ward off the sun. Toward the northern part of the archipelago, on the continental shore, where lofty ridges above the snow-line supply the necessary feeders, these ice rivers often attain great size and even reach the water side. In most cases, for several thousand feet of elevation, they force their way between densely wooded hillsides. Others fail at a considerable altitude and manifest themselves in glacial torrents, frequently forming cascades of great beauty. The proximity of such streams is invariably indicated by the milky stratum which covers the denser sea-water sometimes for miles from the embouchure. This condition of a stream of fresh water may be taken as unfailing evidence that it somewhere receives the discharge from a glacier.

In the islands of the archipelago, however, the land does not usually reach a sufficient altitude to retain snow throughout the year, and, except on the higher peaks, the entire absence of snow forms a remarkable feature of the summer landscape. From the great amount of rain-fall at certain seasons fresh water is readily obtainable in all parts of the archipelago, and nowhere does there seem to be any difficulty in procuring wood for fuel, timber suitable for spars or for most purposes of construction or repairs.

The hydrographical characteristics form a parallel to the topographical features above mentioned. The continuation of the steep inclines and narrow gorges below the sea level has resulted in that unrivaled system of narrow straits with deep soundings which characterizes the northwest coast of America from Puget Sound to Cape Spencer. To many of these contracted passages the term "canal," employed by Vancouver, is eminently applicable. Again, the rugged nature of the ridges and peaks, and the singular absence of plains or extensive plateaus, is paralleled by the numerous rocks and reefs surrounded by deep water, and the total absence of extensive shoals except at the mouths of streams or rivers fed by glaciers.

DIXON ENTRANCE.

The Alexander and Columbian archipelagos are separated from each other by the broad sheet of water known as Dixon Entrance, a name which has now obtained almost universal acceptance. The name Dixon's Straits was applied to Dixon Entrance and Hecate Strait, collectively, by Dixon himself in 1787, and about the same time, to the same bodies of water, Meares gave the name of Douglas Entrance, and to the northeastern portion the title of Buccleugh Sound.*

* Spelled **Bucclugh** on his charts. The former had, however, been named previously by Bodega, who, in 1775, called it **Perez Inlet**, after Juan Perez, the original discoverer. It has also been termed **Dixon Sound**. On some Russian charts it has received the name of **Granitza** (Boundary) **Strait**, and it is called **Ky-gah-ni Strait** by Tebenkoff.

Dixon Entrance lies between latitude 54° 0′ and 54° 45′ N. and longitude 130° 30′ and 133° 0′ W.,—its limits being on the one hand the northern terminations of Queen Charlotte Islands and the Dundas Group, and on the other the southern extremities and shores of the Alexander Archipelago and a small portion of the mainland. Its western extremes may be said to be Cape Knox on the south, and, on the north, the headland projecting southeastward from Port Bazan.

From the northern part of the entrance lead several bays, straits and sounds, while from the eastern portion extend Hecate Strait, Chatham Sound and the Portland Canal.

The waters of the entrance are for the most part clear and free from dangers, but some rocks of doubtful position have been reported in its northern part. A brief description of the southern portion is in place here.

Cape Knox.

The **NW.** extreme of Graham Island of the Queen Charlotte group is Cape Knox, which on later charts is represented as a somewhat prominent cape extending to the westward of a line drawn from Point North to Point Frederick, (**S. 14° E.**, according to Vancouver,) but according to the charts of Dixon, Vancouver, Marchand and Dawson, the extremity of the cape would fall within this line. The cape is low, with a bold rocky coast and a small islet or dry rock **W.** two and a half miles from it. Between this rock and the cape a continuous reef or bar of foul ground is indicated by English authorities, and extends in the same direction about half a mile beyond the islet. On British Admiralty Chart No. 2168 a sketch of the adjacent waters (under the name of **Parry Passage**) is given, on which the geographical position of Cape Knox is stated to be

Latitude	54° 15′ N.
Longitude	133° 03′ W.

Upon advance proof sheets of Dr. George M. Dawson's new chart of the Queen Charlotte Islands (furnished with great liberality by the Geological Survey of the Dominion of Canada, under whose auspices it will shortly appear) a different representation of Cape Knox is given, though upon a very small scale. It is there represented as a bold, somewhat elevated, narrow and sinuous point extending about a mile and three-quarters from a bit of low ground at the **NW.** extreme of Graham Island, and in a nearly **SW.** by **W.** ½ **W.** direction. From its extremity in a generally **SW.** direction four miles extend three dry rocks or pillars. No shoal is represented about or between them, and they are indicated about a mile and a third from each other, as is the nearest one from the point of the cape. The extremity of the cape is placed in about

Latitude	54° 10′.8 N.
Longitude	132° 58′.0 W.

The cape, from the topography thus indicated, must appear from some points of view like an island. The bight to the southward of it appears to have rocky shores, and has been named on Dr. Dawson's map **Lepas Bay.**

Point North.

According to Dawson's sketch **N.** by **W.** ¾ **W.**, four and a half miles from Cape Knox, lies Point North, named by Vancouver,* practically the southern headland of Dixon Entrance. Its geographical position is

Latitude	54° 15′ N.
Longitude	132° 56′.5 W.,

according to Dawson, while Tebenkoff places it 12′ farther to the westward. There are some rocks and a small islet close to it, but apparently no outlying dangers. It is moderately low and forms the northwestern extreme of North Island, named by Dixon.† It is about five miles long **W NW.** and **E SE.** and nearly two and a half miles broad. The land is moderately low and covered with a somewhat scattering growth of trees.

North Island.

Cloak Bay and Cox Strait.

Between the southern shore of this island and the northern shore of Graham Island lie Cloak Bay and Cox Strait.‡ In 1791 this was entered by Marchand in the *Solide*, and Captain Chanal of this party prepared a sketch of the passage which, though differing in many details from Dawson's chart, appears to have better claims to consideration than the plan given on British Admiralty Chart No. 2168, under the name of Parry Passage, which is evidently a mere rough sketch.

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* The **Breakers' Point** of La Perouse, and **Cabo de St. Margarita** of Perez in 1774.

† Afterward, by Caamano and Vancouver, called **Langara Island**, a name retained on many charts.

‡ This bay was discovered and named by Dixon in 1787, and the passage connecting it with Dixon Entrance to the eastward was discovered and named **Cox's Channel** by Douglas two years afterwards. Many years later the whole was named **Parry Passage** by some English navigators.

X ℰ Н.Е.Х.

Cloak Bay is about three miles long **E.** and **W.** and two and a half miles wide. It is protected from all except westerly winds. Cape Knox forms the southern headland of the entrance, from which **Lacy Islet**, the northern headland according to Dawson, bears about **NW.** by **N.** ½ **N.** three miles. There are from thirty to seventeen fathoms in the middle of the bay over a bottom of sand, gravel and shells. In the **NE.** angle of the bay is a small island, behind which a cove with a gravel beach exists, convenient for a boat harbor. Some rocks are indicated near the northern shore of the bay.

At the **SE.** angle is the entrance to Cox Strait,* three-quarters of a mile wide, but contracted to less than three cables by a reef or bank which makes off to the **N NW.** from a point on the southern side of the entrance. In the narrowest part, however, the soundings range from thirty-two to forty fathoms over a bottom of hard sand and shells. The northern shore of the passage is bold-to. The strait is less than two miles in length **E.** and **W.**, and varies from one mile to half a mile in breadth.

It is separated into two arms by **Lucy Island**, somewhat less than two-thirds of a mile long and one-third of a mile broad. The northern arm is not much over a cable wide; the southern or main channel is more than half a mile wide. The soundings in the main passage are thirty fathoms, with a rocky bottom. The shores, except in the narrow western entrance, seem to be clear of dangers. The northern arm, while extremely narrow, is still further obstructed by *foul ground* making off to the northward and eastward from the eastern shore of Lucy Island less than half a mile, and a similar bank from the opposite shore of North Island. There is, however, a narrow channel, having four to six fathoms, over hard bottom, at the eastern end, and this increases to fifteen fathoms in the western part of the arm.

A small islet lies about a mile to the eastward from the eastern entrance of this arm, and *a rock awash* is reported **NE.** two miles and a quarter from the same locality, and about a mile and a quarter from the southern shore of North Island.

About **S SE.** from the **SE.** end of Lucy Island a cove, possibly **Puerto Florida Blanca** of Spanish authors,† is indicated on the Graham Island shore under the name of **Bruin Bay**, with anchorage in ten or twelve fathoms a third of a mile from the shore. To the **N.** and **W.** of the **NW.** end of Lucy Island, half a mile, is a cove, which is probably the **Beal Harbor** of Douglas, where he reports having anchored in nineteen fathoms half a cable from the shore, and completely land-locked. A stream falls into this cove.

Douglas found no bottom with eighty fathoms of line in midchannel at the eastern entrance of the main passage, but near the shore of Lucy Island he found twenty and thirty fathoms.

TIDES.

The tide runs very strongly through the strait.

According to Douglas and Marchand it is **H. W. F.** and **C.** about $12^h\ 20^m$ **a. m.**,—spring tides rising sixteen feet, neaps ten feet. The currents follow the direction of the shores,—the flood coming from the westward and the streams running about six hours. Douglas reports the night tides as rising two feet higher than those of the day.

The best locality for anchoring is the middle of Cloak Bay, in seventeen fathoms. Should a westerly gale arise, a lee may be found in Cox Strait; but the bay is fully protected from all other winds. The chief objection to the anchorage seems to be the absence of any very good holding-ground and the excessive depth of water.

Tebenkoff gives the longitude of the entrance to Cloak Bay as **133° 9′ W.** A comparison of other authorities would place the entrance in

Latitude	**54° 16′ N.**
Longitude	**133° 02′ W.**

or, according to Dawson, in

Latitude	**54° 12′ N.**
Longitude	**132° 58′ W.**

There is considerable population in this vicinity, and several authors speak of remarkable wooden carvings of great size on the North Island shore, or attached to the winter dwellings of the natives. Birds, whales, salmon and other fish and shell-fish are reported as very abundant.

From the eastern entrance to Cox Strait the trend of the shore is about **E.** two miles and a half to a small point, near which is a rocky column called **The Pillar**; in its vicinity are other visible rocks near the shore, and the space between the visible rocks at the eastern extreme of Bruin Bay and The Pillar is called **Pillar Bay**, though the indentation of the shore is slight.

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* Named **Cox's Channel** by Douglas in 1789, and **Canal de Florida Blanca** by the Spaniards in 1792.

† The identification of names applied by the Spaniards in this region is very difficult since the maps, resulting from the somewhat detailed surveys of Galiano and Valdes in 1791 and 1792, were never published. Only a general sketch of the coast-line was issued by the Spanish Government.

East from The Pillar, three and a half miles, is the mouth of **Jalun River**, with some visible rocks close to the shore, on each side of it. Thence the trend is about **NE.** by **E.** five and a half miles to Klaskwun Point, which is backed by a rounded hill, and off which, in a **N NE.** direction, **Shag Rock**, dry and elevated, lies at a distance of half a mile. East from Klaskwun Point is a small bight with rocks near its shores. On this is situated the Yatsa Indian village. A small stream comes in here.

Virago Sound.

The shore hence trends nearly due **E.**, and is fringed with rocks close in, mostly visible. These are particularly numerous and large, forming islets along the coast at a distance from the village of some two and a half miles, where **Point Naden** is formed by the shore changing its trend to the **SE.** At a distance (according to Dawson) of two and a half miles from Point Naden is Point Jorey, the western point of entrance of Virago Sound.

This was examined by Inskip in 1853, whose sketch is given on British Admiralty Chart No. 2168.* The general direction of the sound is nearly **N.** and **S.** The outer portion † is about three and a third miles long, funnel-shaped, with its greatest width at the entrance—about three miles. The shores are low and densely wooded.

Trincomalee Harbor.

From the head a narrow passage leads into an interior basin called Trincomalee Harbor;‡ which receives several streams and has a depth of ten fathoms, shoaling to sandy shores. The soundings recorded show that the sound shoals from ten fathoms at the entrance to three or four fathoms a mile northward from the head. The eastern headland is **Cape Endensaw**, from which, according to Inskip, **S.** by **W.** ½ **W.**‖ three miles is *a shoal patch* with two and a half fathoms on it and eight fathoms immediately **NW.** from it. To the southward there is deeper water, and the passage contracts to two-thirds and then to one-third of a mile, the western half of which is occupied by foul ground. At the most contracted part, formed by Point Mary on the west and Point George on the east, are two Indian villages.

The shores of the sound are bordered by shoals, except between points Inskip and George, and a channel carrying not less than seven fathoms close along the western shore leads **S.** by **E.** from Point Mary. It is stated on Inskip's sketch that the geographical position of Cape Edensaw is

Latitude	**54° 04′ N.**
Longitude	**132° 14′ W.,**

but according to Dawson it is

Latitude	**54° 04′.5 N.**
Longitude	**132° 23′.0 W.**

The anchorage is about two miles in a southwesterly direction from Cape Edensaw, in six fathoms, off Point Jorey, which bears about west a mile from the anchorage, with several islets about it.

Masset Harbor.

From Cape Edensaw the general trend of the land is **NE.** by **E.** four miles, when it rounds to the eastward and southeastward for three miles, bordered by islets, one of which was named by Dawson Striae Islet, to an opening known as Masset Harbor, or Port Estrada of early Spanish navigators, mapped by Dawson under the name of Masset Sound, where anchorage is reported. This entrance, even more than the last, is obstructed by *bars and shoals*, while deeper water is to be found within. It forms a lee for winds from **SE.** round by **S.** to **NW.**, and has three to six fathoms outside and three fathoms on the bars, while just within the bars as much as ten fathoms is reported **SW.** by **S.** from the eastern point of entrance, on which are several Indian villages. No use can with safety be made of this entrance without local knowledge or a pilot.

This arm presents in its development, as indicated by Dawson, one of the most extraordinary of the many fiords of this region. From the entrance a channel, known as **Masset Inlet**, averaging about a mile and a quarter in width and ten or twelve fathoms in depth, extends to the southeastward and southward twenty miles, when it expands into a broad sheet of water about six miles **NW.** and **SE.** by fourteen miles **SW.** by **W.** and **NE.** by **E.**, with numerous arms and fed by numerous streams, several of which are supposed to drain large lakes. Hills rising to fifteen hundred feet are found southward from the basin, while eastward from the inlet, as a whole, the country between it and Hecate Strait is described by Dawson as low, level and densely wooded.

A very crude sketch of Masset Harbor is given on British Admiralty Chart No. 2168, where the shores are represented as low and thickly wooded, everywhere bordered by shoals extending off from a mile to a quarter of a mile on the west, and to nearly two miles northward from the shore eastward from the opening.

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* It is the **Port Mazarredo** of Spanish navigators, who, however, did not survey it; and probably **M'Intire's Bay** of Meares. The Spanish name is sometimes spelled **Mazaredo**, and was given in honor of Don Joseph de Mazarredo, of the Spanish Navy.

† To an indentation on the western shore of this outer part of the sound the name **Hussan Bay** has been applied. It appears to be full of rocks.

‡ Subsequently named **Naden Harbor** on Dawson's Chart. On some charts **Naden Point** of Dawson is called **Cape Nadon.**

‖ **SW.** ¾ **S.** according to Dawson.

a. Note Russian chart of 1849.
(?) There is a small islet 3 or miles to ~~southward~~ northward and eastward of Fayas H. H.E.N.
Perhaps a floating tree enlarged by mirage H.E.N. 83

The whole northern coast of Graham Island is very slightly known, and the indications of the charts must be taken as merely approximate. From the entrance of Masset Inlet the coast forms a pretty even curve (without marked indentations) of which the chord trends about **SW.** $\frac{3}{4}$ **S.** and **NE.** $\frac{3}{4}$ **N.**

NE. $\frac{3}{4}$ **N.** about twenty-two miles from the eastern headland of Masset Harbor lies **Invisible Point.***

This point has a general **N.** by **W.** direction. About nine miles **S.** by **W.** from the northern end of the point is **Nagdon Hill**, a small bluff elevation, (the Tow Hill of Dawson,) which is stated to appear from a distance as an island, the land connecting it to the southward with Graham Island as well as the northern portion of the point being more low and wooded. The configuration of the shores is very differently represented on different charts, of which Dawson's is the most trustworthy. According to Russian and English authorities there would appear to be anchorage to the southeast of the point, with off-shore winds; but Dawson's chart would not favor this view.

The latitude of the end of the point, as given by different authorities, varies five or six miles. According to British Admiralty Chart No. 1923 A, (corrected to December, 1874,) its geographical position is

Latitude	**54° 13′ N.**
Longitude	**131° 36′ W.**

but, according to Dawson, it is

Latitude	**54° 10′.5 N.**
Longitude	**131° 37′.5 W.**

and it should bear, in the latter case, **E NE.** forty-seven and a half miles from North Point of North or Langara Island.

From Invisible Point, according to the last-mentioned authority, Rose Spit (the Point Rose of Meares) curves in a generally **N.** by **E.** direction nearly two miles, with an average width of less than a mile; but older charts represent it as trending more to the northward, especially Tebenkoff, according to whom its direction is **NW.** by **N.** $\frac{1}{2}$ **N.** This is, however, probably wrong. Douglas states that when in the vicinity of the north point of the peninsula he saw a "sandy spit level with the water which ran to the northward as far as the eye could reach from the masthead." It would appear that the spit is a low sand-bar without vegetation, and, in its doubtful position, constitutes a serious danger.

Rose Spit.

H.O. Chart 10 miles out in longitude 4 m.

In regard to the region to the **N NE.** of this spit irreconcilable differences appear between the charts constructed by or agreeing with those of Vancouver and the later charts of the British Admiralty. These differences relate to the latitudes of those points of land bordering on that arm of Dixon Entrance which stretches toward the mouth of Portland Canal. The discrepancy is especially marked at the northern edge of the Dundas Islands, Cape Fox, Point Wales and vicinity; on the average it amounts to about five miles in latitude. In this and other cases of discrepancy, when no definite authority of later date is assigned for the changes, Vancouver's bearings and latitudes will be assumed as the least unsatisfactory. The changes referred to are introduced on the earlier editions of British Admiralty Chart No. 1923 A,† and were adopted on Chart No. 225, U. S. Hydrographic Office, to which subsequently a fly-leaf with other changes was attached, but in such a manner and on so small a scale as to serve but little to clear up the discrepancies.

According to Vancouver the northwestern edge of the Dundas Islands (of which the smaller western one was named Isla de Zayas by Caamano) bears about **N.** (or **N.** by **E.** from Dawson's position) twenty-five miles from Rose Spit. Very little is known of their form and extent, and the positions assigned to them are extremely discrepant on different charts.

Dundas Islands.

of Brandyce

Thence the general direction is about **NE.** by **E.** $\frac{1}{4}$ **E.** twenty miles to Point Maskelyne, named by Vancouver in 1793. This point appears to be but moderately high and wooded, and is formed by an island of small extent. From it **SW.** by **S.** $\frac{3}{4}$ **S.** four miles lie the Pointers, and **SW.** by **S.** $\frac{1}{2}$ **S.** seven and a half miles lies Connis Rock, in Chatham Sound. Immediately off the point "lie two rocky islets, and to the south of it a small island (probably Parkin Island) close to the shore."‡

Point Maskelyne.

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* The **Punta Ymbisible** of Caamano and Vancouver. The name of **Point Rose** was applied by Meares to the low sandy spit which makes off from the point, and not to the point itself. In his transcript of the Iphigenia's log the latter appears as **Point Ross.** It has also been called **Rose Spit Point, Nai-Koon** and **Masset Spit,** by English authorities.

† The edition corrected to December, 1874, agrees more nearly with Vancouver.

‡ Vancouver, vol. ii, page 327. On the original edition of British Admiralty Chart No. 1923A the name Point Maskelyne was erroneously transferred to another point over two miles farther to the north and east, but is omitted on the new edition and restored on No. 2431, (corrected to 1869,) but misspelled **Maskeylene.**

The geographical position of the point, placed by Vancouver in latitude 54° 42½′ N., is, according to British Admiralty Chart No. 1923 A,

Latitude	54° 38′.7 N.
Longitude	130° 27′ W.

From hence **Point Wales**, named by Vancouver, lies **W.** by **N.** ¾ **N.** three and a half miles. Westward from it, less than a mile, lies a small island. The name is differently applied on different English charts. The land of which Point Wales forms a projection is also an island, and has been termed Wales Island.

PORTLAND CANAL.

Point Wales forms the western headland of Portland Canal or Channel, whose opposite headland is formed by Point Maskelyne. It was named by Vancouver, who says: "The distance from its entrance to its source is about seventy miles, which, in honor of the noble family of Bentinck, I named **Portland's Canal.**" The entrance of this extensive inlet is not more than two and a half miles across, (according to Pender more than three,) from whence it trends **N. 7° E.** twenty miles, where it is separated by **Point Ramsden** into two principal branches,—that to the eastward having been named by Vancouver **Observatory Inlet.** From this point the canal trends **N. 51° W.** seven miles, then **N. 2° E.** thirteen miles, **N. 48° W.** thirteen miles, **N. 35° W.** ten miles, and finally **N. 1° W.** nine miles, terminating, according to Vancouver,* in

Portland Inlet.

Latitude	55° 45′ N.
Longitude	129° 54′ W.

The total length on the above courses, taken from the chart of Vancouver, aggregates seventy-two miles. Pender's chart would extend this to eighty-one miles,—the differences all northward of Point Ramsden. To the southward of Point Ramsden its width averages three miles; to the northward of that point it is but little over a mile, with more than forty fathoms water throughout its entire length.

The broader portion on modern charts is often denominated **Portland Inlet,** the name of Portland Canal being then restricted to that part of it of contracted width which lies to the westward of Observatory Inlet.

The midchannel line of this great arm of the sea forms the southeastern boundary between the British and American possessions, or British Columbia and Alaska Territory.

Directly to the eastward of Point Maskelyne the Work Channel, a nearly straight arm, stretches thirty miles to the southeastward, its head reaching within a mile of Port Essington, and forming, by the portion between this arm and Chatham Sound, the Chim-sy-an Peninsula, previously referred to.

Work Channel.

Within a distance of fifteen miles from Point Maskelyne, on the eastern shore of the canal, are three islands of considerable size, which have, respectively, received the names of **Compton, Truro** and **Somerville** islands. The largest and most northerly of these is the last mentioned. It is separated from the mainland by a channel about a mile wide, named **Steamer Passage,** into which debouches an arm extending to the south and east for a distance of some twelve miles.† Somerville Island is eight or nine miles long and two or three wide. To the westward of its southern part Vancouver found anchorage in thirty-five fathoms, muddy bottom. On the shores of Truro and Somerville islands, adjacent to this anchorage, Vancouver lays down *some rocks.* The form, relative size and position of these islands are so differently represented on different charts as to render a specific description inadvisable until additional material is received.

Somerville Island.

Steamer Passage is reported to have from twenty-eight to forty or more fathoms water throughout its extent. To the northward, from the northern end of Somerville Island, a branch, called **Nasoka Gulf,**‡ extends to the northward for five miles nearly parallel with the trend of the main inlet, from which it is separated by the Mylor Peninsula, one or two miles wide.

On the other side of Portland Inlet the apparent shore is also formed by islands. Northward from Wales Island lies a long island separated from the main shore by a branch trending in a nearly

* According to Pender's survey of 1868, in latitude 55° 56′ N. and longitude 130° 5′ W.,—a discrepancy too great to be adopted in ignorance of the means by which the later results were obtained.

† This arm is called **Khutzeymateen Inlet** on British Admiralty Chart No. 2431, corrected to October, 1869.

‡ So it stands on the fly-leaf attached to the original edition of British Admiralty Chart No. 2431. On the late edition (corrections to October, 1869) it is spelled **Nasoga Gulf,** and this form appears upon U. S. Hydrographic Chart No. 225. The form **Nasoka,** taken from Tebenkoff (Chart IX), however, is prior, and is probably correct, since numerous recognizable mistakes in spelling appear on the fly-leaf attached to the last edition of British Admiralty Chart No. 2431, such as **Yongas** for **Tongas, Conis** for **Connis, Maskeylene** for **Maskelyne,** etc.

north direction, and continuous with the upper main branch of the inlet, or Portland Canal. This island, whose actual dimensions are not determined, extends about fourteen miles to the northward from a point within a few miles of Wales Island, and reaches to the west of and somewhat more northerly than **Point Ramsden**. The latter divides that portion of the inlet called Portland Canal from the branch named by Vancouver Observatory Inlet. This point seems to be tolerably bluff and high, wooded, and forming the termination of one of those small ranges characteristic of the topography of this region. To the **S SE.** from the point a short distance are some *dangerous rocks*, visible only at low water, and immediately outside of them one hundred and twenty-six fathoms are reported.

Observatory Inlet:

Naas Bay. To the eastward from Point Ramsden, across the entrance of Observatory Inlet about three miles, lies the entrance to Naas Bay, a small inlet with one branch to the southward and receiving from the northeast the **Naas River.***

The bay extends inland nearly east from the entrance, with a width of about a mile and a half for three miles, when it forms two arms,—one extending **S SW.** three miles under the name of **Iceberg Bay**, the other, at first trending **N NE.** and afterward to the northward and eastward, is entirely occupied by the bed of the Naas River and numerous tidal flats. Its length to the head of boat navigation is about fifteen miles.

The northern headland of the entrance of Naas Bay is known as **North Point**, low but bold-to, from which the land rises gradually to mountains to the **NE.** which attain a height of thirty-three hundred feet. From the point the shore trends in an easterly direction a mile and three-quarters to the opening of a narrow valley containing a small stream, on the low land near the mouth of which is situated an English missionary station known as the **Kincolith Mission.** About two miles **E. ½ S.** from North Point, on the shore of this low land, is situated the astronomical station of the English observers. For about a mile from North Point the shore is bold-to, and then the edges of the shoals, banks and bar of the river trend **SE. ½ E.** toward **Double Islet Point** on the opposite shore.

From **Low Point**, the southern headland of the entrance,—from the north side of which a bank extends a cable to the northward,—the shore trends nearly **E.** a little over two miles to Double Islet Point, bold-to all the way. The land rises rapidly from this shore to the height of two thousand feet. In the middle of the bay forty-five fathoms, sandy bottom, are reported. The anchorage is laid down in about ten fathoms, with the mission bearing **N.** by **E.** three-quarters of a mile. About **N.** by **E.** from Double Islet Point, somewhat over a mile and a half, is a rounded high point named **Fort Point.**

SAILING DIRECTIONS

FOR NAAS BAY.

The leading course for the anchorage is to keep Fort Point open from the high land called Leading Point, south of the river, to the eastward, **NE.** by **E. ½ E.**, until the mission bears **N.** by **E.**, when anchorage is had less than two cables from the edge of the bank.

A better anchorage can be obtained in Iceberg Bay by following the southern shore and rounding Double Islet Point within two cables, when anchorage may be had **SE.** by **E. ½ E.** from the point three-quarters of a mile, with the Mud Islands bearing from **NE.** to **NE.** by **E. ½ E.** These two islands are over a hundred feet high and situated on the mud-flat northeast of the bay. The anchorage is in about ten fathoms, with deeper water to the southward and westward farther up the bay. The shores of the bay are mostly bold-to and rise rapidly from the water except at its head, where there is a flat, steep-to, with low land behind it. It is perfectly land-locked, and, except for the narrowness of the entrance, affords an excellent harbor.

This bay and vicinity is represented on British Admiralty Chart No. 2190, (to October, 1872,) from which it appears that the geographical position of the astronomical station near Kincolith Mission is

Latitude ..... **54° 59′ 26″ N.**
Longitude ..... **129° 57′ 36″ W.**

The variation of the compass in 1872 was **27° 25′ E.**, with a presumed annual increase of **2′**.

TIDES.

It was **H. W. F.** and **C.** in August at $1^h\ 05^m$, the streams running two or three knots; rising with a full moon seventeen feet and with a new moon twenty-three feet. The bay, especially near the bar, appears to be disturbed by ripples at certain stages of the tide, which would make it an uneasy anchorage.

* The name has been written **Nass, Nasse,** &c., but it is probable that the double "a" more nearly represents the broad sound of the original word. Naas Bay, by some singular oversight, is represented on British Admiralty Chart Nos. 2430 and 2431 under the name of **Salmon Cove**, though the cove so named by Vancouver was placed by him much nearer the head of Observatory Inlet. This error is corrected on the last edition of 2431.

The depth of water on the bar of the **Naas River** at low water appears to average about two fathoms. In the vicinity of Fort Point as much as five fathoms is reported. Above that in the river it is quite variable, but navigable for canoes and light-draft boats about sixteen miles, to the Naas villages, where a Hudson Bay Company's trading-post is situated. At these villages, called **Kit-lak-a-laks**, an enormous number of fish * are taken in the spring.

Observations on the river bank, near the middle village, **NE. ¾ N.**, a mile and three cables from the trading-post, give as the geographical position

Latitude	55° 03′ 54″ N.
Longitude	129° 31′ 54″ W.

The river is over one hundred miles in length, but much broken by cañons and cascades. Its headwaters approach very closely to those of the Stikine River. A sketch of the lower portion, as far as the villages, accompanies the British Admiralty Chart No. 2190.

The northern headland of Naas Bay borders on the waters of Observatory Inlet, which extends hence to the northward, with no important curves or indentations and a general width of somewhat more than a mile, about sixteen miles, at which distance on the western shore a small indentation exists, into which a stream falls. This is Salmon Cove of Vancouver, a locality chosen by him for a long and careful series of astronomical observations for the purpose of correcting previous work of the same kind. This afforded good anchorage in thirty-one to thirty-five fathoms, mud and gravel, with every other convenience which they required. From the anchorage the points of the cove bore **N NE.** and **S. by E.**; the nearest shore **W. by S.** a cable and a half distant, and the opposite shore of the inlet **E NE.**, distant one mile. The appearance of the country about the cove was moderately low, rather broken, and densely wooded. A fine run of fresh water, containing salmon in great abundance, flowed into the cove.

Salmon Cove.

The geographical position according to Vancouver's text is

Latitude	55° 15′ 34″ N.
Longitude †	129° 43′ 30″ W.,

the latitude depending upon twelve meridian altitudes of the sun and one of a star, and the longitude being the mean of 346 sets of lunar distances, each set consisting of 6 observations, in all 2076 observations.

The variation of the compass (August, 1793) was determined as **25° 18′ E.**, and the dip **75° 54′.5.**

The average range of the tide was about sixteen feet, and it was high water at $1^h\ 3^m$ after the moon's passage over the meridian.

About a mile beyond the cove the width of the inlet becomes much increased, and for seven miles is more than double that of the portion just described. Two long and very narrow islands named **Brooke Island** and **Larcom Island** by Pender are found in this part of the inlet, with some rocks about them, and on the western shore are some small indentations where Vancouver observed *sunken rocks* in some localities. From this point the inlet divides into two branches each about a mile in width, and terminating in a small belt of low land, behind which the country resumes its broken character, while in the interior lofty and barren snow-clad mountains were observed.

The eastern branch, termed **Alice Arm** on some charts, trends, according to Vancouver, in a generally **NE.** by **N.** direction ten miles, (about fourteen by Pender's chart,) terminating in

Latitude	55° 26′ N.
Longitude	129° 24′ W.,

(or latitude **55° 29′** and longitude **129° 20′** on Pender's chart.)

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* The **Ulikon** or candle fish is the most important species, and the fishery is in operation in March and April. These fishes contain more fatty matter in proportion to their size than any other known fish, and the incredible multitudes in which they appear have been noted by many of the authors who have treated of this region.

† Pender's survey locates Salmon Cove in longitude 129° 51′ 45″ W., but whether this is the result of astronomical determinations or dead reckoning, and if the former, of what character, we have no means of deciding.

From the results published in Vancouver, vol. ii, pages 375–6, the approximate value of this longitude determination may be made out.

Combining together by weights the longitudes resulting from measures of the moon's distance from the sun, when the sun is *east* and *west* respectively from the moon, and computing the probable errors in the usual way, we obtain

☉ E. of ☾	Longitude 129° 54′.9 ± 0′.9
☉ W. of ☾	Longitude 129° 34′.0 ± 2′.1
Mean	Longitude 129° 44′.4 ± 2′.3

The difference between these two results far exceeds the probable error of observation, and is therefore due to some constant, probably instrumental, error. If this is the case the resulting mean is free from the constant error, and we may, therefore, safely conclude that the longitude of Salmon Cove is 129° 44′ W., with an uncertainty of 3′ or 4′.

The other arm, sometimes known as Hastings Arm, extends about **NW. ¾ N.** about ten miles, (sixteen according to Pender,) terminating, according to Vancouver, in

Latitude ..... **55° 32′ N.**
Longitude ..... **129° 44′ W.,**

(or latitude **55° 39′** and longitude **129° 48′**, by Pender's chart.)

When approaching Point Ramsden, Vancouver was in doubt as to which of the two arms was the main branch of the inlet; but after his exploration it became evident that the western prolongation of the inlet is entitled to that precedence, both on account of its greater freedom from obstructions and from its length. To this portion only is now generally applied the name of Portland Canal. Three miles **NW.** by **W.** from its entrance on the western shore is a low point, denominated Tree Point on some of the charts. Behind this point the canal communicates with another, having a **S SW.** and **N NE.** direction, with a width of a mile and a half. This channel separates Pearse and other islands from the mainland.

Portland Canal.

Vancouver says, in regard to the canal, "the shores of this inlet were nearly straight and in general little more than a mile asunder, composed mostly of high rocky cliffs, covered with pine trees to a considerable height, but the more interior country was a compact body of high, barren mountains covered with snow, (July, 1793.) As we pursued this branch salmon in great plenty were leaping in all directions; seals and sea otters were also seen in great numbers, even where the water was nearly fresh, and which was the case upwards of twenty miles from its termination." This termination, according to Vancouver, is in "low, marshy land," the latitude being **55° 45′ N.** and the longitude **129° 54′ W.***

The only obstructions in this extensive sheet of water are some rocks near shore about Tree Point; an islet, with rocks close to it, about three miles to the northwestward from Tree Point; an islet near the eastern shore, about nineteen miles from the entrance, and another about seventeen miles farther up the canal, both very small.

The channel behind Pearse Island, as examined by Vancouver, appears to contract gradually to the southward, reaching nearly to the **N.** extreme of Wales Island, and communicating there with a labyrinth of narrow channels obstructed by great numbers of rocks and islets, and extending north of Wales Island between Pearse Island and Cape Fox. It would be at present inadvisable to attempt any description of this knot of intricate passages, which offer, so far as is known, no inducements nor any facilities for navigation.

About six miles to the westward of Point Wales lies a group of small islands, intersected by two small straits forming four passages; one leading eastward from the intersection into the labyrinth of channels connecting with Portland Inlet; one to the **NW.**; the most important to the westward toward Dixon Entrance, and the fourth and narrowest passage to the **SE.**

Among the first anchorages to be met with in the southeastern part of Alaska is that included between a peninsula of the mainland and the above-mentioned islands, and known as Tlekhonsiti Harbor.† This locality had a temporary importance owing to the establishment, in 1867, of the U. S. **Fort Tongass,**‡ which necessitated the visit there of several large transports with supplies for the garrison. A sketch of this locality, from merely approximate data, was published in 1869 by the U. S. Coast Survey.§

Tlekhonsiti Harbor.

The material at hand in regard to this locality shows several discrepancies, and hence it can be but approximately described. Fort Tongass was erected on the arm stretching to the northwestward from the intersection of the four passages above mentioned, and on the island forming its southern shore. The best channel for reaching the fort has been indicated as that passing through the **NE.** and **NW.** arms. The narrow southeastern arm has been termed Lincoln Channel; the broad southwestern arm, the harbor proper. The northeastern arm varies in width from three-eighths to three-quarters of a mile, and is about two and a quarter miles in length. There is *a rock* close to the northern headland of each entrance. No soundings in it are recorded.

Lincoln Channel is very narrow and further obstructed by islands. It is about three miles long and three cables wide. At the southeastern entrance anchorage is indicated off a small beach, in twenty-four fathoms, gravel. Hence the soundings are twenty, twenty-four and eighteen fathoms to an islet a mile and a half from the entrance. A passage with four fathoms water exists to the southward of this islet, and two small ones near it, beyond which anchorage is indicated in twenty fathoms, mud. Six cables to the westward from the islet only a fathom and a quarter is recorded, beyond which it deepens to six, sixteen and twenty fathoms.

Lincoln Channel.

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* Pender's chart, before referred to, places this termination in latitude **55° 56′ N.** and longitude **130° 5′ W.**; but, until it is known in what manner this result was obtained, judgment on the great discrepancy may reasonably be suspended.

† This has been rendered **Tlechopcity** on the English and some American charts, and **Tayakhonsiti** by a typographical error in one of the Coast Survey publications. These errors probably arose in part from mistaking the Russian **H** (equivalent to English **N**) for the Russian **П** (English **P.**)

‡ Official spelling here adopted; sometimes called **Tongas.**

§ On this sketch an error occurred in the designation of the scale, by which it was indicated as only one-half its actual scale.

This sketch fairly accurate. H.P.N. See notes on Naha Inlet, 52

The general direction of the channel is S.E. and N.W. but it is hardly possible much sea could get in there, 1882 H.E.N.

Nakat Inlet. Between Cape Fox and Tongass group of islands lies the entrance to Nakat Inlet which extends in a general N by W direction, per. From the Port Tongass side the entrance is about three miles north of the port. In the fairway right inside the group of islands may be found an excellent well sheltered anchorage in 4 to 5 fathoms. The inlet about half a mile wide extends to northward as far as we could see and possibly connects with Boca de Quadra. Sketch not sent in this year, 1882 H.E.N.

a. A group. H.E.N. 10 or 12, partly shown on last edition of gone to on chart. H.E.N. 82
b. Possibly 150 to top of trees. H.E.N.

c. Not named on in edition of 1880. The existence of the rock is generally denied. H.E.N. Pawson over the position in 1883 and saw no rock or kelp. H.E.N.
XX Not recognized by Nichols unless it was under the idea which forms Cape Fox. H.E.N. 82.

d. Flevack Straits.

e. Should be called Northumberland Head for it is a mountain standing alone. The nearest mountain to it is Mt. Tongas. H.E.N.

The harbor arm is a mile and a half long and about three-quarters of a mile wide, but obstructed by *reefs*. Both shores of the arm are indented by bights, off which are *reefs*, leaving about half a mile wide of midchannel ground clear of obstructions. *A reef* also extends to the northwestward from the western extreme of the southern shore of the arm. The passage between this ledge and the reefs to the northward and westward is somewhat less than half a mile. An unsigned MS. sketch of this locality in the Coast Survey archives makes the anchorage even more contracted. The depth of water here varies from five to nine fathoms. **Tongass Harbor.**

The northwestern arm varies in width from a third to two-thirds of a mile, and is about two miles long. The fort is situated about midway between the two entrances; and in midchannel, abreast of the fort, according to Russian authorities, there is anchorage in thirty-five fathoms. But according to the above-cited anonymous sketch the midchannel depth throughout varies from twenty to twenty-five fathoms, with ten to sixteen along the southwestern shore within two cables of the beach. The shores are indicated as bold-to. To the northwestward from the western entrance of this arm is a ledge five feet above high-water mark; two-thirds of the way from this ledge to the island on which Fort Tongass is situated lies *a kelp patch* with rocks in it. The course lies midway between the kelp and the ledge. The harbor is evidently better suited for small vessels or steamers, and further surveys will be required before it can be considered available for large vessels.* The land is rather low and wooded, and on the shores of the harbor arm are several large Indian villages.

According to the Coast Survey sketch, a bare rock lies three or four miles **S. 48° W.** from the entrance of the harbor, with a low, narrow, wooded island, or a group of islands, a mile and a half long, less than a mile to the eastward of the rock. These are indicated on Pender's Chart as the **Lord Islands,** and are reported to be 250 feet high.

From the entrance to the harbor, according to the Coast Survey sketch, **S. 61° W.** about nine or ten miles,† lies Cape Fox, named by Vancouver; a broad point, not less than five miles in extent east and west at its southern part, bordered by rocks and rocky islets, moderately low and wooded, and backed by high wooded ridges. The latitude of this cape, according to Vancouver, is **54° 45′½ N.**, (according to Pender **46′½**,) while other authorities place it in about latitude **54° 42′**, a difference which forms one of a series of discrepancies previously mentioned. **Cape Fox.**

"About half a league to the westward" of this cape Vancouver's boats found refuge "in a very commodious, well-sheltered little cove," which protected them from a heavy southeaster.

Three miles to the westward from the western angle of the cape *a sunken rock* is indicated by Tebenkoff and on the English Admiralty Charts. It is named Pinnacle Rock on the U. S. Hydrographic Chart No. 225.

From the northern side of Dixon Entrance to the westward of Cape Fox several important arms of the sea extend in the following order, going westward: 1. Between Cape Fox and Cape Northumberland the **Revillagigedo Channel,** leads to Behm Canal and Tongass Narrows. 2. Between Cape Northumberland and Cape Chacon, **Clarence Strait** leads to Ernest Sound and Sumner Strait. 3. Between Cape Chacon and Cape Muzon, **Cordova Bay** includes a congeries of islands and passages; one of the latter is said to lead to Port Bucareli. The exact position of most of these capes and the limits of Cordova Bay are much in need of careful determination.

Separated from Cape Fox by the entrance of the Revillagigedo Channel is **Cape Northumberland,** named by Vancouver in 1793, and separating the channel from Clarence Strait. It is the southern extremity of the group of Gravina Islands; is low near the water, but rapidly rises to ridges a thousand or fifteen hundred feet high and wooded from the sea-level to their summits. In coming out of Revillagigedo Channel a low wooded islet is seen lying off the cape. As nearly as the discrepant authorities can be reconciled, it would appear that the cape is about thirteen miles to the westward from Cape Fox and twenty-four miles to the northeastward from Cape Chacon.

Vancouver's observations in this locality were taken from a small island south of the cape, where his observed latitude was **54° 51′½ N.**

"From this island, which is tolerably high, I gained a very distinct view of the surrounding rocks and breakers in all directions. The outermost of these towards the northwest lies **N. 57° W.** (true) three miles and a half distant, those towards the southwest **S. 67° W.** (true) four miles and a half; the southernmost, which were the furthest off, **S.** (true) six miles and a half, and the southeasternmost **S. 50° E.** (true) five miles distant. The intermediate spaces were occupied by an immense number of rocks and breakers."‡ From his position on this island Cape Fox bore **E.** by **S.** (true) fifteen miles, and Cape Chacon **W SW.** (true) eight or nine leagues. ***Dangers.***

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* Meade reports anchorage in fifteen fathoms, rocky bottom, off Fort Tongass. He considers the anchorage dangerous in "any sort of a blow," and states that the facilities for obtaining wood and water are poor.

† Three miles according to Pender's sketch, British Admiralty Chart No. 2431, corrected to October, 1869.

‡ Vancouver, vol. ii, p. 370.

June 6, 83. Nichols came through Nichols Pass and out into Clarence Straits keeping three or four miles off shore. Passed Davison Pt 3 miles E by N. ½ N. mag. and steered S.E. ⅞ E. 1h 14m later ran almost into a mass of fixed kelp, probably Brundige Rk, stopped and hauled off and grounded in 10 fms rocky bottom Mt Famgas N. ⅞ E. Lazaro N.E. ⅞ E. and distant about 4 miles from shore. The high land of S. part of Dundas Id, showing well to westward of westernmost bare rock. Steamed slow across reefs west of all the bare rocks and 1½ miles N. of southernmost one. Patches of fixed kelp are in every direction some of them covering ½ a mile square. The whole space is undoubtedly filled with sunken rocks and unfit for navigation. H.E.N.

Devil Rock. 8.40 A.M. Idaho course S.W. by S. mag. Barren Rock on port beam 2 miles. 8.55 course S.W. ½ S. 10.45 course S.W. and sighted a breaker S.E. ½ E. 4 miles. 10.50 C. Chacon Starboard beam 3 miles. 11.10 Nutmeg Reef on port beam distant 2 miles changed course to W by S. Rate about 10 knots. H.E.N.
The Geo. J. Wright was probably lost about here, the body of Paymaster Walker was found at Port Bazan. H.E.N.

a. Should be called Northumberland Head. H.E.N.

b. There is no doubt of the reef south of Cape Chacon. The steamer "Growler" and all hands were lost there. The vessel and some bodies drifted ashore. We saw the west end of the reef above water. See notes for its bearings and ranges H.E.N.

c. Hassler passed here Aug. 31, 9 A.M. clear and pleasant. Smooth sea. Nothing visible between Cape Chacon and Dundas Id. Barren Rock in sight. H.E.N.

d. See notes and sketch. H.E.N.
Reefs off Zayas Id. See notes on Ch. 5 by Capt McCullough of Str. Otter. 1882 HEN.

e. There is a steamer passage through with one bad place. H.E.N. See notes & sketch.

f. Got information on this. See chart No. 5 H.E.N.

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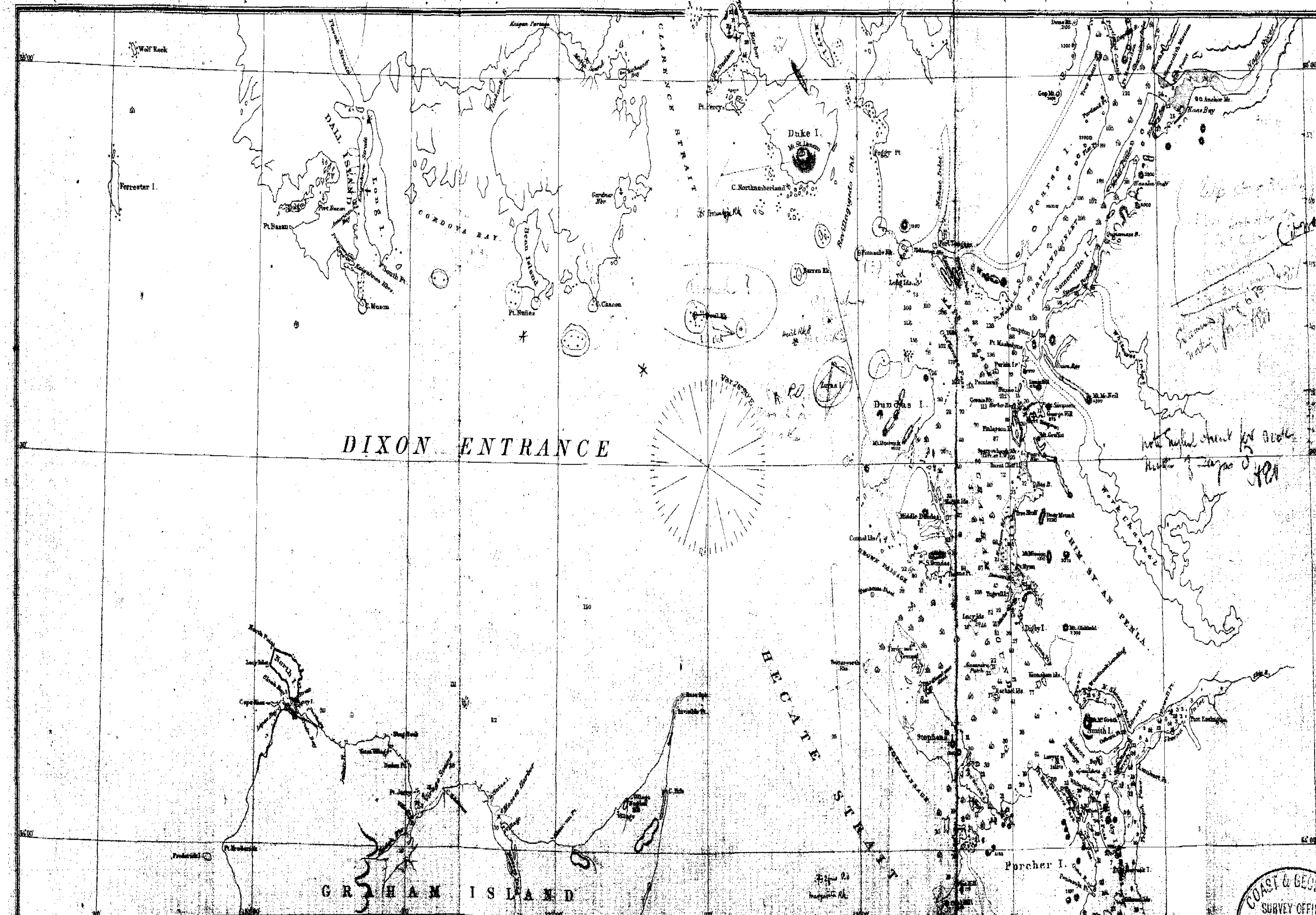
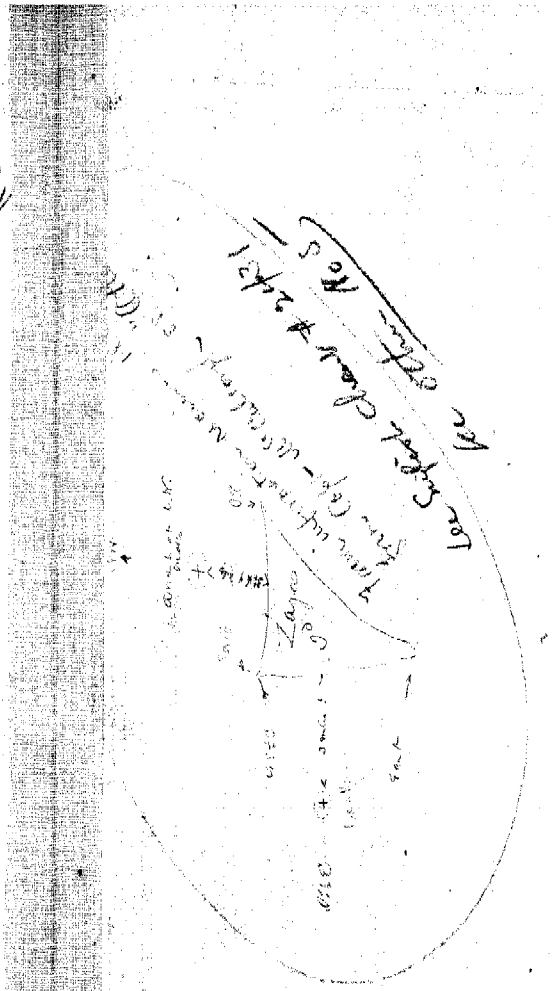


COAST & GEODETIC SURVEY OFFICE
DEC 5 1881

Brandiza Rock — See Survey & notes of Hat



Devils Reef

The following is an extract from the log book of the U.S. Cutter Capt. Jas. Carroll master April 12 1818.

Am.

8.40 — Low Point (entirely rock) port beam 2 miles bearing S.W. by S. mag.

8.55 — Course S.W½ S. mag.

11.45 Course S.W. mag. — Sighted a breaker bearing S.S.E. mag. & bore 4 miles.

10.50 Cape de Chacon Abt beam 8 miles

11.10 Devils Reef port beam 2 miles Changed course to W by S

Note. The tide ebbs strong at about 10 knots per hr.

Devils Reef. On Nov. 23. Capt Carroll again sighted the reef and notes as follows.

Ship Head S 48° E (Direction or ~~that~~ bearing 5° W)

Devils Reef bears p.c. S 42° W 1½ miles distant

Mt Lazaro bears p.c. N 7° E

Harry Saddle — p.c. N 57° E (High land of Cape Ste)

South extreme of Cape Chacon p.c. S 73 W.

Note" There was considerable swell at the time, & ship rolling may cause a small error in bearing.

Tide 3/4 ebb. reef only shows when a heavy swell lifts it bare.

(Size of rock not given but probably small)

I have (a'd information (not very reliable) ~~that~~ on the West side of Nunez Reef near corresponding with Devils Reef is another Reef — My informant said ~~that~~ he had stood on the high land back of Cape Chacon & had seen all three Ships in extreme low water. HCK

It will be observed from the above remarks of Vancouver that the vicinity of this cape abounds with dangers. On page 380, Vol. II, he refers to the outermost of these rocks as follows: "The southernmost of the rocks lying off Cape Northumberland * * * * is a round lump of barren rock, very small, always above water, and which has some breakers lying at a little distance off its southeast side, * * * * the southeasternmost of these rocks lies from the south rock **N. 43° E.** (true) four miles and a half, and is a low, flat, double rock, always above water, but has much broken ground in its neighbourhood."

"In the afternoon we passed the southwesternmost of the above rocks. These latter are two small rocks, above water, with much broken ground to the north and northeast of them, and in a direct line towards the southeasternmost rocks; they bear by compass from the south rock **N. 44° W.** five miles and a half distant. Between these and the eastern shore lie many dangerous rocks and breakers; but as we passed the south rock I did not observe any danger to the north of it, between it and the other rocks, where the channel to all appearance seemed to be as free from impediments as that which we were pursuing towards the western shore."

This south rock has been named by the U. S. Coast Survey **Barren Rock.** It lies about fifteen miles west from Cape Fox. Tebenkoff (Chart No. IX) places it five miles to the southward from Cape Northumberland with a clear passage on either side. Vancouver puts it in latitude **54° 45′ N.**, seven miles to the southward from the cape and a mile and a half to the southward of Tebenkoff's position.

In June, 1789, Douglas gave the name of Mount St. Lazaro to a high mountain west of his Buccleugh Sound, which may have been the high ridges behind Cape Northumberland. But the account given by Meares is so indefinite, and his charts are so incomprehensible, that reasonable differences of opinion cannot fail to arise in many cases in attempting to identify his localities. A deserted village on a detached rock near the cape is mentioned by Vancouver, and the appearance of a village was noted by Douglas.

To the southward and westward, broad-off the southern entrance of Clarence Strait, lie several dangers. The *Devil Rock*, or ridge, is placed **S SW.** seven miles from Barren Rock on British Admiralty Chart No. 2431, but the position is marked doubtful. Another doubtful patch is placed **SW. ½ S.** thirteen miles from Barren Rock. On the Russian Hydrographic Chart No. 1493 Devil Rock is placed nearly in the latter position twelve miles **SW.** from Barren Rock with no other patch indicated. Tebenkoff (Chart IX) indicates a rock or islet above water with rocks about it fifteen miles **SW.** by **S. ⅓ S.** from Barren Rock, under the name of Devil Bank. It is probable that these indications refer to one rock or ledge, for which diverse positions have been obtained.

Devil Rock.

Nearly **SW.** by **W.** from Barren Rock, according to Russian authorities about twenty-four miles, is situated Cape Chacon or de Chacon, named by Caamano, and forming the southeastern point of Prince of Wales Island. It is completely wooded and backed by high wooded mountains. The outlines of the land are very differently given by different authorities, but most of them agree in placing it in about latitude **54° 42′ N.** and nearly or quite on the same parallel with Point Nuñez and Cape Muzon. **S.** by **E.** to **SW.** by **S. ¾ S.** two miles and a half, or thereabouts, from Cape Chacon* lies a large patch of *foul ground* several miles in extent.

Cape Chacon.

To the westward of Cape Chacon a bay exists with several islands in its entrance, the western extreme of which is formed by **Point Nuñez**, the Punta de Nuñez of Vancouver's chart, a name adopted from Caamano. This point is seven miles to the westward of, and in the same or nearly the same latitude as Cape Chacon. To the westward from the point within a range of several miles, but differently located by different authorities, is an islet with foul ground around and between it and the shore.

The land upon which the point is situated is represented by most authorities as an island, but by Tebenkoff as a portion of Prince of Wales Island. It forms the southeastern extreme of Cordova Bay, Puerto Cordova y Cordova of Caamano, a very extensive unexplored sheet of water containing numerous islands, some of large size, and supposed to communicate with Port Bucareli by an arm called Tlevak Strait, perhaps continuous with Ulloa Canal. Nothing is known about the northern part of this bay.

Cordova Bay.

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*Allowing for a tolerably constant error of six to ten miles in his latitudes, which appear, when compared with his bearings, to have almost invariably been calculated too far north, there are many reasons for thinking that this cape may have been the **Cape Murray** of Douglas. His **Cape Farmer** might have been one of the northern points of Dundas Island; Zayas Island and his **Petries Island** be identical, and Cape Muzon and Douglas' **Cape Irving** be the same. The differences of longitude tend to confirm this view, which would place Douglas' **Haines Cove** somewhere in Clarence Strait, regard **Port Meares** as situated in Cordova Bay, and consider his **Buccleugh Sound** as including all the waters between Capes Chacon, Northumberland and Fox, and the northern edge of the Dundas Islands. At all events, Capes Fox and Murray cannot be identical, as they are, by Douglas' reckoning, over a degree apart in longitude, and his Mount St. Lazaro was considerably to the eastward of Cape Murray. If the high land back of Cape Northumberland be Mount St. Lazaro, then there is no reason for doubting that Cape Murray is identical with Cape Chacon. Were the present charts in any way satisfactory the difficulties might be cleared up, but in their imperfect state only approximate conclusions can be arrived at.

Weak tidal currents noticed N.E. N.

Cape Muzon Lat. 54°,42',15" Lon. 132°,40',30" W. a long sharp barren bluff point, deep water close to it & four small islands on its N.E. side. Brandige.

C.S. Chart.

W. by **S.** $\frac{3}{4}$ **S.** about eleven miles from Point Nuñez *a rocky patch* is laid down in the mouth of the bay by Russian authorities, except Tebenkoff, who places it **W.** by **S.** nearly fourteen miles from Point Nuñez.

SW. by **W.** $\frac{1}{3}$ **W.**, twenty miles from Point Nuñez, lies Cape Muzon, or Kai-gah-nee of some authors, the Cabo de Muzon of Caamano and Vancouver.* This is the most western of the southern capes of Alaska, bordering on Dixon Entrance. It appears to be formed by a high and somewhat precipitous bluff with a strip of lower land in front of it. Such a cape is figured by La Perouse as seen in profile to the eastward of Forrester Island. As seen by the U. S. Coast Survey party in 1867, bearing **W.** by **N.** $\frac{1}{2}$ **N.** one mile and a quarter, (though the summit was hidden by fog,) the immediate shores were comparatively low and rocky, covered with a heavy growth of spruce, and the coast to the northwest appeared much broken and of a formation similar to that at the cape. Between the vessel and the cape strong current-markings were visible on the surface of the water, and La Perouse speaks of strong tidal currents experienced in crossing Dixon Entrance in this vicinity.

Cape Muzon.

Cape Muzon is nearly in latitude **54° 42′ N.**, about the same parallel as points Nuñez and Wales and Cape Chacon. The longitude is given by Tebenkoff, from Khrushchoff's observations, as **132° 39′ W.**, but all other modern authorities place it from 2′ to 4′ farther west. Off the cape, and extending to the **SE.** less than a mile from it, are some rocks, according to Russian authorities.

From Cape Muzon, across Dixon Entrance, Point North, or Breakers Point of La Perouse, on North Island of the Queen Charlotte group, bears **S.** 8° or 10° **W.** (or, if Dawson's position be accepted, about **S.** by **E.**) twenty-eight miles. From the cape the western shore of Cordova Bay trends in a generally northwest direction, guarded by a multitude of islets extending off shore to three-quarters of a mile, to the Kai-gah-nee Harbors, surveyed by Etolin in 1833. These comprise three narrow bays, the middle one of which affords the usual anchorage. The southeastern point of the southern bay has an islet off it a quarter of a mile to the eastward, with some rocks outside the islet. These are bold-to to the northward, twenty-nine fathoms being reported close to them.

Kai-gah-nee Harbors.

The southern shore of the South Harbor trends **W.** by **S.**, or nearly so, in an almost straight line for about two miles. There are several islets and rocks along this shore, and a good-sized midchannel islet about half way from the point to the head of the bay, where the shore is bordered by a tidal flat. Within a quarter of a mile from the head of the bay a small reef puts out from the northern shore, which is elsewhere free from obstructions. The northern shore of the South Harbor extends less to the eastward by three-quarters of a mile than the southern shore.

South Harbor.

The bay is about three-eighths of a mile wide, and the soundings diminish pretty regularly from forty-seven fathoms near the entrance to thirty-seven north of the channel islet, and thirteen at the anchorage five-eighths of a mile from the northern headland of the entrance. The course in passes to the northward of the islet, and the anchorage is well protected from all winds except those from the eastward.

The Middle and North harbors are separated by a small point and a nearly continuous, narrow, long island to the eastward. Off the eastern end of the island are some rocks, forming a patch of *foul ground*, having the same general trend as the island, **W.** $\frac{1}{3}$ **N.** and **E.** $\frac{1}{3}$ **S.**, from which they extend a cable's length. The Middle Harbor is less than a quarter of a mile wide and about a mile in length. Its shores are apparently clear of dangers; there are some islets in its northwestern angle. Near the southwestern angle is a very small basin, with about five fathoms water in it, in which a small vessel might lie as in a dock. This is called by the Russians **Prisoners Cove** or **Harbor.**

Middle Harbor.

The depth of water in Middle Harbor varies from seven to nineteen fathoms. The anchorage is laid down by Etolin in seven and a half fathoms directly off the entrance of the basin.

The North Harbor is of about the same length as Middle Harbor, but even narrower and with deeper water. It presents no special advantages. All are open to the eastward and surrounded by rather high wooded land. According to Etolin the geographical position of Prisoners Cove † is

North Harbor.

Latitude	**54° 46′ 00″ N.**
Longitude	**132° 45′ 30″ W.**

* The Cape Kaigani of Tebenkoff, variously spelled Kygane, Kaigani, &c., by different authors. From an examination of Galiano and Valdes' "Relacion" (p. cxxiv) and documents edited by Navarrete, it seems certain that the original designation of this cape was **Cabo de Muñoz** or **Muñoz Goosens**, which, by the transposition of two letters on Vancouver's copy from Caamano has been perpetuated as **Muzon.** However, as the erroneous orthography has been widely adopted and had priority of publication, it has seemed undesirable to make a change which would be of little if any service to the navigator, while attended with manifest inconvenience. Probably the Cape Pitt of Dixon.

† There are some reasons for identifying this anchorage with **Port Meares** of Douglas; but the weight of evidence is in favor of Port Meares being situated to the eastward of Long Island in the still unsurveyed part of Cordova Bay, or between Point Nuñez and Cape Chacon. Douglas' sketch, besides having the title and compass reversed, with regard to the true points of the compass, is of such a character as to be quite incomprehensible.

See notes. H.E.N.

The range of the tides, according to Tebenkoff, is sixteen feet. The variation of the compass, according to Etolin, was 26° E. in 1833.

In Tebenkoff's sketch, on Chart No. IX, (reproduced without change in the Coast Survey Atlas of Harbor Charts of Alaska,) the scale of miles by inadvertence has been made to read miles for quarters of miles. A better representation of this locality is Etolin's original sketch, which appears on Russian Hydrographic Chart No. 1396.

NE. from the southern headland of South Harbor, about two miles and a half, is **South Point**, or Point Kai-gah-nee,* the southern point of **Long Island**, (in Russian Dolgoi Island,) to the southward and eastward of which point rocks extend nearly a quarter of a mile. This island is about twelve miles long in a **NW.** by **N.** and **SE.** by **S.** direction, and some three miles wide, with numerous rocks off its southeastern shores. There are discrepancies between Tebenkoff and other Russian charts in regard to this locality. The island, or at least the southern part of it, is high, broken and densely wooded. The strait between it and the land to the westward of it varies from two and a half miles to less than a mile in width and contains several islets.

Seven miles to the northward of South Point, on the eastern shore of the strait, is a settlement of the Kai-gah-nee or Haida tribe of Indians, from which the harbor and point derive their names.

NW. by **W.** ¾ **W.** about six miles from South Point, on the western shore of the strait, is **American Bay**, named by Etolin. It penetrates the shore about half a mile, and the entrance is three-quarters of a mile broad. There is a large islet off its southeastern headland and a smaller one within the bay, near the northern headland, with anchorage in twenty-one fathoms to the south and west of this islet. Between the bay and Kai-gah-nee Harbors the shore is rather broken with several small islets. Abreast of the bay the strait is about three-quarters of a mile wide.

REVILLAGIGEDO AND ASSOCIATED ISLANDS.

In the Alexander Archipelago the plan pursued will be to take up the groups of islands and their adjacent waters group by group, working to seaward from the mainland and from south northward. In accordance with this plan the first in order will be the shores and channels northward from Cape Fox and including the Revillagigedo group.

From the broad southern face of Cape Fox the shore of the mainland, fringed by islets and rocks and receiving the heavy oceanic swell, trends in a **NW.** ½ **N.** direction about nine miles to **Foggy Point** of Vancouver, or Point Brumez according to some authorities. This point, of which there is no more special information, is situated, according to Vancouver, in

Latitude	54° 54′.5 N.
Longitude	130° 49′.0 W.,

forming the eastern headland of the entrance of Revillagigedo Channel and the south point of a bay some three miles in extent and filled with a labyrinth of rocks, islets and shoals. A small inlet penetrates the northern shore of the bay, and in this vicinity is situated an Indian village. The largest of the islets is nearly three miles **NW.** from Foggy Point and under the northern headland of the bay.

From this islet, about four miles to the northward, lies the southern headland of the entrance of the Boca de Quadra of Caamano and Vancouver, sometimes called **Quadra Channel** or **Bay**. This point is situated, according to Vancouver, in latitude 55° 1′ N., and the opposite headland of the entrance is a quarter of a mile distant to the north and west. This inlet has a width varying from one to two miles, and is about thirty miles in length, describing a sigmoid curve and having several small openings making out from it. "The sides of this canal are nearly straight, firm and compact, composed of high, steep, rocky cliffs covered with wood."† It terminates in a small border of low land, through which pass two rivulets, in latitude 55° 17′ N.

Boca de Quadra.

In and about the entrance are great numbers of rocks and islets, rendering the approach difficult and dangerous. These obstructions extend about two miles off shore, nearly into the middle of the Revillagigedo Channel. About two miles from the entrance of the Boca de Quadra is an islet named by Vancouver **Slate Islet**, being entirely composed of that rock, which had nowhere else been observed in such quantity. From this islet four miles, about **NW.** ¾ **N.**, lies **Point Sykes**, named by Vancouver, and forming the southeastern headland of a large inlet. The opposite headland of the same, situated **W.** by **N.** ½ **N.** five miles from Slate Islet, is Point Alava, named by Vancouver, and a very conspicuous landmark.

* The point was named **Uzhnoi** or **South Point** by Tebenkoff, and **Point Kai-gah-nee** by Kupreanoff on Russian Hydrographic Chart No. 1493. The application of this name Kai-gah-nee to the cape, previously named by Caamano and Vancouver Cape Muzon, has laid the basis of future confusion, as South Point above mentioned is the Cape Kaigan of the British Admiralty Chart No. 2431.

† Vancouver, vol. ii, page 349.

Carroll Arm comes in here and connects with Tongass Narrows. H.E.N. 82.

Between these two is the entrance of **Behm Canal,** named by Vancouver, one of the most singular and extensive of the remarkable fiords characteristic of this coast. With the Revillagigedo Channel it encircles the large island to which Vancouver gave the name of Revillagigedo.* The direction of the canal from the entrance at Point Sykes is about **N.** ¾ **E.** ten miles to **Point Nelson,** named by Vancouver, and placed by him in latitude **55° 15′ N.** The canal, which at its entrance has a width of somewhat over two miles, increases to more than four miles, but abreast of this point is diminished to two miles and a half in width by an island upon the western shore. This stretch of the continental shore has a few small islets and rocks lying near it and is a little indented.

Immediately around Point Nelson an inlet penetrates the coast, curving to the northeast and north, being about ten miles in length, and terminating in latitude **55° 18′.5 N.** It was found by Vancouver to be about three-quarters of a mile in width, with a bay or cove on its eastern shore which approaches within about two miles of the Boca de Quadra.

The surrounding country consists of steep, barren, rocky mountains, whose summits appear to be above the snow-line. Except at its head, where the land is low, these mountains rise abruptly from the water's edge, sparsely wooded with small trees. **W NW.** about two and a half miles from Point Nelson lies an island, some three or four miles long, in the middle of the canal.

N. by **E.** from Point Nelson,† somewhat less than five miles, lies **Point Trollop,** named by Vancouver. The width of the canal is here about seven miles, inclusive of islands. Hence it contracts in width and becomes obstructed by islands and rocks in increasing ratio northward. The general direction of the shore of the mainland is **NW.** by **N.** Beginning at a point about two and a half miles northward from Point Trollop the continental coast is guarded for nearly seven miles by several long narrow islands.

Between them and the shore the channel is in some places only navigable for boats and canoes. About nine miles from Point Trollop this channel again enters the main body of the canal, which trends in a **NW.** by **N.** ½ **N.** direction with a width of two miles and a half or three miles, and becomes much embarrassed by rocks and islets.

New Eddystone Rock.

At a distance of eleven and a half miles **NW.** from Point Trollop, and a little to the westward of midchannel, lies the New Eddystone Rock,‡ named by Vancouver from its resemblance to the lighthouse off Plymouth. It rises from a sand-bar, covering a rocky ledge, to the height of two hundred and fifty feet; its circumference at the base is about fifty yards, and it regularly decreases toward the apex, which seems to be a few feet only in extent and nearly flat. It sustains a few small shrubs and trees in various crevices which extend quite up to the summit. To the northward a ledge of rocks, visible at low water and bold-to, extends some two hundred yards. The remainder of the bar at its base is composed of sand. This rock is separated by a mile from the western and by two miles from the eastern shore of the canal, and is placed by Vancouver in

Latitude	**55° 29′ N.**
Longitude	**130° 45′ W.**

About three miles from the rock, **N.** ½ **W.,** is situated **Point New Eddystone** of the Russian charts, forming the southern headland of a T-shaped inlet, three-quarters of a mile wide and about eight miles in extent, which penetrates to the north and east between high, barren, snowy mountains. Opposite this point an unexplored opening on the shore of Revillagigedo Island is indicated by Vancouver.

NW. ⅜ **N.** from Point New Eddystone, eight and a half miles, is the southern headland of **Walker Cove,** named by Vancouver, another of the small inlets so frequent on this coast, having a width of half a mile or more, a length of some six miles and a general direction of **NE.** by **N.** Off its northern headland are some small rocky islets covered with low pine trees; around the shores large numbers of sea-otters were observed by Whidbey's party in 1793.

Hence **W NW.** some eighteen miles the canal preserves an average width of about two miles to **Point Fitzgibbon** of Vancouver, the shores on either hand being somewhat indented with small bays and coves. This point is long and narrow, peculiarly shaped, and has a small cove to the eastward from it. It would appear to be moderately high, at least in part, and is distant about one mile from **Point Whaley,** in latitude **55° 55′.5 N.,** which forms the northern extreme of Revillagigedo Island.

Burroughs Bay.

From this point Behm Canal takes a **SW.** by **S.** direction, and is continued as Burroughs Bay§ **N NE.** about six miles, with a width of about a mile. The shore is somewhat indented by small coves and the bay terminates in a mud flat, over which several rivulets discharge, and upon which Vancouver found a large amount of drift-wood. At the same time (August, 1793) he ob-

* In honor of the Conde de Revilla Gigedo, to whose courtesy, as exhibited by the officers acting under his orders, Vancouver found himself much indebted.

† It appears that Point Nelson of Vancouver's chart must be different from that of his text, as the bearings and distance do not agree. The point indicated in the chart is above referred to.

‡ On Tebenkoff's Chart No. IX, by some error the name is transferred to an islet much farther to the northward.

§ On Russian Hydrographic Chart No. 1493 this is called **Burrong Bay,** and translated to mean a burrower or borer.

served large numbers of salmon here, but they were mostly out of season at the time of his visit. The waters of the bay were discolored and almost perfectly fresh, rendering it probable that these streams flow from glaciers. The head of the bay was placed by Vancouver in latitude 56° 1′.5 N.

Four miles from Point Whaley, SW. ½ S., lies Point Lees, where the canal contracts to less than a mile in width. On this point Vancouver observed a large, but at that time untenanted, Indian village. The latitude was observed by him to be 55° 54′ N. From this point the canal, or one portion of it, continues to the southwestward in the same direction as previously, but gives off an arm extending five miles in a NW. by N. direction from Point Lees. From this arm a branch penetrates to the S. by W., rejoining the more direct or principal channel of Behm Canal at a distance of seven miles. The shores of this branch, in some places not over a quarter of a mile apart, are steep, high, rocky and covered with coniferous trees. About midway, on the northern or continental shore of this branch, an inlet penetrates to the northward about three miles, and another is found on the same shore immediately after the branch rejoins the canal. The land cut off between the branch and the canal forms Bell Island of Vancouver; it has the usual broken topography of this region, and extends about six miles in a N. by E. and S. by W. direction.

From the southern extreme of this island the canal takes a nearly south direction for seven miles, at the same time expanding to a width of nearly two miles. The shores on either hand are much broken and not fully surveyed. On the western or continental shore a large arm extends to the westward four miles, with some rocks about its entrance, and several sunken rocks within it were reported by Vancouver's party. In a bay on the northern shore the remains of an Indian village existed, around which grew a quantity of wild apple trees, bearing fruit of agreeable flavor.

Spacious Bay.

This inlet is separated by a peninsula from a large and spacious bay directly south of it; of which Vancouver reports that its entrance was nearly three miles wide N NW. and S SE. Its northern point is situated in latitude 55° 48′ N., whence the north side of the bay takes a nearly west direction about four miles and a half, forming in that space three or four coves, and rounding somewhat irregularly to its southern point of entrance; within which is an island about a mile in extent, with *no navigable channel* between it and the shore to the southward. The shores of the bay are very moderately elevated, thickly wooded, and terminating in a sandy beach nearly all round. Tebenkoff locates here an Indian settlement. The interior country was not very high, especially to the westward, where low woodlands extended nearly as far as the eye could reach. The opposite shore of Revillagigedo Island is much broken by small unexplored coves and bays.

Traitor's Cove.

From the southern headland of the bay above mentioned the canal takes a SE. ½ S. direction for nearly nine miles, and thence to its termination eight and a half miles S. ½ E., simultaneously expanding in width from a mile and a quarter to nearly six miles. About six miles SE. ¾ E. from the headland mentioned on the Revillagigedo shore is a small entrance named Traitor's Cove by Vancouver, from whence issued a party of Indians who attacked his boats and wounded two of his men. To the northward of this cove, on the same shore, about three miles, is a somewhat extensive but unsurveyed inlet.

SE. by S. three miles from Traitor's Cove, on the same side of the canal, is situated **Escape Point**, where Vancouver had landed at the time of his difficulty with the natives. It is situated, according to Vancouver, in latitude 55° 37′ N. On the Russian Hydrographic Chart No. 1493 the name has been transferred to another point two miles to the southward, which has a small islet near it, and this error has been copied into the British Admiralty Chart No. 2431 and U. S. Hydrographic Chart No. 225.

Port Stewart.

On the continental shore, nearly abreast of Traitor's Cove, which bears E NE. about four miles, is Port Stewart of Vancouver, named for one of his officers who surveyed it. The entrance is about two miles wide, the headlands bearing N. 30° W. and S. 30° E. from each other. It has a general direction of N. 60° W. from the middle of the entrance, contracting in width for two and three-eighths miles to a stream coming in at its head.

This port consists of two basins, the outer one formed by three islets and adjacent sand-bars; the inner one by a point which makes out from the middle of the northern shore. This is nearly met by *shoals* extending from the opposite shore, which recede again to the westward of the point, and form a rounded basin about a quarter of a mile in extent. This basin has a narrow prolongation to the northward, between the point above mentioned and an island about a cable to the westward of it. The northern point of the shoal is rocky; the entrance to the basin, only a cable wide, is obstructed by *a foul patch* directly in the middle of its narrowest part, which occupies fully one-half of its width, leaving a very narrow seven-fathom channel to the northward, and one with five fathoms between the patch and the northern point of the shoals. The northern shore is bold-to. Inside this basin six and eight fathoms may be had, but between it and the head of the bay the space is entirely occupied by shoals.

A group of three islets in the southern part of the entrance forms the protection of the outer port or anchorages. The two northern islets are joined by a rocky shoal, forming a barrier about half a mile long and quite narrow. From the southern islet *a long narrow shoal* makes out in a northwesterly direction, nearly joining a prong of the other shoal. In the narrow channel between the two

shoals, however, fourteen to twenty fathoms may be carried. On this southern islet, which is of small extent, Vancouver's astronomical station was established. Between it and the adjacent southern shore exists a clear passage less than a cable in width, having nine to eleven fathoms in it. Between these islets and the southern shore a sub-triangular space exists, perfectly protected from all winds, and affording good anchorage in thirteen to seventeen fathoms. The area thus inclosed is three-eighths of a mile wide and three-quarters of a mile long NW. and SE.

In line with Observatory Islet, the western end of the northeastern islet and a point on the northern shore, in a direction about SE. by S., a quarter of a mile from the latter, is another little islet, high and bold-to. To the westward of it are two others with rocky shores, low, but having apparently no outlying dangers.

DIRECTIONS FOR THE USE OF PORT STEWART.

The better course for the inner basin would appear from Vancouver's plan to lie between the high islet and the two others, but a reef obstructs the passage to the northward of the former. The course for the outer anchorage passes to the southward of the three northern islets, and the W. point of the W. islet of the southern group being bold-to may be rounded within a short distance, and good anchorage may be had with this point bearing N., half-way between it and the southern shore, in fifteen fathoms, sandy bottom.

Vancouver recommends, as the best and a perfectly safe passage into the port, the narrow channel between the Observatory Islet and the mainland. As unknown sunken rocks may exist in the other passages, caution should be exercised in the use of them. SE. by S. ½ S. a quarter of a mile from the northern headland, outside of all the islets, a patch of rocks is indicated by Vancouver with deep water about it. Vancouver places his astronomical station in

Latitude	55° 38′ 15″ N.
Longitude	131° 36′ 00″ W.,

but Tebenkoff gives the longitude as 131° 44′ W., and on an old Russian plan taken from Vancouver it is given as 131° 47′ W.

The variation of the compass was determined by Vancouver as 28° 30′ E. (1793.)

The communication with the shore is easy, and wood and water may be conveniently obtained in great abundance. The shores are of a moderate height and covered with berry bushes, shrubs and coniferous trees.

To the southward from Escape Point the canal expands, forming bays on either shore. On the western shore, four miles to the southward from Port Stewart, is an unsurveyed inlet about two miles long in a westerly direction, and over a mile wide at the entrance. It contains some islands. On the eastern shore, south of Escape Point, the coast curves to the eastward and southward, forming a large open bay, from which some small openings extend to the northward and eastward. There is a small island near the northern headland and a number of others near the southern point of the bay.

At this point the width of the canal is materially contracted by the approximation of the shores south of the bays above mentioned, and especially by **Betton Island** of Vancouver,* which is about a mile and a half wide and three miles long, situated somewhat over five miles S. by E. ½ E. from Escape Point. It is separated from Revillagigedo Island by a strait a mile wide, in which are several smaller islands. The northern and western shores of Betton Island are bordered with several dangerous rocks lying half a mile from shore, and this portion should not be approached within a mile by navigators.

Two miles S. by E. from Betton Island lies **Point Higgins**, named by Vancouver, a conspicuous point, which he placed in latitude 55° 27′.5 N. This point is the southwestern extreme of Revillagigedo Island, and separates the entrance of Tongass Narrows from that of Behm Canal, of this portion of which it may be said to form the southeastern headland.

The opposite or southwestern headland, W. by S. ½ S. four miles and a half from Point Higgins, is **Cape Caamano**, a "remarkable projecting point," named by Vancouver, according to whom it is situated in †

Latitude	55° 29′ N.
Longitude	131° 43′ W.

This cape is wooded to the water's edge, surrounded by rocks, which also embarrass a small cove to the eastward of the cape. It separates the northern entrance of Behm Canal from Clarence Strait, and from it Point Higgins bears E. by N. ½ N. four miles and a half, Point Vallenar nearly E. by S., and Point Grindall SW. by S. ¼ S., each five miles distant.

*The name of the island is erroneously spelled **Beaton** on Vancouver's chart, an error which has been almost universally copied in subsequent charts. The correct spelling is given in several places in the text of his voyage. It was named for Robert Betton, who was wounded by the natives at the time they attacked Vancouver's party at Escape Point.

†But Tebenkoff places it 6′ farther west; the Russian Hydrographic Chart No. 1493 11′ farther west; while upon British Admiralty Chart No. 2431 it is 8′ west of Vancouver's position.

1. Called Guard Islands by pilot W.E. George M.B.
a Not so bad as that. Do not go between Point Vallenar and outer Guard Id. H.E.N.
Many Id. 4 or 5 miles long, over two wide about 200 ft high very flat, boggy ~~no timber~~ HEN.

b. I do not agree with Meade. H.E.N.

2 Called Channel Island by pilot W.E. George M.B.

3 Named Ward Cove by the H.B.Co. for one of their officers. M.B.
c. Note chart of Tongas Straits with soundings and sketch of Ward's Cove. The passage on C.S. chart is evidently from same sketch. H.E.N.
4 For "is" read "was" M.B. "now gone" H.E.N.

5 ~~Pennock Id. H.E.N.~~
d Pennock Id. H.E.N.
e This stream is a conspicuous cascade. M.B.

7 After "shoe" add "with 19 fathoms, muddy bottom." M.B.
8 Called Tongas. H.E.N.

f See my sketch H.E.N.

g Bold Id. H.E.N.

h. Frog Rocks or Hog Rocks? H.E.N.

k. It is claimed by the U.S.S. "Alaska" that there is good anchorage in Ward Cove in 5 fathoms. Pilot George says 15 fathoms. See my notes. H.E.N.

From Point Higgins **Point Vallenar** * bears **S.** by **E.** ¼ **E.** about two miles. From Point Vallenar extends a ledge of rocks, parts of which are only visible at low water, in a **WNW.** direction about two miles, nearly to two small, low islands covered with trees. These latter bear from Point Higgins **SW.** by **W.** according to Tebenkoff, and with the ledge above mentioned constitute a serious obstruction, occupying nearly half the width of the entrance to Behm Canal. Between Point Vallenar and Point Higgins lies the northern entrance of **Revillagigedo Channel**, named by Caamano and Vancouver, and formed by Revillagigedo Island and portions of the mainland to the north and east and the Gravina Islands to the south and west. To the contracted portion between the northern Gravina Island and the island of Revillagigedo the name **Tongass Narrows** has been applied by recent navigators. Only approximate data can be given in regard to this channel, which for the most part is still unsurveyed and hardly explored. Commander Meade, who went through this channel in the U. S. S. *Saginaw* in December, 1868, says it "is a dangerous channel and requires a pilot well posted."

According to Tebenkoff,† from the northern entrance the Narrows take a direction **E.** by **S.** some nineteen miles with a width averaging two miles; thence the general direction is **SE.** by **E.** about twenty miles to the southern entrance, abreast of Foggy Point, with an average width of five miles, including islands. The track of the Russian traders, as laid down by Tebenkoff, from the northern entrance passes to the southward of a small wooded islet; behind this is a small basin five miles from the entrance, on the northern shore, where anchorage in fifteen fathoms, muddy bottom, may be had. This was named by Meade **Ward Harbor.** Between this and Point Higgins is the **Tilkhnakh** settlement of Indians. The track continues to the eastward south of a small island which is seven miles **SE.** by **E.** ½ **E.** of Point Higgins, the main shore north from it being bordered with *foul ground;* at twelve miles anchorage off a bank on the Gravina shore is laid down in seventeen fathoms; at sixteen miles the track passes to the northward of a large channel island, and *foul ground* along the northern shore is indicated; at eighteen miles the shore of the channel island becomes *foul with rocks*, extending off within a mile. Here an anchorage into which a stream falls is indicated in a bight on the northern shore.

Tongass Narrows.

At twenty miles the Narrows are passed. A channel makes to the southward between Gravina and Tamgas Islands. The track passes south of and close to a large channel island. At twenty-six miles the track passes to the northward of a chain of small islets and rocks, and between them and a rocky reef two miles in length; at thirty-six miles it passes close to the last island of the chain, named Mary Island, avoiding the rocks and reefs which obstruct to a dangerous degree the southern portion of the channel in this vicinity, after clearing which it is plain sailing.

ETOLIN, ZAREMBO AND ASSOCIATED ISLANDS.

The next passage in order of description is that between the Gravina and Prince of Wales groups, forming the southern section of

CLARENCE STRAIT.

This strait‡ is second in importance, in the Alexander Archipelago, only to Chatham Strait. It extends from Dixon Entrance to Sumner Strait in a **NW.** by **W.** direction one hundred and seven miles, with a width varying from three and a half to twenty miles, and averaging about six miles. Its eastern shore is formed by the Gravina Islands, the mainland, Etolin and Zarembo islands; the western shore by part of the coasts of the Prince of Wales Archipelago. As a whole the strait is remarkably free from obstructions, but the northern extreme is somewhat embarrassed by islands. The waters are deep, the shores moderately high, usually bold, and more or less densely timbered.

Cape Northumberland, the eastern extreme of the southern entrance previously described, is the southern extreme of **Northumberland Island** of the Gravina group, unsurveyed, moderately high, and separated by an unsurveyed passage from **Tamgas Island**, the middle of the three principal islands of the group. Its northern and eastern shores are entirely unsurveyed, and comparatively little is known of the remainder. Its southwestern extreme is **Point Davison.** § A reef extends in a southwesterly direction a mile and a half from the point.

Point Davison forms the western extreme of a large bay, whose entrance, nearly five miles in width **NE.** by **E.** ½ **E.** and **SW.** by **W.** ½ **W.**, is largely taken up with an island of moderate size and a multitude of islets and rocks. These form a group or chain nearly closing the entrance of the bay,

* These two points were named by Vancouver after Señor Higgins de Vallenar, then president of Chile. This, as pointed out by Darwin, is a singular instance of transformation of a name, originally that of an Irish family, whose representative, O'Higgins of Ballenagh, became naturalized in Chile.

† The chart of Tebenkoff affords the most information, but in many respects it differs very widely from the Russian Hydrographic charts, and cannot be taken as final.

‡ Named Duke of Clarence's Strait by Vancouver, a name whose length may advantageously be curtailed. It has also been termed Clarence Sound.

§ Named by Vancouver, and placed by him in latitude 55° 0′.5 N. His boat party camped for the night in a small cove near this point.

and to the southwestern islet or termination of the cluster Vancouver gave the name of **Point Percy.** There is a passage to the westward of Point Percy, another to the eastward of the group of islets, and a third between the island in the bay and the main shore of Tamgas Island.

These passages lead to the sheltered waters at the head of the bay known as Tamgas Harbor, a name applied by Russian authorities.* On the charts the western entrance alone is sufficiently represented to be described. It was surveyed by Etolin in 1833. According to his plan on Russian Hydrographic Chart No. 1396 the distance from the islet of Point Percy north and west to Point Davison is about two and a quarter miles. Off the latter is **Karablin** or **Ship Islet,** of small extent and about two cables from the shore. From the point the shore trends to the north and east three and a quarter miles, with islets and rocks extending off in some places as much as a mile. **Tamgas Harbor.**

The Russian track is laid down in midchannel between these shore islets and those of the Percy group, north and east from the entrance, about three miles to the northwest point of the bay island before mentioned. The track passes close to an islet, which appears to be bold-to at this point. Behind the islet anchorage is indicated in less than twenty fathoms. From this vicinity the channel contracts to little more than a mile and takes a more northerly direction for three miles. There are two small islets near the narrowest portion of this passage at its southern entrance,—the track being indicated a third of the way from the eastern islet toward the other. The latter has *a sunken rock* close to its SE. side, and *a four-fathom patch* a little more than a quarter of a mile northward from it. Beyond this two anchorages are indicated in seventeen and twenty-one fathoms, muddy bottom, on the western side of the passage, a third of a mile from the shore. The soundings then begin to diminish to fourteen and twelve fathoms; the passage turns rather abruptly to the westward, contracting to less than half a mile in width, of which little over a quarter of a mile is clear channel,—the shores on either side being shoal for about a cable, when the passage expands into a fine basin two and three-quarter miles in length north and south, and a mile and a half wide. ***Sunken Rock.***

From the low southern point of entrance into the basin *a shoal* extends a cable and a half in a direction the same as that of the point, which should not be rounded within a third of a mile. Anchorage may be had almost anywhere in the middle part of the basin, in from nine to twelve fathoms, muddy bottom. From the western and northeastern shores several *shoals* are indicated as making off to the extent of nearly half a mile. The land appears only moderately high and wooded. less water

The harbor was placed by Etolin in see survey.

Latitude ..... **55° 03′ N.** see Morse 1883.
Longitude ..... **131° 30′ W.,**

with a variation of the compass in 1833 of **26°** easterly. 28°30′ in 1883

Tebenkoff, however, gives the position of the inner anchorage as

Latitude ..... **55° 02′ N.**
Longitude ..... **131° 26′ W.,**

and states that the rise and fall of tides amounts to fourteen feet. On Tebenkoff's rendering of Etolin's sketch an intimation appears that the compass on the latter is magnetic and not true, as it seems to be intended. Any bearings taken from it would, therefore, be subject to a doubt, for the clearing up of which data are not now accessible.

Tamgas Island is separated by an unsurveyed strait, of which the southern entrance is much embarrassed by rocks and islets from **Gravina Island** proper, the northernmost of the group, which received the name of Gravina Islands from Caamano, and which extends twenty miles from the strait above mentioned in a northwesterly direction. The portion of the island adjacent to the passage is low and wooded. Its northern and eastern shores are little known; on its southern and western shores are several small indentations, and it terminates to the northwest, as previously described, in Point Vallenar, of which a submarine continuation produces *a reef* and some islets in the direction of its trend.

PRINCE OF WALES AND ASSOCIATED ISLANDS.

The western shores of Clarence Strait are formed by the **Prince of Wales Archipelago,** originally so named by Vancouver, frequently called Prince of Wales Island, but in all probability embracing a number of distinct bodies of land, separated by passages little known or unexplored. The topography is broken or varied, but on the whole less abrupt in character than that of the mainland, and, except in the northern portion, not attaining anywhere to great elevations nor forming specially conspicuous peaks. Few of the summits rise above the snow-line; there are no rivers of large size, and the land is heavily wooded, principally with coniferous trees. The islets and passages are generally narrow, with compact shores, and apparently less obstructed by rocks than those to the northward and eastward. The southern and western coasts are much more broken than the eastern, and especially the northern ones, and of all it may be said that we possess only an approximate knowledge.

* Sometimes given as **Tongas, Tomgass,** &c.

From Cape Chacon, the southwestern extreme of Clarence Strait, the shores are broken, bordered by several islets and rocks, and trend to the northward eight or nine miles to the entrance of Gardner* Harbor, a name which first appears upon Russian Hydrographic Chart No. 1396, prepared by Kupreanoff, and published in 1848. No plan of the harbor has been found, but it is indicated on the Russian charts as an entrance with an islet and a rock in it, within which a basin expands, affording anchorage, altogether forming an inlet about a mile and a half wide and two miles in length. Russian authorities indicate the course in entering to be to the northward of the rock and islet, but there are no details of depth of water or position. The entrance is in the vicinity of

Gardner Harbor.

Latitude	54° 50′ N.
Longitude	131° 45′ W.

The land between Cordova Bay, Clarence Strait, Dixon Entrance and Moira Sound appears to consist of a congeries of islands. It is doubtful whether the word "Archipelago," inserted over this vicinity on Russian Hydrographic Chart No. 1396, is intended to apply to the whole area above mentioned, or whether it applies to a small unsurveyed bay, filled with islands, situated about two miles to the northward of Gardner Harbor; and which, by an angle in the track laid down on that chart, is indicated as having served the Russian vessels as an anchorage. Beyond this indentation the coast rounds to **NW.**, and at a distance of about seven miles a large unsurveyed bay offers, according to some authorities, a number of unexplored arms which may contain anchorages. This bay makes in several miles to the southward and at its entrance is a mile and a half wide.

Anchorage.

Immediately to the **NW.** from it is **Chichagoff Bay** or **Harbor** of Kupreanoff, which name† has been improperly transferred on British Admiralty Chart No. 2431 and U. S. Hydrographic Chart No. 225 to the bay just previously mentioned. Of the present bay the charts only afford the information that it is of small extent and was visited for anchorage by Russian vessels. The land forming the northern headland of this bay is a promontory about a mile wide, from which, according to most authorities, a group of small islands and rocks extend **NW.** by N. about three miles. According to Tebenkoff, however, whose chart shows more detail in this vicinity than any other, these islets are divided into two groups, with the passage (which other authorities place to the westward of all the islets) between the two groups about a mile wide and leading in a southerly direction into the extensive inlet named by Vancouver Moira Sound. The entrance within the islets is a little less than two miles wide. The land about the sound is high and rather abruptly descending to the shore. The sound, according to Tebenkoff, penetrates the land for some ten miles, first extending four miles to the southward and then about six miles to the west and north,—the land being in the vicinity of several other arms of the sea which extend from Cordova Bay and Cholmondeley Sound. Two unsurveyed arms, apparently of no great extent, extend from the vicinity of the bend to the southward. This and the next inlet to the northward require more careful examination. The entrance to Moira Sound lies in about latitude 55° 3′ N.

Moira Sound.

About **N NW.** from its eastern headland six miles lies **Wedge Island**, named by Vancouver, somewhat over a mile long, situated off the mouth of an indentation in the main shore and two or three miles to the eastward of its head. This island "in many points of view resembled a wedge; * * * from its south point lies a ledge of dangerous rocks on which the sea broke with great violence."‡ Between it and the shores of the bay to the westward lie *several rocks* and islets. Vancouver remarks: "As we advanced beyond Wedge Island the straight and compact shores were more moderately elevated, and the interior country was composed of lofty though uneven mountains, producing an almost impenetrable forest of pine trees from the waterside nearly to their summits." The latitude of Wedge Island is about 55° 8′ N. according to Vancouver.

From the northern end of the island about **NE.** four miles, across the strait, lies **Dall Head**,§ on Gravina Island, a bold, high bluff, forming the southwestern extreme of the higher land of Gravina Island, which to the south of the head is low. It is a noted landmark, and received its name from the shipmasters engaged in fur-trading or commerce in this region.

From the head, **NW.** by **W.** ½ **W.** nine miles, lies **Point Chasina**, apparently a native name adopted by the Russians.‖ This point is a broad promontory two miles wide, facing to the northward with a somewhat irregular shore-line, wooded, probably low, and having a small islet immediately off its middle part. It is situated in about latitude 55° 17′ N., and immediately to the westward of it is Cholmondeley Sound of Vancouver.¶ This inlet is unsurveyed, but is represented by Tebenkoff as long and narrow, extending nearly thirteen miles in a

Cholmondeley Sound.

* The name of **Port Gardner**, which has been applied to it, had been previously used by Vancouver in Puget Sound.

† Sometimes spelled **Tchitchagoff**. Tebenkoff's name of this harbor is very obscurely printed upon his chart (No. IX.)

‡ Vancouver; vol. ii, pp. 380–381.

§ Named after Captain C. C. Dall, of the P. M. S. S. Co's. service.

‖ Erroneously rendered **Point Charm** on the British Admiralty charts and also on some others. It has also been used in the form of **Chasen** or **Tchasení**.

¶ **Chasina Bay** of Tebenkoff.

HEN 1882
Kasaan. Grindall Id. may be passed on either side. at the NW. end of Grindall Id is ✓ in 10 fms.
When nearly up with Long Island there is a marked ragged cliff on the north shore. at that point about 1/4 of a mile off there is a boulder reef that partially uncovers at low water. When the west Point of Long Island is abeam the course in will be W.1/4 S. leading on a marked white patch in distance. this patch is on a bluff a little beyond Fishery bay. This course leaves Round Island on port beam about 1/3 of a mile and Point Grindall will be open half a point North of tangent of Long Island but gradually closes until Fishery Bay is reached. This leads clear of the boulder flat and boulder bank both of which show more or less at low water. The anchorage in Fishery bay is in about 12 fathoms There is a small wharf there in about 8-10 ft at l.w.
There is said to be a dangerous sunken rock near midchannel nearly a mile SW of the boulder that shows off Ragged cliff. according to Mr. Dahe a resident who works a copper mine. There is coal at this bay. H.E.N. 1882.

There is a good anchorage in Folstin Bay see sketch. H.E.N. 82
SE wind blows into Kasaan with considerable force H.E.N.

southerly direction, and having a width of about two miles. It has no subsidiary arms according to his chart. The **Chasina** settlement of Indians is situated just within the entrance, on the eastern shore. An anchorage is indicated between the northwestern extreme of Point Chasina and some islets, but no depth of water is recorded. Off its northeastern point Vancouver anchored in forty-seven fathoms. The head of the sound is near that of Moira Sound and Tliakaek Bay, an arm of Cordova Bay. The land between these bodies of water is denominated by some Russian authorities as the **Kaigan Portage.**

The largest of the islets above mentioned is **Skin Island,** probably named by the traders, and of small extent. It lies less than two miles **NW.** by **W.** ¾ **W.** from the northwestern extreme of Point Chasina. From this vicinity the main shore of Prince of Wales Island extends to the northwest, nearly straight and with a number of islets off it, for about seven miles, to a point at the entrance of Kasa-an Bay,* a name derived from the native appellation. **Kasa-an Bay.**

The point mentioned forms the southern headland of the entrance of the bay,—the northern headland being the point named by Vancouver **Point Grindall,** and sometimes referred to as Cape Grindall. There are no plans of the bay and entrances yet published, and the U. S. Hydrographic Chart No. 225, containing the most recent information, is on too small a scale to give details. The width of the entrance between the two headlands is about two miles **N NW.** and **S SE.**

From near Point Grindall Kasa-an Bay extends in a **W.** by **S.** ¼ **S.** direction about twelve miles. For the first three miles the bay is broad, giving off two unsurveyed arms to the southward; at the head of the western arm an Indian village is noted. Thence to the head of the bay the width is about a mile and a half,—the northern shore being nearly straight and the southern more irregular. Near Point Grindall are several islets. The course lies to the southward of them. There are also some visible rocks or islets on the southern shore farther in, leaving a clear passage to the north of them. The shores are bold, high and densely wooded.

Ten miles from Point Grindall the depth of water decreases to fifteen fathoms, and the anchorage is indicated in a sort of basin at the head in ten fathoms. A stream comes in at the head, where a salmon fishery has been established, the fish running in July and August, and about one thousand barrels being put up here in a season. The position of the anchorage, according to the U. S. Hydrographic Chart No. 225, is about

Latitude	**55° 28′ N.**
Longitude	**132° 19′ W.**

The range of the tide is said to be sixteen feet. This is stated to be one of the finest bays in this region, the harbor good and easy of access; cod and halibut very abundant in their season; the spruce and yellow cedar attaining great size on its shores.

E NE. about a mile from Point Grindall is **Grindall Island,** of small extent. Several islets and rocks infest the shore of the point and *a reef* extends from its northeastern extreme. This bay is erroneously represented by Tebenkoff as communicating with another to the northwest. Up to this vicinity, with the exception of dangers immediately adjacent to the shores, Clarence Strait is clear of obstructions to navigation.

NW. by **W.** ½ **W.** from Point Grindall the coast trends for about fifteen miles, with some irregularities, to **Broad Point,** in Russian Point Tolstoi, a high, rounded promontory, immediately to the westward of which is an unsurveyed bay, at the mouth of which anchorage is indicated on the Russian charts directly to the westward of the point. There are several islands in the entrance of the bay, the head of which erroneously is continued to meet Kasa-an Bay on some Russian charts. The western shore of the bay is continued to the northward in a **NW.** ½ **N.** direction, and along the shore, at a distance from it of about a mile, two *reefs* are indicated—one nearly **W.** by **S.** ½ **S.** and the other **W.** by **N.** from Broad Point. **Anchorage.**

On the eastern shore of the strait, **W.** by **N.** ¼ **N.** about ten miles from Cape Caamano, lies an island surrounded by rocks, which, according to some charts, extend off from its shores to the distance of a mile. Between this island and the main Vancouver reports a clear passage.

N. by **W.** ⅓ **W.** somewhat over seven miles from Broad Point lies **Point Lemesurier** of Vancouver,† forming the southeastern point of entrance into Ernest Sound. This point stretches prominently out from the mainland as a peninsula about four miles long and one or two miles wide, united to the mainland by a rather narrower isthmus, on either side of which a small bay or cove is formed. That to the south of the isthmus is quite small with some islets off it.

From the extremity of the point Vancouver noted some *rocks* and *breakers* extending about a mile from it, in a direction **W.** by **S.** ¾ **S.** according to the Russian Hydrographic Chart No. 1493. Vancouver placed the point in latitude **55° 46′ N.** The bay on the northern side of the isthmus connecting it with the mainland is indicated as a stopping-place of Russian traders, but without any details. It has been called **Union Bay** on some unpublished charts.

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* Variously rendered **Kazarn, Casaan,** &c., and even **Karta** on British Admiralty Chart No. 2431.

† Sometimes written **Point Mesurier.**

Ratz Harbor. According to Mr. Ishe it has a very narrow entrance, is completely landlocked just large enough for a single small vessel in 11 fms with short scop of chain HEN.se

About **W. ½ S.** seven miles from Point Lemesurier lies **Narrow Point,** or **Tonki** of Russian authorities, an inconspicuous and apparently rather low wooded point, to the northward of which Tebenkoff locates an anchorage. In this vicinity the width of Clarence Strait is four or five miles. To the **NE.** and abreast of Narrow Point, on the other side of the strait, is an assemblage of islands forming the southwestern point of entrance to Ernest Sound, and to the southern termination of which Vancouver gave the name of Point Onslow.* In this vicinity rocks are indicated near the so-called point by most authorities. These islands and the shores northward and westward from them for ten or twelve miles are little known. The coast is apparently much broken, and numerous inlets or basins are indicated by Russian authorities.

Ratz Harbor.

From Narrow Point the shore takes a westerly direction for some six miles to Ratz Harbor of Tebenkoff, who indicates it as a basin nearly two miles long and about a mile broad, with a very narrow entrance obstructed by an islet, and in which anchorage may be had. The entrance is placed by Tebenkoff in about latitude **55° 52′ N.,** whence the coast trends about **W NW.** for ten miles.

NW. ½ N. from Narrow Point twelve or fourteen miles—the charts being discrepant as to the exact distance—is **Point Stanhope** of Vancouver, situated in latitude **56° 2′ N.,** and having to the westward some islets off it, beyond which are *some rocks,* the southern and western extension of which appears from the Russian hydrographic charts to fall within a radius of a mile and a half from the point. Tebenkoff gives only one islet near the point and omits the rocks entirely. Over two miles to the eastward of the point both authorities agree in indicating a large and unexplored basin or inlet about five miles in length and extending to the **W NW.**

Point Stanhope forms a projection of Etolin Island, the largest of the group to which Vancouver applied the name of Duke of York Islands, and which, as a group, forms the northern and eastern shores of Clarence Strait between Point Onslow and Sumner Strait. These will hereafter be more particularly referred to.

Reefs.

From Point Stanhope a point on the opposite shore bears **SW.** by **W.** six and a half miles. Beyond these points to the northward Clarence Strait widens to ten or twelve miles,—the southwestern half becoming greatly embarrassed by islands. To the eastward of these islands are several *reefs* apparently under water, for which the following positions are taken from Russian Hydrographic Chart No. 1493:

1. *A reef,* whose southern portion bears **W.** by **S. ⅓ S.** six miles from Point Stanhope. This reef is a mile and a half in extent **NW.** and **SE.,** and immediately to the southwestward from it are two small islets about half a mile apart, trending parallel with the reef.

2. *Another reef,* with its southern portion bearing **W.** by **N. ¾ N.** nine and a half miles from Point Stanhope. This is somewhat over a mile in extent **NW.** and **SE.,** but appears to have a clear passage a mile wide **SW.** from it, between it and the islands. The course lies to the north and east from these reefs.

From the southernmost islet, near the south reef above mentioned, a belt of islands and islets, here named **Kashevaroff Islands,** extends in a generally **NW. ½ W.** direction for about fourteen miles. The eastern margin of the group is pretty compact and well marked, but to the southwest the islets are more sparsely distributed, and between them and the shore an apparently much obstructed and not-to-be-recommended channel exists, named by Russian authorities the **Kashevaroff Passage** or **Strait.** It is quite possible that a clear channel may exist here, but in advance of a more detailed examination than it has yet received navigators should avoid entering it. A good passage. A.C.H.

Nine and a half miles **W. ½ N.** from Point Stanhope is **Blashke Island,**† the largest in the southern part of the group. The northwesternmost island is identified by Russian authorities with **Bushy Island**‡ of Vancouver, whose survey in this vicinity was very imperfect. On either side of this island, which is about two miles long, are some detached rocks; a chain of small islets stretches to the westward toward the opposite shore, but to the northeast of the island a navigable passage exists three-quarters of a mile wide.

Eight miles to the westward of Bushy Island, according to Tebenkoff, is **Point Colpoys,** named by Vancouver, and forming a somewhat prominent projection of the western shore and the northwestern headland of Clarence Strait at its junction with Sumner Strait. These authorities also indicate some islets or rocks adjacent to the point. On the Russian hydrographic charts prepared by Kashevaroff, however, the coast-line is gently rounded off in this vicinity and no conspicuous point is indicated.

Five or six miles to the northwest from Point Stanhope Vancouver found shelter for his vessels behind and to the north of a small island, between which and the Etolin shore are some rocky islets. He anchored here in seven fathoms over an uneven and partly rocky bottom, and found the situation well sheltered from southerly and southeasterly winds.

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* Erroneously rendered **Onalow** on Russian Hydrographic Chart No. 1493.

† Probably named for Dr. Edward L. Blashke, who visited the colonies with Etolin in the ship *Nikolai,* in 1839–41. It is usually erroneously written **Bloshkó.**

‡ The name on Russian Hydrographic Chart No. 1493 is erroneously rendered **Stugam Island.**

See notes. H.E.N.

About nine miles northwestward from Point Stanhope is **Point Harrington** of Vancouver, a name transferred on Russian Hydrographic Chart No. 1493, and Tebenkoff Chart No. IX, to the point next northward, but properly belonging to a narrow tongue of land with a rock and islet adjacent to its extremity, forming, according to Vancouver's chart, the southeastern extreme of Stikine Strait. Immediately behind it is Steamer Bay, in Russian **Parakhotnia,** where anchorage is indicated on the Russian charts. No soundings are given on the published charts, but a manuscript Russian chart shows an anchorage one mile inside the entrance in a cove on the south shore. A note on U. S. Hydrographic Chart No. 225 states that this is a "good harbor."

Steamer Bay.

From Point Harrington **Point Nesbitt** of Vancouver bears **W.** ¼ **N.** about six miles, and forms the southwestern extreme of Stikine Strait. The shore about this point and for some distance to the west and north is fringed with rocks, which at the point itself extend off shore a distance of about a mile. The point appears to be high and wooded. Hence the shore of Zarembo Island extends in a generally **W.** by **N.** direction about ten miles.

The navigable channel of Clarence Strait here becomes much contracted. At a distance of three miles from Point Nesbitt it is diminished to half a mile, and at a distance of six and a quarter miles from the same promontory a small point makes out with *a bank or shoal* (no soundings given) a quarter of a mile from it. The Russian track passes between the two, according to Russian Hydrographic Chart No. 1493. Vancouver notes *strong tidal currents* in this vicinity. Tebenkoff, however, gives a different conformation to the shore and omits the bank or shoal.

About ten miles from Point Nesbitt **W.** by **N.** lies **Point Macnamara,** named by Vancouver, and placed by him in latitude **56° 21′.5 N.** A small islet lies near it, and there are several rocks along shore east and west of the islet, extending off half to three-quarters of a mile. This point forms the northeastern extreme of Clarence Strait at its junction with Sumner Strait.

The islands included between Ernest Sound, Clarence Strait, Sumner Strait, Blake Channel and Eastern Passage were denominated by Vancouver **Duke of York Islands,** a name whose unwieldly length has suggested its curtailment to York Islands. The survey of the group has been chiefly due to Russian observers. It consists of five principal islands, **Etolin, Wrangell, Zarembo, Woronkoffski,** and one which will here be termed **Seward Island.** The group is intersected by several passages, especially **Stikine** and **Zimovia straits,** a passage named **Eastern Passage,** and more or less by Ernest Sound and Bradfield Canal. Few details in regard to the navigation of these passages are accessible, and there is some reason to suspect serious inaccuracies in all the published charts of this vicinity. For this reason an extended description is not deemed necessary in this place.

York Islands.

ERNEST SOUND

opens on Clarence Strait between Points Onslow and Lemesurier, the clear passage being about two and a half miles wide. The sound extends about twenty-two miles in a generally **N.** by **W.** direction with a width varying from three to eight miles. The western shore is formed by Etolin Island and is much broken and little known. The eastern shore has not been thoroughly examined and is formed by a portion of the continent. Both are in general moderately elevated. There are numerous small islands in the sound, and a large one or group of several islands about sixteen miles **N.** from Point Lemesurier. The northern entrance is one or two miles wide, and the northeastern extreme was named by Vancouver **Point Warde,** and placed by him in latitude **56° 09′ N.** It separates the waters of Ernest Sound from those of a passage of which the eastern portion was called **Bradfield Canal** by Vancouver, a name which might be extended so as to cover the whole of this passage from the southern entrance of Zimovia Strait eastward.

This canal separates Etolin Island and the mainland from Seward Island and penetrates the mainland to the eastward, having a total length of fifteen or twenty miles and a width of one half to two miles. It terminates, according to Vancouver, in latitude **56° 14′.5 N.,** at a narrow border of low land through which two streams empty into the canal. From Bradfield Canal two arms extend to the northward, one on either side of Seward Island, at whose northern extreme they join, and, giving off a small branch to the northward, the channel thus formed is then continued to the northwestward, finally joining Sumner Strait at its eastern extremity.

The passage northeastward from Seward Island has received from the United States Coast Survey the name of **Blake Channel,*** and opens from the middle part of Bradfield Canal extending in a generally **NW.** by **W.** direction some ten miles with a width of three-quarters of a mile. At its southern entrance are two small islets and an island. At its northwestern extremity, in latitude **56° 20′ N.** according to Vancouver's observations, a small branch makes to the north about three miles. In this vicinity are numerous rocks.

*In 1853 Professor W. P. Blake, of New Haven, Conn., made the first American explorations of the Stikine River near this channel, while in company with a Russian exploring expedition from the Rynda.

1 It is sometimes known as Labouchere Bay. M.B. It is called Labouchere anchorage H.E.N.

2 A five fathom patch not shown on the chart is reported by pilot H.E. George M.B.

+ Did I. alone in 1882 made Wrangell 56° 28'. 19".05 N. Lat. 132° 20' 02".2 W. Lon.

A passage which is contracted to a quarter of a mile in width passes about three miles to the **SW.** and joins the main channel. This main channel is named on U. S. Coast Survey Chart No. 701, (corrected to 1877,) **Eastern Passage.** It extends about twenty-four miles in a northwesterly direction from the western part of Bradfield Canal, between Seward Island and the mainland on the east and Wrangell Island on the west, with a width of from one to two miles, and is represented by all authorities as unobstructed, though its form and direction differ on different charts.

Near the junction of Eastern Passage with Blake Channel the continental shore is somewhat indented, and at the junction a point is formed which received from Vancouver the name of **Point Madan,** a name which has been on nearly all modern charts transferred from the eastern headland of a small bay in the continental shore to the point which forms the western headland of this bay.

Seward Island, which is inclosed between Bradfield Canal, Eastern Passage and Blake Channel above described, so far as known, is of an irregularly quadrilateral form, about twelve miles in length and four or five in width, with very compact shores.

From Point Madan Eastern Passage trends in a generally **NW.** by **W.** direction ten miles, and then curves to the westward four and a half miles to its junction with Sumner Strait. Its eastern shore is formed by the continent and that to the westward by Wrangell Island. The width of the passage is about two miles, and it appears to be tolerably free from obstructions.

The northwestern extreme of Wrangell Island, forming the northwestern headland of Eastern Passage, is **Point Highfield,** named by Vancouver, and described as a very conspicuous point.* Its northern face is nearly a mile broad, and the point, specifically so called, is at the western end of this straight strip of shore line. From it **NE.** ½ **N.** six cables and about four cables off shore lies a small partially wooded islet, called **Simonoff Island** on the English sketch, and Observation Islet on the Russian plan of the Stikine River. Between this islet and the shore the depth does not appear to exceed fifteen or sixteen fathoms, and about half way between the shore and the islet bearing **N.** by **E.** ¼ **E.** the depth is nine or ten fathoms.

Anchorage off Point Highfield.

This vicinity is usually known as the Anchorage off Point Highfield, and appears to be free from obstructions. About **E.** by **S.** ¼ **S.,** six or seven cables from the islet, and lying less than two cables from the shore, is *a reef,* a cable and a half in length, which covers at a quarter flood. For this reason vessels entering or leaving Eastern Passage should not round the northeastern angle of Wrangell Island nearer than three cables. Russian authorities represent this reef as a cluster of islets, or omit the reef and place in the same vicinity a cluster of islets, it being difficult to decide which is the true explanation of the discrepancy. The bottom appears to be muddy throughout. The U. S. Coast Survey party, anchoring here in 1869, experienced disagreeable sub-surface and counter-currents. A sketch of this anchorage appears on British Admiralty Chart No. 2431, upon which, in addition to the foregoing notes, it is stated that the geographical position of Simonoff Islet is

Latitude	**56° 33′ N.**
Longitude	**132° 22′ W.,**

and the range of the tide is about sixteen feet.

The same vicinity on the body of the chart is very differently and (it would seem from the reports of the U. S. Coast Survey party alluded to) very inaccurately represented. However, all the Russian charts, including a plan of the Stikine mouth published in 1867, agree in their representation of this vicinity and differ from the English sketch. The last-mentioned Russian plan gives the geographical position of Simonoff Islet (there called Observation Islet) as

Latitude	**56° 34′ 28″ N.**
Longitude	**132° 23′ 35″ W.,**

and the variation of the compass as **26° E.** in 1863.† The range of the tide is stated to be eighteen feet.

Eastern Passage is separated from Zimovia Strait by Wrangell Island.‡ It is about twenty-three miles long and four or five miles broad, and trends in a generally **NW.** ½ **W.** direction from its southern termination.

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* This name is transferred to a point on the continental shore five and a half miles to the eastward, on the Russian plan of the Stikine River, dated 1867.

†† The question of position is further complicated by the U. S. Coast Survey observations, which, after the official revision of the computing division, would place Simonoff Islet in nearly latitude **56° 29′.3 N.,** longitude **132° 22′.7 W.,** a discrepancy of four or five miles in latitude. These discrepancies cannot be reconciled without additional observations in the field. An error appears on the Coast Survey sketch of Etolin Harbor as printed, in the accidental substitution of **37′** for **23′** in the longitude of Fort Wrangell.

‡ Named by the Russians on their Hydrographic charts of 1848 and 1853, and called **Kach-Khanna Island** on Tebenkoff's chart of 1849. It should be noted that the names, ostensibly of Indian origin, in some cases inserted by Tebenkoff, are of very doubtful application to the geographical features which they are used to designate, and this as well as their unpronounceability is in most cases a sufficient reason for discarding them, or rather for adopting in preference the more euphonious and previously published civilized appellations.

Young Rock. In Nov. 82. Mr. S. H. Young, saw a rock with no help about 11 or 12 ft at low water in Sumner Strait about at intersection of mid channel line with Ells & Chichagoff Passage

X Mr Lear, a merchant at Port Wrangell has a good wharf and warehouse; all steamers discharge and receive freight at the wharf. H.E.N.

a The anchorage is not bad in summer. In winter the anchorage for S.E. weather is off Pt Highfield H.E.N.

b Well cleared now and upwards of 100 houses or shanties in existence H.E.N.

c From here a steamer runs up the Stikine. Taken off [illegible] of anchorage 1882. H.E.N.

d See my tidal observations H.E.N. See Hassler astr. position 1882 p.66

There is no island in the southern entrance of Chichagoff Passage H.E.N. 1882

Between the latter and the shore of Etolin Island, at the western end of Bradfield Canal, is the southern entrance of Zimovia Strait, a name applied by the Russian explorers.* This body of water, at its entrance about a mile broad, trends to the westward for two or three miles, at the same time expanding to more than three miles in width, and becoming much obstructed by rocks and islets. On the Wrangell shore in this vicinity Tebenkoff locates a village of the Stakh-hin T'linkits. Hence the strait trends **NW.** about twenty miles, with a width varying from one and a half to three miles. About nine miles from the southern entrance is the mouth of a good-sized bay on the Etolin shore. About fifteen miles from the same locality is the northern extreme of Etolin Island, separated from Woronkoffski Island to the **NW.** by Chichagoff Passage, two miles and a half wide at its eastern entrance, three miles long, containing several islets, and connecting Zimovia and Stikine straits. This passage is apparently clear of dangers. Five miles **NW.** by **N.** $\frac{3}{4}$ **N.** from the northern point of Etolin Island is a point on the Wrangell shore from which *a reef* is represented to project a mile in a **S SE.** direction.

Zimovia Strait.

About two miles **NW.** from this point lies the entrance of **Etolin Harbor,** named by the Russians, and formerly occupied by them as a trading-post. The harbor is formed by a small bay about five and a half cables in length **NW.** $\frac{1}{2}$ **W.** and **SE.** $\frac{1}{2}$ **E.**, of which the entrance is about five hundred yards in width **NW.** $\frac{1}{2}$ **N.** and **SE.** $\frac{1}{2}$ **S.**, from headland to headland. The harbor is about four hundred yards in width, but a large proportion of its extent is rendered unavailable by shoal water and an irregularly shaped peninsula which makes out from the **NE.** shore. The part available for vessels is about two cables in length **NW.** and **SE.**, and half a cable wide. The depth of water varies from three to eight fathoms, mud, gravel or sand. The southern headland is denominated by the Russians **Point Shekesti,** and about seventy yards **N.** from it is *a rock* or *ledge* with two or three fathoms about it. The other points about the harbor without exception have rocks or shoal water extending outward from them. Vessels may anchor in eight or nine fathoms, muddy bottom, midway between the U. S. fort and Point Shekesti. Small vessels may pass to the **NE.** from the point, but in this portion of the anchorage it will be necessary to moor **NW.** and **SE.** Meade says, in 1869, the "anchorage off Fort Wrangell is very bad and facilities for wood and water poor."

The shores about the harbor are densely wooded and tolerably high, the summits within half a mile reaching five or six hundred feet, and one, a mile and a half to the eastward, nearly two thousand feet. The beaches appear to be mostly sandy or composed of gravel.

The Russian stockaded post of St. Dionysius,† established by order of Baron Wrangell in 1834, was situated on the small peninsula alluded to, but no longer exists. In 1867 the U. S. military post of Fort Wrangell was erected on the shore near the northern headland of the entrance. A custom-house and several trading establishments, with a large number of native huts or houses, are situated here. This has been the port of clearance for goods destined for British territory by way of the Stikine River, and as such has acquired some importance.‡ The monthly mail steamers between Washington Territory and Sitka usually touch here.

A plan of the harbor was made by Zarembo, and is to be found on Russian Hydrographic Chart No. 1396, and has been roughly reproduced on U. S. Hydrographic Chart No. 225. A preliminary sketch was made by the U. S. Coast Survey party in 1869, and appears among the supplementary sheets of the atlas of Harbor Charts of Alaska. The geographical position of Fort Wrangell, according to the observations of the Coast Survey party,§ is

Latitude	**56° 28′ 15″ N.**
Longitude	**132° 23′ 23″ W.**

The variation of the needle in 1834 was **26° E.** according to Zarembo.

The tide in Zimovia Strait floods to the northward with a rate of two and a half knots. The rise and fall in Etolin Harbor is stated to be eighteen feet.

Woronkoffski Island, which in this vicinity forms the western shore of Zimovia Strait, received its name‖ from Russian explorers, and is situated to the northward of Chichagoff Passage, between Zimovia and Stikine straits. It is about six miles long **N.** by **W.** $\frac{1}{2}$ **W.** and **S.** by **E.** $\frac{1}{2}$ **E.**, and three and a half miles wide. Its northern angle forms the western, as Point Highfield forms the eastern, extreme of the northern entrance of Zimovia Strait, which is here about four miles wide.

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* In English, **Winter Strait.**

† It was built by Capt.-Lieut. Dionysius Feodorovich Zarembo.

‡ Within a few years $75,000 are stated to have been expended here in the construction of buildings and other permanent improvements, and the port has a considerable commerce. Transactions to the amount of several hundred thousand dollars are reported for 1876, and about a million dollars worth of goods and gold-dust pass through the hands of traders and miners in and out of this port of entry annually.

§ Erroneously given on the chart as longitude 132° 37′ approximate, &c. The longitude above given agrees tolerably well with the results of English, Russian and American naval observers, but who also agree among themselves in making the latitude about three miles more northerly.

‖ Sometimes written **Voronkowsky.** Named for Lieut. Woronkoffsky of the Russian Navy, 1836.

This rock exists. It is <u>out</u> of the channel - It is said the "<u>Saranac</u>" once touched on it. At low water quite a reef shows. 1882

H. E. N.

1 Liscome Bay after Ingraham. 1792

Sunken rock. In the middle of the northern shore of Woronkoffski island a small bight occurs, immediately off which, about half a mile from shore, *a sunken rock* is indicated by Russian authorities.

The **W NW.** extreme of Woronkoffski forms the northeastern headland of **Stikine Strait**, a name* which has been somewhat loosely applied by different geographers. It was originally applied (in the Russian form of Pralif Stakhinski) on the Russian Hydrographic Charts of 1848 to the body of water separating Zarembo Island from Woronkoffski and Etolin islands. By other authorities it has been used to denominate part of Sumner Strait, and extended to various adjacent waters. The original limitations are here adopted.

From the **NE.** headland above mentioned **Point Craig**, named by Vancouver, bears about **W.** by **S.** a mile and a half, forming the northwestern headland of the strait. On the British Admiralty Chart No. 2431 and U. S. Hydrographic Chart No. 225 the name has been erroneously transferred to a point farther west.

From the entrance Stikine Strait trends in a general way about **SE.** by **S.** thirteen miles, when, with a sigmoid curve, it turns to the **S SW.** for some seven miles, when it joins Clarence Strait. The shores of Stikine Strait are apparently free from conspicuous indentations for the most part, and its width varies from one and a half to three and a half miles. There is a clear passage. The few islands lie on the eastern side of the channel.

Quiet Harbor. Four miles within the southern entrance, on the Etolin shore, is Quiet Harbor.† It is a small indentation facing to the northward and penetrating the shore about a mile. No soundings are given, nor is there any information accessible in relation to this locality.‡

THE PRINCE OF WALES AND ASSOCIATED ISLANDS.

Having reviewed the interior navigation from Dixon Entrance to Sumner Strait, the oceanic coast is next in order.

THE COAST FROM CAPE MUZON NORTHWARD.

Immediately to the westward of Cape Muzon the coast-line is marked by a large bight, not named, but having a width of three and a length of two and a half miles, penetrating the coast in a generally **NW.** by **N.** direction. It is uncertain whether the high, bold, western headland of this bight or Cape Muzon itself was the **Cape Santa Maria Magdalena**, named by Perez in 1774.

From this headland the coast trends in a westerly direction some six to seven miles to **Point Bazan**, the southeastern headland of the port of the same name. The point is low at its extremity, with rocks extending off it a quarter of a mile. The position of the point, according to observations by Zarembo, is

Latitude	**54° 48′ N.**
Longitude	**132° 54′ W.**

Hence, across the entrance of Port Bazan§ is about five miles in a **W NW.** direction; the port penetrates the shore some six or eight miles in a **NE.** by **E.** direction, with an average width of three miles. The **NW.** headland is not named. The shores are rather irregular, indented with a number of small bays or coves, and the port is longitudiually divided for more than half its length by **Dolgoi Island**, a high, wooded, very narrow and rather irregularly shaped island. Between the northern end of Dolgoi Island and the head of the bay are a great number of small, high, wooded islets. The only portion of the port which seems to have received any particular attention is that lying between Dolgoi Island and Point Bazan. Here *foul ground* is indicated on both shores, extending off to a quarter of a mile. Before entering the channel between the island and the **SE.** shore twenty-three fathoms are had, afterward twelve to sixteen in midchannel until the northern end of the island is reached. Seven and nine fathoms are here reported, and half a mile beyond, in a snug cove on the main shore, about **E NE.** from the end of the island, anchorage is had in seventeen and a half fathoms. Navigation to the **N.** and **W.** of Dolgoi Island is not recommended, as nothing is known of the depth of water and it is probable that concealed dangers exist. No directions are necessary for reaching the usual anchorage further than to keep in midchannel.

Port Bazan.

A sketch (by Zarembo) of the port is given by Tebenkoff, (Chart IX,) from which it is gathered that the rise and fall of tide is fourteen feet.

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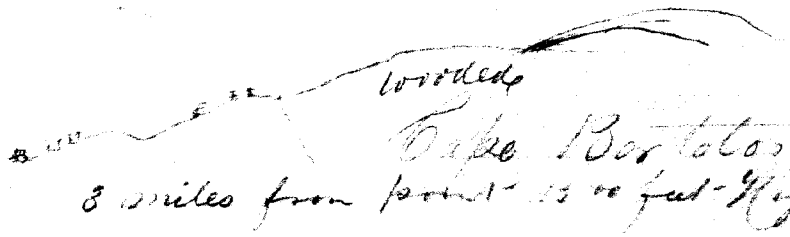
*The name has, as in the case of the Stikine River, been variously spelled, but the orthography here adopted has been in more general use than any other, and is therefore preferred to any attempt to restore the phonetic value of the native word.

†In Russian **Pokhinaia**, sometimes called **Quiet Bay**.

‡There is no doubt that this group of islands as a whole stands much in need of careful examination, especially toward the northern part. The information here afforded is (and for the present must be) largely of a merely approximate character.

§Also called **Bazan Bay** or **Harbor**. It was named **Puerto del Baylío Bazan** by Caamano, after the Baylío Bazan who examined it in July, 1792.



Herendeen Jany 2 1877.

The variation of the compass at the time of the survey (about 1834) was **26° E.** The geographical position of the anchorage is

Latitude	**54° 50′.5 N.**
Longitude	**132° 47′.2 W.**

This plan is copied in the U. S. Coast Survey Atlas of Harbor Charts of Alaska. It is stated by some of the Russian American Company's officers that a heavy swell rolls into this bay in **SW.** gales.

From the entrance of the port the coast trends to the **NW.** about twenty-two miles. This part of the coast-line is little known; but such data as are accessible indicate that it is much indented and broken, backed by mountains of considerable height,* and with bold and densely wooded shores, which are rather thickly populated with Indians of the T'linkit stock.

SW. by **W.** ½ **W.** from Point Bazan, nineteen miles, lies the southern end of **Forrester Island,** named by Dixon † in July, 1787.

This island all authorities agree in representing as about a mile and a half wide and four or five miles long **NW.** by **N.** and **SE.** by **S.**, with some rocks about its southern end. From the northern end rocks extend to several small, low islets, mentioned by several navigators, in the same general trend as the island for a distance of a mile or more. The island is steep at the sides, rising into high, rounded knobs, densely wooded, and occupied during at least a part of the year by Indians from the adjacent shores. The geographical position of the southeastern extremity of Forrester Island is, approximately,

Latitude	**54° 48′ N.**
Longitude	**133° 30′ W.,**

but there is a doubt as to the longitude, authorities differing from **133° 29′** to **133° 35′ W.**‡ The island is visible from Port Refugio through the passage leading to the sea eastward from Suemez Island.

Tebenkoff, Dixon and Meares give views of this island,§ none of which are satisfactory.

Wolf Rock.

N. by **W.** ⅓ **W.** about nine miles from the northern point of Forrester Island, according to Russian authorities, lies Wolf Rock of Vancouver.‖

Vancouver and others agree in representing it as a low, flat, rocky, barren islet, nearly level with the water, and surrounded by rocks and breakers, which extend some distance off. Its exact extent has not been recorded, but would appear to be less than a mile. According to Vancouver this rock is **S. 21° E.** (true) fourteen miles from Cape St. Bartolomé, twelve miles from the nearest shore, and nine miles from Forrester Island. The channel between this rock and the islets at the **N.** end of Forrester Island appears to be clear and deep. Douglas found no bottom with fifty fathoms of line when passing through it. Maurelle anchored in twenty-two fathoms near the foul ground about the rock.

In foggy weather or darkness it seems evident that this rock constitutes a serious danger for vessels sailing between Dixon Entrance and the coast northward.

NW. ½ **W.**, twelve or fourteen miles from Wolf Rock. is situated **Cape Bartolomé.**¶ This cape is a long, high and narrow tongue of wooded land, which, for eight miles from its extremity, does not attain a width greatly exceeding a mile. At a distance of three miles from its southern extreme it attains a height of 1,500 feet by a gradual rise in successive wave-like summits. The general trend of the cape is about **NW.** and **SE.**, and foul ground extends in the latter direction from its southeast end a distance of a mile or more. Northward from these rocks the water is bold, reaching a depth of fifty fathoms within a mile of the shore. The termination of this cape was placed by Vancouver in latitude **55° 12′.5 N.**, with which Tebenkoff nearly agrees, but the longitude assigned to it on modern charts varies from **133° 32′** to **133° 38′ W.**

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* Somewhere on this shore, between Port Bazan and Port Bucareli, a cape or promontory, or a high mountain which at a distance would appear as such, was seen by La Perouse and identified by him with the **Cabo de S. Agustin** of Maurelle in 1775. He gives a view of it, but the charts of this vicinity are still so imperfect that it cannot be definitely located. Maurelle states that from the vicinity of Wolf Rock they saw this cape at a distance of four or five leagues, "after which the coast (southward) trended to the **E.** so much that we lost sight of it. * * * This cape St. Agustin is in nearly **55° N.** latitude." ~~It may be the same as Cape Pitt of Dixon, unless the latter be intended for Cape Muzon.~~

† About a year afterward Douglas called it **Douglas Island,** and eleven years later (November, 1798) the name of **San Carlos Island,** given by Maurelle in 1775, and published in 1781 in Barrington's Miscellanies, was first placed upon a chart in the atlas of the voyage of La Perouse.

‡ The U. S. Hydrographic Chart No. 225 puts the southern end in latitude **54° 45′ N.**, but no authority for the change is given.

§ For that here given we are indebted to Capt. L. N. Herendeen.

‖ The Forrester Island of Meares but not of Dixon, and called **Isla Rasa** or **Flat Island** by the Spanish navigators. Wolf Rock and Forrester Island were called by La Perouse the **San Carlos Islands.**

¶ The **Cabo de San Bartolomé** of Maurelle and Vancouver, a name for which **Point Chirikoff** is substituted on one old Russian chart, and on Lisiansky's chart **Cape Cheericoff** appears together with the Spanish name. It seems probable that this may also be **Cape Adamson** of Meares. The island of which it is the S. extreme, has been named Baker Id. in honor of Mr. Marcus Baker of the U. S. C. & G. Survey by the Superintendent of the Survey.

Five or six miles eastward from Cape Bartolomé is **Cape Felix**, the Cabo de San Feliz of the Spaniards and of most Russian charts. It is a rather short, apparently bluff, wooded promontory, with an islet near it according to the earlier Spanish charts. Eastward from it, guarding a series of indentations, a number of rocks, islets, reefs or banks are indicated within a distance of six or eight miles, and extending as much as two miles in some cases from the nearest shore.

Dangers.

Cape Felix is situated upon **Suemez Island**, named by the Spaniards. According to Tebenkoff, it principally consists of high and wooded land, and is of an irregularly cruciform shape, caused by its indentation **NE.**, **SE.**, **SW.** and **NW.** by small ports or bays. It is one of the largest of an undetermined number of islands which, in combination with the main body of Prince of Wales Archipelago, unite to protect the great body of water known as

PORT BUCARELI.

This is the Puerto del Baylio Bucareli * of Maurelle and Quadra, which has in modern books and charts been variously termed Bucarelli Bay or Sound, &c.

With the work of the Spaniards, investigation of this vicinity seems to have been practically closed, and no new information of importance in regard to Port Bucareli has been made public for many years. Certain discrepancies appear between Tebenkoff's chart and those of the Spaniards, but there are no data among his hydrographic notes to indicate that these changes are due to new information rather than to conjecture or the idiosyncracies of the draughtsman, such as appear in many portions of his Atlas.

The well-known carelessness of the early Spanish explorers renders the unreserved acceptance of their work extremely hazardous. For this reason the principal features only of this important sheet of water will here be referred to, and more detailed descriptions deferred until the reception of new data shall render them trustworthy.

From the central portion of Port Bucareli a circle described with a twelve-mile radius will include the greater portion of its extent. So far as known its general hydrographic features are as follows:—

The principal and southwestern entrance of the port is found between Capes Bartolomé and Felix, and consists of a sheet of water three or four miles in width, trending about **N NW.** for six or eight miles, when its general course is to the **N NE.**, gradually widening to its termination—some eighteen miles from the bend, where its width is about ten miles. Nearly in the center of the port is the large island of **San Juan Bautista**,—trending about **NE.** and **SW.**, with a width of two and a length of about five miles.

The eastern side of the above entrance is formed by Suemez Island, to the eastward of which is a passage but slightly known, and indicated by Tebenkoff as very narrow and with several dangers in its approaches.† The main body of water gives off branches to the eastward and to the westward, some of which communicate with the sea and others form snug and land-locked harbors. Several unexplored channels and passages exist, especially the **Canal Ylas de Ulloa**, from the eastern inner part of the port, which has been supposed to communicate with Cordova Bay (the land north of Cordova Bay being styled Isla Ulloa in Galiano's atlas) and the Shakhine Strait, extending northward from the **N NW.** portion of Bucareli. According to the old MS. Spanish chart, first published by La Perouse, the first entrance within, northward from Cape Felix, is Puerto de la Santa Cruz, with *a reef* in the middle of the entrance, named *La labandera*, and sixteen to twenty-four fathoms water inside, the northern and eastern shores clear and bold. Here Maurelle anchored in May, 1779.

Puerto de la Santa Cruz.

TIDES.

According to their observations it is **H. W. F. and C.** at **12^h 15^m p. m.** The rise of the highest tides is seventeen feet three inches, and of the neap tides fourteen feet three inches. The tides of the night exceed in height those of the day by one foot nine inches.

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* Named in honor of the Baylio (Baillie) Don **Antonio Maria Bucareli y Ursua**, Viceroy of Mexico. Authorities differ in regard to the orthography,—the earlier ones spelling the name with a single "l."

This port was discovered by Don Bruno Heceta of the *Santiago* and Don Juan de la Bodega y Quadra of the *Felicidad* on August 24, 1775, and a sketch was made of it, probably by Maurelle. It was next examined by the Spanish expedition under the command of Don Ignacio Arteaga of the *Princesa* and Quadra of the *Favorita*, who anchored here May 4, 1779, and remained until July 1, during which time Don Francisco Maurelle made a detailed survey of the port. It was lastly still further surveyed by Don Jacinto Caamaño of the *Aranzazu*, who was engaged upon the survey from June 12 to July 11, 1792. These are the only surveys that have ever been made of this locality. So far as the compiler has been able to discover, *none* of these surveys were ever published by the Spanish or Mexican governments.

Maurelle's surveys in 1775 and 1779 were confined to the western and central portions of the port. The map resulting from these reconnaissance surveys was published by La Perouse in his Atlas (No. 26) in 1798. This was reproduced by the Russians at some unknown date, (perhaps 1802,) and this Russian plan reproduced in the U. S. Coast Survey Atlas of Harbor Charts No. 1, with such additions from Caamaño's survey of the eastern part as could be gleaned from Vancouver's general map No. 7. The plan in Tebenkoff's Atlas does not include the eastern part of the port.

† Sea Otter Bay of Lisiansky, (after Meares†)

Separated by a rather narrow peninsula to the northward of this harbor lies Puerto de los Dolores, open to the northward, and the usual stopping-place of the Russian traders in modern times. This bay is about a mile wide and two miles deep, with eight or nine fathoms water. Its eastern shore is bold, but the southern and western are bordered by foul ground, and two patches of sunken rock are indicated by Tebenkoff, one in the middle of the port, another near the head. The anchorage is between them in eight or nine fathoms. Beyond this, to the eastward of Suemez Island, lie the Puertos **del Refugio, de la Estrella, de la Caldera,** etc., extending to the **NE.** angle of Port Bucareli, whence, and also from the entire northern shore of which, extend numerous unsurveyed openings.

Puerto de los Dolores.

On the other hand, from Cape Bartolomé northward we have extending to the westward Puerto de San Antonio, a double-headed harbor, having twelve to twenty fathoms within and a bunch of rocks and islets near its **NE.** headland, beyond which is the **Puerto de nostra Señora de la Asumcion,** affording a small land-locked harbor, but with deeper water and *several submerged dangers.*

Puerto de San Antonio.

Beyond this, to the northward, is the Puerto de la Real Marina, with numerous rocks and islands at its eastern entrance, and to the westward extending in a narrow unsurveyed arm, which is connected with the ocean in a southwesterly direction. This arm contains deep water but also *numerous rocks.* It is not considered advisable to attempt its navigation.* It terminates in a bay which is doubtless the Sea Otter Harbor of Meares.

Puerto de la Real Marina.

The portion of the port to the **N NW.** of Bautista Island was called **Seno de San Alverto.** To the westward of this, on either side of the large Island of San Fernando, northward the **Canal de San Christoval,** and southward the **Canal de Portillo,** lead to the **Gulf of Esquibel,** a large body of water to which Tebenkoff erroneously applies the name of Boca Fina, and from which numerous passages between islands afford communication with the ocean.

The southernmost of these is the **Canal de San Nicolas;** the next, to the north and west, is the **Bocas de Arriaga,** its northern boundary formed by numerous low, rocky islands. The northern extremity of the gulf showing many small openings between islands and points of the main shore received from the Spaniards the name of **Bocas de Finas.** Both of the last-mentioned two Spanish names are misapplied by Tebenkoff. From the northern portion of the Bocas de Finas extends the **Shakhine Strait** or **Passage,**† probably rejoining the sea at a considerable distance, but not fully explored.

On the main shore, near its southern entrance, is a small bay containing an anchorage, and indicated without details on Russian charts as **Tonowek Bay.** Westward from this, according to Tebenkoff, there appears to be another anchorage somewhere in the maze of islets and rocks.

The defects of, and discrepancies between, all charts of this region are so great that the geographical features can only be alluded to in the briefest manner, as above, without attempting bearings, dimensions or distances.‡

It has already been mentioned that there are reasons for regarding Cape Bartolomé as Cape Adamson of Meares. Fifteen miles **NW.** by **W.** ½ **W.** from Cape Bartolomé lies **Cape Addington** of Vancouver, which, if the above supposition be correct, is the Cape Barnett of Meares. While Meares'§ statements in regard to these two capes and his adjacent Sea Otter Harbor will apply in part only to *any* portion of the shore in this region as now represented on the charts, there are, perhaps, better grounds for identifying them as above than otherwise.‖

Cape Addington is described by Vancouver as a "conspicuous promontory;" his observations, however, were made at a distance of several leagues from the land, so that low land near its base might have remained unobserved. From it the shore trends **E.** ¾ **N.** about five miles to an opening in the land which forms a rounded port containing a central island, and which connects by a very narrow passage with one of the arms of Port Bucareli. Penetrating its northeast shore in about lat. 55°36' is the land locked harbor and settlement of Klawak.

‖ * ~~This arm may probably be identical with **Otter Sound** or **Sea Otter Harbor of Meares.**~~

† This is indicated as **Sachine Strait** on British Admiralty Chart No. 2431, and elsewhere as **Schakhin Strait.**

‡ It is noticeable on the Spanish chart that the **Canal de Portillo, SW.** from San Fernando Island, is given as tolerably clear and with six or eight fathoms near the shores, while the **Canal de San Christoval** is represented as nearly choked up with rocks and islets. On the Russian charts, however, the track indicated for the Russian trading vessels passes through the Canal de San Christoval, although the other route from Port Dolores toward Tonowek Bay is somewhat shorter. This is not positive evidence, however, that the northern passage is preferable for navigation, as the routes of fur traders are more frequently determined by the location of native settlements than by any other considerations.

§ As the responsible author of the publication Meares is here referred to, while the actual observations in many cases were made by his subordinate, Douglas.

‖ Meares' latitudes, from some cause, are nearly all too far north, varying in known cases from six to ten miles in this respect. His longitudes are only accidentally near the truth. However, if his published positions be laid off on the chart it will be observed that these capes bear the same relation to each other as do Capes Bartolomé and Addington, both in distance and direction from each other, but are some fourteen miles too far north. Meares' own differences of longitude are likely to be approximately correct, even if the actual longitudes were erroneous. He placed the capes fifteen miles apart, exactly the distance between Capes Bartolomé and Addington. Meares' estimated distances, when large, are usually exaggerated, and he may never have seen the low southern termination of Cape Bartolomé, but only its high and somewhat more northern portion. But

In this passage, as is above mentioned, **Otter Sound**, or Sea Otter Harbor * of Meares, may have been situated. The island forming its north shore has been named Hanger Island, by the U. S. Coast Survey.

The eastern shore of the bight leading to the above passage, and formed by the western portion of the island on which Cape Bartolomé is situated, is represented in one of La Perouse's views † as high; about equal in that respect to the land at Cape Addington.

From Cape Addington the coast curves to the northward and afterward to the north-northwestward,—being composed of the western edges of the numerous islands which guard Port Bucareli from the sea. It is of course much broken and is but little known.

The northern termination of this curve is formed by **Cape Pole**, which bears from Cape Addington **NW.** by **N.** ¾ **N.** thirty-two miles. This cape, named by Vancouver, and termed by him a "conspicuous point," forms the **SE.** point of entrance to Sumner Strait. In the middle and most eastern portion of the bight formed between Capes Pole and Addington are numerous rocks and islets to seaward of the main line of islands.‡ The westernmost of the off-shore islets or rocks, according to the best accessible information, bear from Cape Addington about **N.** ½ **W.** sixteen, nineteen and a half and twenty and a half miles, respectively; the most northern is also slightly more westerly than the others. **E.** by **S.** ½ **S.** and generally to the eastward and southward from the outer rocks are numerous others extending to the main line of islands—to which the name **Maurelle Islands** might not inappropriately be applied.

Otter Sound.

E SE. from Cape Pole, and extending five or six miles in that direction, is a bight, at the mouth of a large and unnamed inlet; this bight is supposed to receive the northern termination of the so-called Shakhine Strait. To this bight, as before mentioned, the name of Otter Sound or Sea Otter Sound has been applied under the supposition that it was the Otter Sound of Meares. Whether this supposition be correct or not, there seems to be no reason why the name should not be adopted and retained for this locality.

Southwest from Cape Pole, and extending in this general direction for some sixteen miles, are the **Spanish Islands**, named by La Perouse, and consisting, as restricted, of Warren and Coronation islands and adjacent islets and rocks. According to Vancouver the easternmost of these, separated by a strait about two miles wide from Cape Pole, is **Warren Island**, named by Vancouver, and described by him as a "high island" with rocky shores, about four miles long, with an average width of less than two miles, and having a generally **E.** and **W.** trend. In the eastern part of the short strait which separates it from Cape Pole three islets are indicated by Vancouver rather nearer the cape than the island; and he mentions that in this passage "some lurking rocks were observed."§ He also remarks: "to the southward of this island are three clusters of *very dangerous rocks*, the first lying from its northwest point **S. 15° E.** (true) at the distance of three miles and a half; the second **S.** (true) distant six miles, and a small islet lying from them southeast (true) at the distance of about half a league. The third cluster lies off the southeast point of the island * * * in a direction **S. 30° E.** (true) about four miles distant." The last patch is omitted on his chart, and the distinctive features of these ledges seem to have been lost sight of on the Russian Hydrographic charts, which have been followed in regard to this locality by other modern charts.

Dangerous Rocks.

The western point of Warren Island, which has some rocks about it, was named by Vancouver **Point Borlase**, and placed by him in latitude **55° 57′.7 N.**

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it is not likely that he would make such an error as to place his capes only fifteen miles apart when they were really thirty, as must have been the case if the west part of Coronation Island were his Cape Barnett, as has been held by some reputable authorities. Again, he obtained bearings on Cape Barnett when within seven or eight miles of Forrester Island. The height of Coronation Island having been determined approximately by the U. S. Coast Survey in 1869 at eight hundred feet, it would of course have been invisible to Meares at a distance of nearly sixty miles. Moreover, the bay and narrow passage between Capes Bartolomé and Addington, with the arms of Port Bucareli to the eastward from the narrow strait, fulfill all the conditions of Meares' Sea Otter Harbor or Sound.

The principal objections are that he makes his southern cape "high, bluff land" and the northern one "low towards the sea," while "it rises gradually to a considerable height," when most of the published information accessible tends to show that exactly the reverse is the case. Doubts are thrown upon this, however, by oral testimony of navigators who have recently visited Port Bucareli. This difficulty and some of his bearings may be better reconciled upon the reception of more information. Others of his bearings are clearly erroneous or erroneously printed. His "view" of Otter Sound appears valueless as well as his estimated position for it.

It is in most cases impossible at present to come to an absolutely satisfactory decision in regard to the exact locality of his names or of the geographical features he endeavors to describe.

* In Part I, Alaska Coast Pilot, 1869, issued by the U. S. Coast Survey, it is suggested that Otter Sound was located near the northern termination of Shakhine Strait; but in view of the difficulties in the way of identifying Cape Barnett with Coronation Island, as above stated, and the reception of more recent information from the locality, this suggestion seems improbable.

† And on a late MS. view by Captain L. N. Herendeen.

‡ To this part of the bay Tebenkoff has erroneously transferred the name of Bocas de Arriaga, applied by the Spaniards to one of the passages leading between the islands eastward.

§ Vancouver, vol. ii, page 424.

Shakan anchorage. See notes and sketch. H. E. N.

According to the same authority the passage between Warren Island and Coronation Island is five miles in width and "by far the most spacious and fair to navigate. * * * Nearly in midchannel between the islands bottom could not be gained with 120 fathoms of line."*

Coronation Island, the largest of the group, was named by Vancouver from that anniversary falling on the day he passed it. It lies five miles westward from Warren Island and about the same distance southward from Cape Decision. It is about eight miles long and averages about three miles wide, trending **NE.** by **N.** and **SW.** by **S.** in a general way. The island reaches a height of eight hundred feet according to notes by the U. S. Coast Survey party of 1869. Its form is very differently represented on different charts. On Russian Hydrographic Chart No. 1493 the middle latitude of the island is about **55° 53′.5 N.** and the longitude of the middle peak is about **134° 10′ W.**, while Tebenkoff gives **55° 55′.5 N.** and **134° 05′ W.** for the same portion of the island. Vancouver's latitude is nearly midway between these.

Coronation Island.

From the **NE.** extremity of the island a chain of islets extends northward in the direction of Cape Decision. Between the point and the first island northward from it Tebenkoff, without details, indicates an anchorage. According to Russian Hydrographic Chart No. 1493, at a distance of two miles from the point a break occurs in the chain, forming a navigable passage between the above-mentioned and two more northern islets. The latter are small, but reach a height of four hundred feet according to U. S. Coast Survey observers. Between them and Cape Decision is the navigable passage, first explored and recommended by Vancouver, who considered it clear of dangers and affording a means of avoiding a very considerable circuit. There is an abundance of water and the channel is a mile and a half wide. The bight between Coronation Island and Cape Addington has received from the U. S. Coast Survey the name of **Iphigenia Bay.**

By Tebenkoff the southern passage is ignored and the islets are differently disposed.

W SW. from Coronation Island eight or nine miles are the Hazy Islands, named by the early traders.† They appear, from the views of La Perouse and the remarks of navigators, to be small and pointed,—not attaining any considerable height. They are represented by different charts as from two to eight in number, forming a cluster two or three miles in extent, eight miles from Coronation Island, sixteen from Cape Decision and fifteen from Cape Ommaney. Most authorities place them in about latitude **55° 55′ N.** and about **SE. ¾ S.** from Cape Ommaney.

Hazy Islands.

NE. by **N.** sixteen miles from them, and eleven miles to the westward of Cape Pole, lies **Cape Decision** of Vancouver,‡ a very conspicuous promontory, formed by the southern extreme of Kuiu Island, placed by Vancouver in latitude **56° 02′ N.**, and forming the **NW.** headland of Sumner Strait.

SUMNER STRAIT.

This was named by Dall in 1875,§ and has been known as a part of Clarence Strait, though having in common few hydrographic relations with the main body of the latter or Clarence Strait, as herein restricted.

The other headland is formed by Cape Pole, and the two bear reciprocally **W. ½ S.** and **E. ½ N.**, about eleven miles from each other. From midchannel between these two headlands the course of Sumner Strait for nearly twenty-five miles is **N. ½ W.**,—the western shore being formed by Kuiu Island and the eastern by land belonging to the Prince of Wales group. Hence the general course, exclusive of merely subordinate curves, is **NE. ¼ N.** to the banks and islands at the Stikine mouth, forty miles. The first stretch averages seven miles in width. Between Prince of Wales and Kupreanoff islands it widens—from five miles at the **SW.** to nine miles at the **NE.** Thence to the Stikine delta the width varies from three and a half miles to seven miles between the Mitkoff group on the northwest and the York Islands on the southeast.

The strait receives from the northwest Affleck and Duncan canals, Keku and Wrangell straits, and communicates over the bars and sand-banks of the Stikine delta with Dry Strait. From the southeast Clarence, Stikine and Zimovia straits and Eastern Passage are received. In general, a broad and sufficient channel, of great depth, extends throughout Sumner Strait, yet there are numerous rocks and other known dangers, which, with the probability that others may exist, renders circumspection in its navigation absolutely necessary.

From Cape Pole the shore trends in a northerly direction free of obstructions ten miles, to a point off which is a small bluff island, about a mile from the shore, with a passage on either side of it. Beyond the point a large bight exists about five miles across, from which extend several arms or bays, which have not been fully explored. Across the mouth of the bight extends a chain of rocks and islets of small size. On the southernmost arm of the bight recent charts locate an Indian village.‖

* Vancouver, vol. ii, page 424.

† **Los Hermanos** of Galiano's atlas; usually rendered into Russian **Tumannoi Islands** on Russian charts, and called by **La Perouse Isles de la Croyère.**

‡ A name rendered in Russian by **Rishénia** or **Razrishénia.**

§ Powell, Contributions to Am. Ethnology, vol. i, map of Alaska. *cf.* U. S. Coast Survey Chart No. 701, corrected to 1877.

‖ The arm next northerly leads to the settlement and sawmill on the anchorage of Shakan.

1882

In Sept. 1882, I passed up Sumner Strait just after a hard S.E. gale, The sea was then breaking on the sunken rock mentioned, it was nearly high water. This rock is situated about 1½ miles off P. of W. Id. shore and is in range with Beaudesk Id. and Mt. Calder. It uncovers at about ½ tide. About NW. by N. from this rock and about ¾ mile distant was another breaker on a reef which probably never uncovers. H.E.N. 1882. Point is bare at low water [illegible] half tide with moderate swell.

9. Aug. 15, 1881. In making the run this Aug. from Point Baker to Shakan at half tide I saw one rock just awash. I think the report as given here comes from some person seeing the break at H.W. and some one else seeing a rock and break close to at low water. The first bearing is about correct. H.E.N.

8 Port Labouchere, and is an anchorage often used by the traders. See sketch by Mr. Francis (?). H.E.N.

Canoe passage east of Shakan, at high water 18 feet can be carried through. The Str. Rose got through in Sept. 1882

Near the northern headland of the bight, **N.** by **W.** ¼ **W.** thirteen or fourteen miles from Cape Pole, is **Barrier Island,** an irregularly shaped high island, about two miles in length; from the western side and round to the northern point of which a large number of rocks and some islets extend a mile to a mile and a half from the shore. From its northern extremity the British Admiralty Chart No. 2431 represents the rocks as extending **NW.** by **N.** ½ **N.** a mile and a half, agreeing with information obtained by the U. S. Coast Survey in 1869, which indicates a passage a mile and a quarter wide between these rocks and a very small islet at the shore to the northward. In the bight on the Prince of Wales shore, **N NE.** from Barrier Island, the Coast Survey party report an anchorage. The passage between the point and Barrier Island is represented as choked up by rocks. On the point is an Indian village, and **NE.** by **E.** from the anchorage is a hill two thousand feet in height. No details are at hand in regard to this anchorage. *A sunken rock*[a] lies from the northern point of Barrier Island **NW.** by **W.** ½ **W.** three miles; another, **NW.** ½ **N.** somewhat over five miles, has a visible rock close to the northward from it. These last rocks are from one to one and a half miles from the nearest shore.

Anchorage.

About four miles **N.** ¼ **W.** from the northern end of Barrier Island is a small bay, a mile and a half long **N.** and **S.** and a mile wide, with the entrance obstructed by numerous islets.

According to Russian authorities, six miles **N NW.** from the northern point of Barrier Island lies the southern headland of Port Protection, named by Vancouver. The northern headland of the port lies from the former three-quarters of a mile north, and consists of an islet close to the shore, with which it is united by a sand-bank. There are several other islets and rocks north and east from the first-mentioned islet, whose southern point was named by Vancouver **Point Baker.***[c]

Port Protection.

The islets are flat and wooded, while the main shore is hilly. The general direction of the port is **SE.** by **E.** ½ **E.** somewhat less than two miles, with an average width of half a mile. The southeastern portion terminates in two shallow coves,—the northern one communicating by a passage wide enough for a boat, with a basin nearly half a mile in extent.

The channel is clear and free from obstructions, with the exception of *a rocky patch* visible at low water and marked at all times by kelp. This lies about **SE.** by **S.** from the southern point of the island on which Point Baker is situated; is about a cable in extent, with a clear passage between it and Point Baker Island a cable wide, and a passage more than three cables wide between it and the shores to the southward. There is eight to twelve fathoms water close-to all around it.

Vancouver anchored in the western part of the port a cable **W SW.** from the end of a projecting rocky point—which becomes an islet at high water—and in line between the end of this point and the southern headland,—the northern headland bearing about **NW.** ½ **W.**

In this situation the bottom appeared hard, with a thin coating of mud, and the soundings were very irregular. In the western part of the harbor the depth varies from twenty fathoms to forty or even fifty near the entrance. Vancouver remarks that his anchorage was somewhat exposed to winds from the north and northwest, which might have been avoided by taking a station higher up in the harbor, or in a snug but very contracted cove to the east of the rocky point or islet.

In the southeastern part of the harbor the soundings range from three to twenty-five fathoms. The shores are generally steep, rocky and covered with a dense forest of pine and other trees. From the termination of the port, about **E.** by **S.** four or five miles, the land rises to the peak of **Mount Calder,** named by Vancouver, and supposed to be an extinct volcano, about five thousand feet in height. This peak is remarkable from its height above the country in its immediate vicinity and from being visible from other localities at a considerable distance. Vancouver saw it when four or five leagues west of Cape Addington, the distance being about fifty-five miles.†

The latitude of Point Baker, according to Vancouver, is **56° 20′ 30″ N.** The longitude is variously stated from **133° 31′ 30″ W.** to **133° 38′ W.**

The variation of the compass was determined by Vancouver in Aug. 1793, to be **26° 27′ E.**

His observations also indicate that the flood-tide comes from the south, and that it was **H. W. F. and C.** at $7^h\ 40^m$.

The port affords several streams of fresh water and abundance of wood; wild fowl, berries and various kinds of fish in their season. A plan of this harbor was made by Vancouver, which was published in an enlarged form by the Russians, and of which a reduction is also to be found in the Atlas of Harbor Charts of Alaska issued by the U. S. Coast Survey. No directions are necessary for entering it except that the northern shore should not be approached within three cables until the southern headland bears **SW.** by **W.** ½ **W.,** to avoid the *rock in the entrance,* which only uncovers at low water.

*The name, being misapplied to the northern point of the island on his plan, has since been indifferently applied to the whole peninsula which guards Port Protection from the north. It was named after Lieut. Joseph Baker of Vancouver's party, who drew the maps contained in Vancouver's Atlas.

† Recent observations by the U.S. Coast Survey party in Alaska indicate that it is not over 3000 feet in height and from Sumner Strait it seemed less conspicuous than many peaks.

I passed at half aft; noticed no particular disturbance. H. E. N. Have since seen it here.

In Sumner Strait, about a mile to the northward of Point Baker, is situated a bank on which the meeting of the tides, especially in flood, cause a tide-rip or agitation of the water which might present to the navigator the appearance of a danger. Vancouver, however, after many trials found the soundings irregular, but nowhere less than fifteen fathoms on it, and between it and the shore no bottom could be gained with sixty and seventy fathoms of line. **Tide-rips.**

From Cape Decision **N.** by **E.** ½ **E.** eight miles lies the low rocky point named by Vancouver **Point St. Albans,** and placed by him in latitude **56° 07′ N.** In this locality the multifarious islets, rocks and pillars, which characterize the coasts of Kuiu Island in particular, extend about three miles to the southward from the point.

Between this point and Cape Decision lies the entrance to a singularly shaped indentation, called by Vancouver **Affleck Canal.**

Nearly in line with the cape and the point in this entrance, and some three miles from Cape Decision, lies a small island with a considerable group of islets and rocks about it. Between this group and the rocks respectively surrounding the headlands above mentioned there appears to be a clear passage on either side. From these entrance-islets to its inner termination the general course is **NW.** ¾ **N.** about eighteen miles. Its average width may be taken at two miles. See notes opp. p. 56. Rep. Comm. of the Rush 1871, p. 35

From Point St. Albans the shore takes a **W.** by **N.** direction, bristling with rocks and islets for four and a half miles, at which point the rocks terminate on the eastern shore, and thence to the northern head of the canal, in latitude **56° 20′ N.**, that shore becomes straight and compact, trending about **NW.** ½ **N.**

The western shore of the canal from Cape Decision northward trends about **NW.** by **N.** ½ **N.**, and is indented by three large bays of nearly equal extent, averaging three miles long **E.** and **W.** and about two miles broad. The shores of the northern and southern bays are more or less embarrassed by rocks. In this vicinity the adjacent country is uneven, wooded and moderately elevated. The sides of the northern portion of the canal are mountainous but not so steep as the shore of the main. Its termination is formed by low, flat land, covered with trees, that seemed to Vancouver to extend as far as could be discerned in a **N NW.** direction, through which flat country flow several streams of fresh water.

No soundings here or new information in regard to this canal has been recorded since the visit of Vancouver in 1793.

From Point St. Albans **N.** by **W.** ¼ **W.** about six miles lies a point called by Vancouver **Point Amelius,** and between these two headlands the coast recedes, forming a bay, which is most marked immediately to the westward of Point Amelius. Three miles to the northward of Point St. Albans is a snug cove, in which Whidbey's party were effectually protected "against a very strong easterly gale of wind that blew during the night with great violence."

Beyond this the greatest indentation of the coast reaches about two miles and a half, and off it, extending in a crescent from Amelius to St. Albans and projecting into the waters of Sumner Strait three or four miles from the shore to the westward, is a multitude of *rocks and islets*, rendering this stretch unnavigable except for boats, so far as information on record may be relied on.

Point Amelius is directly abreast of Barrier Island, the latter bearing **NE.** by **E.** ¾ **E.** from the point, and between the rocks and islets respectively fringing either shore the clear passage is not less than three miles wide.

Immediately to the northward and westward around Point Amelius lies Port Beauclerc, named by Vancouver, and whose northeastern headland bears from Point Amelius **N.** by **W.** four miles. This headland is moderately high, with a broad termination facing for the space of a mile to the southeast. The opposite point of entrance bears **S.** by **W.** about two miles. **Port Beauclerc.**

Within, the shore trends from the north headland in a generally **NW.** direction, and the opposite shore rounds to the northward, westward and southwestward, giving a triangular form to the inner part of the harbor, the western shore of which trends **NW.** by **N.** ½ **N.** nearly six miles from the southern angle to the northern one.

A mile and a half **SE.** from the face of the northern headland lies a small island off the entrance with some rocks about it. There are also some rocks about each angle of the headland. In the middle of the triangular inner harbor is an island, and five or six islets and rocks are to be found in this vicinity. The entrance islet lies **W.** ¼ **S.** from Barrier Island. These islets have clear passages on either hand, and inside the harbor are regular soundings in thirteen to twenty fathoms. The surrounding shores are in general moderately elevated, well wooded, and water is very accessible.

According to Vancouver, Port Beauclerc forms an extremely good harbor; its access and egress free from every obstruction except such as are sufficiently evident to be avoided. He placed the northeast headland in latitude **56° 17′ N.** No special chart of this port has been published, and Vancouver is the only source of information in regard to it.

a. See sketch and report. H.E.N.

b. It is said to be covered at high water, springs. H.E.N.

A beacon spindle was put on this rock by Lt. Wachusett, since washed away. H.E.N. '52

"Tyeopenee" bears about N by W. from entrance to Red Bay & in range with that and a high bald hill. S by E. H.E.N. '52

Tyeopenee also called Shoofly Rock. Range to clear it. Pt. of John just on Obs. Id., Red Bay clear.

It is said that there are dangerous shoals N of Red Bay near Shoofly Rk. Tyeopenee covers at extreme

Vicksmeffoki always.

From the eastern angle of the northern headland of Port Beauclerc the coast takes a generally **NW.** by **N.** direction for sixteen miles,—there being a number of subordinate indentations, mostly obstructed by *rocks* which extend in many cases to a considerable distance from the shore, making navigation in this vicinity perilous in the highest degree, and even for boats and small craft requiring the exercise of the greatest circumspection. Thence the course trends two and a half miles **ENE.** to a point forming the southwestern headland of Keku Strait.

Dangers.

From the northeastern point of entrance of Port Beauclerc the southern termination of an island about three miles long and less than a mile wide bears **NW.** by **N.** ¾ **N.** six miles. This island has two islets near its southern end. In the space between its northern end, the shore of Kuiu Island and the southern part of Conclusion Island, are an immense number of *rocks*.

From the same angle of the previously-mentioned headland another island bears **N.** seven miles. It is about a mile long **N NW.** and **S SE.** and somewhat less in width, with a ledge of *very dangerous rocks* extending nearly a mile from its southern point. The passage between this and the last-mentioned island is over two miles in width and apparently clear of dangers.

About a mile and a half **NW.** from the northern end of the inner island is **Conclusion Island,** named by Vancouver, about three miles long **W NW.** and **E SE.** and half as wide. Along its northern and northwestern shores are *numerous rocks*. From its northeast point the eastern headland of Keku Strait bears **N.** by **W.** three miles. The area to the north and west from this line, according to Vancouver, seemed to be also "bounded with such an infinite number of rocky islets, and rocks above and beneath the surface of the water, that the navigation was very intricate and dangerous even for the boats."

From the eastern headland above mentioned the trend of the shore, exclusive of irregularities, is in general about **SE.** ½ **S.** five miles to a point named by Vancouver **Point Barrie,** which is apparently of moderate height and forms the eastern extreme of the large bay included between it and the northeast headland of Port Beauclerc.

From Point Barrie **Point Mitchell** bears **NE.** ½ **E.** nineteen miles. This point was named by Vancouver and placed by him in latitude 56° 29′ **N.** Between it and Point Barrie, at a distance of twelve miles from the latter, is the opening of a large bay five miles long **E.** and **W.** by three miles broad, in which are two or three rocky islets and many rocks. Off the coast between these two points are numerous islands, differently placed on various charts, and, with adjacent rocks, extending southward from the shore of Kupreanoff Island about two and a half miles into the strait. For this reason navigators will do well to keep to the southward of the outer islets in this vicinity until more is known.

On the other hand, from Point Baker eastward the shore is very compact and unindented, taking for fifteen miles a nearly straight **E NE.** course to the entrance of Red Bay, named Krasnaia Bay by the Russians, and resorted to by their traders. The anchorage is indicated as at the entrance of a long and narrow bay whose form and position are so differently represented by Tebenkoff and the Russian Hydrographic charts that it appears best to defer attempting a description until further information is received. It should be noted that there is a difference of at least 8′ in longitude between Tebenkoff and Russian Hydrographic Chart No. 1493,—the latter being to the westward. The differences increase and the inaccuracies of all the charts become very manifest in the region about the mouth of the Stikine River. For this reason the description here given will be of a more general character, except in that portion covered by the Rynda's chart of 1867.

Red Bay.

S. by **E.** ⅔ **E.** from Point Mitchell, according to Russian Hydrographic Chart No. 1493, about four miles, and according to British Admiralty Chart No. 2431, **S.** by **E.** ½ **E.** six miles, lies a rock, called by the Russians *The Eye-opener*, (Atkroi-glaza,) which forms a serious danger, as it is said to be covered at high water and has from twelve to twenty-four fathoms immediately about it.

The Eye-opener.

To the eastward of this vicinity late observations show great discrepancies between the charts and the actual disposition of the shores and islands, and this deficiency is only partly made up for on the Russian chart of 1867, showing the approaches to the Stikine River.

From Point Mitchell, for four or five miles, the shore curves to the northward, and then forms, with the opposite coast of Woewodski Island, a large inlet named by Vancouver **Duncan Canal,** the course of which appears to be about **NW.** by **N.** ½ **N.** for some ten miles and afterward **NW.** by **W.** ½ **W.** about fifteen miles. The entrance is formed between the southwestern point of Woewodski Island and a projection of the Kupreanoff Island shore opposite, and is about two miles in width.

Off this entrance are a number of rocks and islets, and farther out, in a northeasterly direction from Point Mitchell, are several other small islands, the largest of which, **Level Island,** is low and has some rocks near it. Within, the canal is more or less supplied with islets and rocks, especially toward the western shore; the shores are very irregularly indented, though the average width does not appear to much exceed two miles, exclusive of several shallow bays.

In about latitude 56° 40′ **N.,** according to U. S. Hydrographic Chart No. 225, a channel, which has received the name of **Duncan Passage** on recent charts, leads from Duncan Canal to Wrangell

1882 With the sun nearly bearing NE, distant ½ mile the N of Lark Id bore S by W. ½ W. Low outside this range and I should judge about 1 mile NNE of N of Lark Id. is a large gray rock which is probably never covered. A little inside of this range and about 1½ miles S by W from N point of entrance to Wrangell Strait is smooth, rocky and about half a mile N by E of that also another with probably never covered at high W. H.E.N.

2 I think that it is absolutely dry at low water; but a missionary told me he had been through in a canoe at low water. H.E.N.

3 As far as I could see entirely. H.E.N.

4 Very doubtful. I can ~~find~~ learn nothing of it. H.E.N.

Strait, cutting off Woewodski Island from the northeastern arm of Kupreanoff Island. This passage is short and much obstructed by islands, with about three fathoms water in it. Its northwestern point of entrance on Duncan Canal was named by Vancouver Point Hood, and placed in latitude **56° 44′ N.** From this point the canal trends more to the westward, terminating, according to Vancouver, in a wide, shallow bay, bounded to the northward by a low sandy flat, in latitude **56° 58′ N.***

The southern termination of Woewodski Island is about three miles broad, and at its **SE.** extreme, with **Point Alexander** of Vancouver, opposite, forms the southern extreme of Wrangell Strait. This point is situated, according to the observations of the U. S. S. *Saginaw*, in

Latitude ..... **56° 35′ 25″ N.**
Longitude ..... **132° 58′ 12″ W.**,

and is apparently of moderate height and wooded.

About two miles to the eastward of Point Alexander is **Point Howe** of Vancouver, from whence the shore, exclusive of minor irregularities, rounds to the eastward and northward with several islets adjacent to it, and at a distance of about seven miles it is, according to some authorities, broken by an inlet supposed to connect with Wrangell Strait.

Hence the shore trends for some seven miles to the northeastward to **Point Blaquiere**, named by Vancouver, and placed by him in latitude **56° 39′ N.**, and situated, according to the Rynda chart, in about longitude **132° 33′ W.** This point is noteworthy as being the locality where the flats of the Stikine meet the shore of Mitkoff Island, thus closing to navigation the southern end of Dry or Sukhoi Strait. Vancouver's boats failed to find any passage, but they also missed the Stikine channel on the opposite shore, and that in Wrangell Strait. There are indications that some channel, though possibly too shoal and contracted for ship navigation, may exist on that side of the strait, though a cursory examination by Meade revealed none, and indicated that the channel was impassable for vessels drawing more than four feet of water. The question cannot be considered as definitely settled without additional and careful examination.

From Point Blaquiere to the nearest opposite headland of the mainland, near the river mouth, is about three and a half miles **NE.** by **N.** This may be said to be the southern entrance of Dry Strait.

About two miles **NE.** by **E.** ½ **E.** from the point is **Sergieff Island**, small and high; the entire area northwestward and southeastward from this island, for a distance of four or five miles, between Mitkoff Island and the Stikine Channel or continental shore, is believed to be occupied by extensive flats partly dry at low water. An anchorage is indicated on U. S. Hydrographic Chart No. 225 in the angle between the southwestern edge of the flats and the shore of Mitkoff Island, but no details are given.

SE. four miles from Point Blaquiere is **Kadin Island**, named by the Rynda party.† This island is about two miles by one and a half in extent, wooded, and about eight hundred and fifty feet high. It stands directly on the southern edge of the flats, and the greater portion of its southern shore is bold-to, with a depth of eight to fifteen fathoms. A spur of the flat runs to the southward, east of the island, and reaches as far south as the latter. From the end of this spur, with some irregularities, the edge of the flats trends about **NE.** toward the continental shore.

Lyesnoi Island, low and wooded, and **Five-mile** (Piati-Milni) **Island**, also low, lie, respectively, three-quarters of a mile and two and a half miles south from Kadin Island. Both are of very small extent. The latter is the smallest, is about five miles from Etolin Harbor, and may be the same as the **Scraggy Island** of U. S. Hydrographic Chart No. 225.‡

A mile and a third west from Kadin Island lies **Rynda Island**, three-quarters of a mile wide and two and a quarter miles long **N.** and **S.**, named by the Russians. It is wooded, moderately high, with two knobs or peaks.

Immediately south of it is **Sokoloff Island**,§ a mile long and half as wide, with the same general trend. It is moderately high, and it or Rynda Island may be that appearing under the subsequent name of **Grey's Island** in U. S. Hydrographic Chart No. 225.

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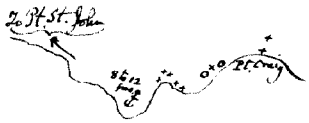
* The eastern portion of Sumner Strait was called **Stikine Strait** by Tebenkoff, a name previously adopted by Russian cartographers for an adjacent body of water. It has also been termed **Stikine Sound**; but, while this name would be applicable, the necessity of dividing the strait into several nominal bodies of water does not seem evident any more than in the case of **Chatham Strait.**

Woewodski Island, named by the Russians in 1848, after the governor of the colonies, has also been called **Voevodskago Island** on some English and American charts, and a part (?) of it was named **Medviezhi** or **Bear Island** by Lindenberg in 1850. This body of land, bounded chiefly by Wrangell and Sumner straits, with Duncan Passage, is believed to be about seven miles in length in a **N.** and **S.** direction and about half as wide as it is long. It is densely wooded and of a more or less hilly character.

† After the veteran pilot **M. M. Kadin**, a native of the Aleutian Islands, and who ~~engraved~~ prepared at Sitka the charts contained in Tebenkoff's atlas, which were engraved there by another native of Alaska, K. G. Terentiff.

‡ The discrepancies between Russian Hydrographic Chart No. 1493, British Admiralty Chart No. 2431, and United States Hydrographic Chart No. 225 in regard to this locality on the one hand, and the Rynda chart and observations of recent Coast Survey parties on the other, cannot be reconciled. The features of a map made by Mr. Hunter, a Canadian custom-house officer and surveyor, are equally different from all previous delineations, and evidently unreliable so far as this location is concerned.

§ Probably named for Mr. Alexander Sokoloff, who has written considerably upon Alaskan topics. *See* Appendix 1, p. 350.



4. Baht = Bath? Hassler anchored here Aug. 24. There are no islands off the entrance. Above sketch shows the anchorage in 8 to 12 fathoms - soft bottom, about 2 to 3 cables off shore. I consider it a good anchorage. H.E.N.

5. Chart No. 9.

6. I could get no information regarding Ryuda Anchorage. H.E.N.

These two islands form the southern buttresses of the Stikine flats. To the southward there is a sufficiency of water, though not very deep; to the northward of them the flats appear continuous. A few miles to the southward of these islands, but with its position not accurately determined, lies **Vank Island,** apparently named by the Russians. Its dimensions are not well determined, but it is about three miles long. On its **NW.** shore anchorage is indicated by Russian authorities without soundings. Off the southern point of this indentation a rock is indicated, not far from the shore. Off the island **NW.** a mile or two is an islet, indicated under the name of Two-tree Islet on U. S. Hydrographic Chart No. 225.

There is a clear passage on either side of Vank Island.

From Point Macnamara the coast of Zarembo Island, forming the shore of Sumner Strait in this vicinity, trends **N NW.** ten miles to **Point St. John,** named on Vancouver's chart, and forming the western extreme of Zarembo Island. This is a rather narrow point with an indentation eastward from it, which is guarded to the northward by some islets. **S.** by **W.** ¾ **W.** three miles from Point St. John, and nearly **E NE.** ¼ **E.** from Point Mitchell, lies *a sunken rock,* called on recent charts *Vichneffski.* Northward, just beyond the islets above mentioned, anchorage is indicated in eighteen fathoms.

Baht Harbor.

Hence the shore, exclusive of unimportant indentations, trends about **NE.** by **E.** ¼ **E.** nearly eight miles to **Point Craig,** named by Vancouver, and forming the western headland of Baht Harbor, named by the Russians.* It is of small extent, with two or three islets in the entrance; no soundings are given.

The **NE.** extreme of Zarembo Island bears from Point Craig about **NE.** by **E.** ½ **E.** three miles, according to the Russian Hydrographic Chart No. 1493. According to the same authority, from Point Craig, Point Highfield bears **NE.** ¼ **N.** nine and a half miles, and **Zelony Point** (Green Point) of the Russians **NE.** by **N.** twelve miles, on the continental shore.

It must be noted, however, that these bearings and distances are subject to extensive revision.

Rynda Anchorage.

About two miles **N.** from **Simonoff** or **Observatory Islet,** according to the Rynda chart, lies the Rynda Anchorage, or **Port Rynda,** sounded out by the party under Commander Bassargin, who explored the Stikine River nearly to the British boundary in 1863. This anchorage is situated in an advantageous position directly at the mouth of the channel leading to the river, and has an extent of a mile in either direction.

The corvette anchored a mile **W.** by **S.** from a wooden cross and cenotaph erected over a grave on the continental shore, and **N.** two miles from Simonoff Islet, having ten fathoms over a bottom of sand and gravel. Russian Hydrographic Chart No. 1493 locates an islet in this vicinity which has no place in the Rynda chart. At this point there would appear to be easy communication with the continental shore, and except from the **SE.** the anchorage is very well protected, though the currents at the river mouth must make it, at times, an uneasy berth. The soundings vary from six to eighteen fathoms. The geographical position of the anchorage, according to Durkin and Kadin, is

Latitude ..... **56° 36′.5 N.**
Longitude ..... **132° 22′.0 W.,**

with a variation of the compass of **26° E.** in 1863.

From the anchorage **NW.** ½ **N.** about six and a half miles lies one of the principal mouths of the **Stikine River,** the largest river of Alaska east of Mount St. Elias.† This river rises in a small lake in the vicinity of latitude **57° 10′ N.** and longitude **128° W.,** and flows in a northerly direction for some sixty miles, when it receives a large branch from the eastward and curves to the westward through a narrow gorge about fifty miles in length, known as the **Great Cañon.** Toward the lower end of the cañon the river trends more to the southward, and ten miles above the termination of the cañon a tolerably large branch comes in from the northwest. This is called the **First North Fork,** and heads close to the sources of the Tahko River. The small town of Glenora, near the mouth of the Great Cañon, is the head of steam navigation; a few miles below, the **First South Fork** enters from the eastward. Below this the river passes through a mountainous region for seventy-five or eighty miles, flowing in a nearly south direction, having thus described a somewhat semicircular figure. It then turns somewhat sharply to the westward, entering the northeastern angle of Sumner Strait through a delta yet insufficiently explored, but which is known to have two or three mouths of considerable size.

* The **Bath Harbor** of most charts not Russian. Named for Engineer Baht of the Russian American Company's steamer *Alexander.*

† The name is a corruption of an Indian word, understood to be the native name of the river, and from which the native tribe inhabiting the continental shore of Alaska from the Tahko to Bradfield Canal derives its own tribal appellation. This word, according to the best authorities, is thought to be correctly pronounced **Stah-kheen** or **Stah-khin.** The names applied to the river have been **Stakeen, Stahkin, Stickeen, Stachin** and **Stikine,**—the last mentioned being that usually adopted on the western coast in newspapers and books. It was also adopted by the U. S. Coast Survey in the Coast Pilot of 1869. There seems to be no good reason why we should attempt to retain the Indian pronunciation after it has been universally discarded by the population most interested. The river has also been erroneously called "**Frances**" and "**Pelly**" **River,**—names belonging to streams of the interior.

Good work! [illegible]

' The sloop Dragon, Capt. Cleveland visited the Stikine delta in april 1799 and in the journal of the ship Eliza, Rowan, for that year the locality is mentioned as Stikin.

The topography in the vicinity of the river is mostly mountainous, with some broad valleys, but more numerous narrow ones. Most of these have a certain parallelism with the coast, while some of those through which the Stikine, Naas and Tahko rivers reach the sea cut across the ranges nearly at right angles.*

The low lands are usually flat and subject to inundations in heavy freshets; covered with a dense growth of grass, willows, alders and poplar, or dotted with small ponds. For twelve miles above Point Rothsay the river valley is sandy and almost destitute of vegetation. This tract, which doubtless owes its origin to the scouring of freshets, has received the name of the Desert.

The mountains are steep and rugged, but in general afford foothold to a dense forest of coniferous trees, which attain a respectable size. The higher summits reach above the snow-line and afford a permanent source of supply to the numerous local glaciers.

The climate of the Stikine region varies from the coast inland. Toward the interior the summers are short and hot and the winters cold, resembling the conditions of Saskatchewan region. For particular notes the reader is referred to the Meteorological Appendix. The river is said to be closed by ice in December, sometimes as late as the seventeenth, and to open in May, usually previous to the fifteenth and often by the first of the month. The opening is followed by a temporary rise and fall, and at its first opening, from floating ice, drift-wood, snags, &c., is not navigable for several days. The highest water is said to occur in July, when the hot sun is melting the snow on the higher levels, and this indicates that the chief source of the water-supply of the river is in the snows of the mountains rather than in the drainage or rain-fall of the lowland region. The depth of water in the channel for the twenty-five miles represented on the Rynda chart, in the latter part of May, was nowhere less than six feet, and the average depth at least twelve feet. It is stated that at lowest water there is seldom less than three feet in the channel. The rise in the channel, or in vertical height of the water, does not appear by the water-lines of the margin to increase more than six feet at highest water. The difference in the volume of water transported is made up for by the flooding of the low lands. Through this horizontal extension results a general and very perplexing change in the form, direction, and appearance of the river margins. The waters are invariably turbid. This is mostly due to the fine suspended material transported by the glacier streams.

The chief obstacle to the free navigation of the river is the impetuosity of the current. This is stated to average four or five miles an hour from the gate of the Great Cañon to the delta, and in the cañons it is of course much greater. Except by the aid of steam, up-stream navigation, in the strict sense of the word, on a large part of the Stikine is impossible. Poling or tracking must be resorted to to surmount the obstacles, and this, for satisfactory progress, requires a large party and a stout tracking-line fifty to one hundred fathoms long. The river is seldom over two cables and a half in width. Its existence was first indicated by the captain of the American ship *Atahualpa* of Boston, in 1804, from information obtained by him two years earlier. The head waters were first discovered by John McLeod, a trader from Liards River. It has been explored by various parties. A Russian party ascended to the mouth of the Iskoot, and their survey was mapped in 1853. Prospectors from British Columbia reached the headwaters some years later. In 1863 a party from the Russian corvette *Rynda*, accompanied by Professor Wm. P. Blake, ascended the river to a short distance beyond the Little Cañon. In the period from 1865 to 1867, inclusive, the officers and explorers of the Western Union Telegraph Expedition examined this river and every important tributary from its headwaters to the sea. The upper portion of the river, for business reasons, received the most attention, and but few astronomical observations were made, and these chiefly for latitude. A few astronomical observations on the lower part of the river were made by the Rynda party, but by some error or inadvertence of the draughtsman they are rendered unavailable from the evident displacement of the station mark on the chart. There is a complete absence of any topography on the river chart, which covers a distance of from twenty to twenty-five miles up stream. A sketch map, prepared independently by Professor Blake, is much more full and comprehensible, but is on a smaller scale and of course wants the hydrography. A sketch map affording some information (especially distances, said to be official) was published in 1874 by the *Mining Press* newspaper of San Francisco. The MS. maps of the Western Union Telegraph Expedition are by far the fullest and most satisfactory with regard to the interior. A map of the Cassiar mining district, published by authority in 1876, contains additional details; the last map noted is the survey by Mr. Hunter, already alluded to. No one of these maps is satisfactory, and they are all more or less discrepant with one another, especially in regard to distances.

In view of the importance of the gold mining on the upper Stikine a brief itinerary for the river is appended, though hardly warranted by its navigable facilities, and for the most part beyond the American boundary.

* In fact the same type of topography prevails upon the continental border as that exhibited in a half-submerged condition in the Columbian and Alexander archipelagos. If the latter were entirely elevated above the sea level they would in essential features resemble the present continental border, and, were the valleys of the last depressed below the sea level, a similar extension of the archipelago, without change of character, would be the result. Sumner Strait appears to be merely the prolongation seaward of the valley of the lower Stikine.

ITINERARY FOR THE STIKINE RIVER.

The port of entry is Fort Wrangell, at Etolin Harbor, Wrangell Island, which has been previously described. Steamers from Portland, Oregon, transport passengers and goods to this point.

Prom Point Highfield, just north of Fort Wrangell, the entrance of the Stikine Channel at Port Rynda bears **N.** about three miles.

The bar at the mouth of this channel through the flats, according to various authorities, has from one and a half to two and a half feet upon it at low water, with a rise and fall of eighteen feet at full and change. It changes with the freshets. The bar has an axial width of a third of a mile in the direction of the stream.

From the outer edge of the bar to the southern mouth of the river proper is five and a half miles in a generally **NW.** by **N.** direction. The depth in the channel varies from six fathoms to seven and a half feet at the river mouth, where a second bar exists. The width of the channel between the one-fathom curves is from a quarter to half a mile. The eastern border of the channel lies a cable or less from the continental shore, which is apparently composed of banks rather than beaches, behind which the wooded land rises rather rapidly to bluffs of moderate height.

Within two miles of the entrance three unimportant points—**False** or **South Zelonoi** (Green) **Point**, **Zelonoi Point** proper, which is probably the Point Rothsay of Vancouver, and **Palonoi** (Fired) **Point**—are passed. The last two are only a third of a mile from one another. At Zelonoi Point the bluffs approach within their shortest distance of the shore. At the river mouth Point Rothsay of Hunter, on the eastern shore, is named by the Russians **Reechnoi** or **River Point**. This point and the southern entrance bear about **NE.** ¾ **E.** from Sergieff Island on the flats.

The next northern entrance is about two miles **NW.** by **N.** from the southern one, and opens into a bight over a mile in extent and much obstructed by lurking sand-bars, &c. **NW.** from this bight a high ridge or mountain rises, extending in a **N.** and **S.** direction and having a rather bluff top. To the eastward from this the delta region is flat. To the northward and westward other entrances or arms of the delta may exist, but this region does not appear to have been explored.

As the southern mouth of the delta offers the best known facilities, a further reference to the other channels seems unnecessary.

The bar at the southern mouth is short and carries five to seven feet at low water. Beyond this the depth increases to ten or twenty feet. The river trends more to the eastward as do the bluffs behind the margin, and the width of the low lands between the bluffs and the river increases. The bluffs or hills attain an altitude of fifteen hundred feet or more, and the flat portion of the delta appears three or four miles wide.

About five miles above the delta islands the valley narrows, and the river appears only two or three hundred feet in width. The depth in the channel to this point is nowhere less than seven and will average over twelve feet. The appearance of the high land on either side is as if ranges trending **NW.** and **SE.** were abutting obliquely upon the river.

A few miles above, on the north bank, a stream called the **Soynai** or **Ice-water River** flows in from a glacier a mile or two to the westward. The low alluvial point between the Soynai and the Stikine is composed of river-drift and is stated to afford gold.

Above this for several miles the course of the Stikine is nearly **E.** and **W.**, without rapids. There are some sand-bars or islands on the south side of the river, and the valley in which it flows becomes wider, the river banks low, and the northern mountains recede to the northwest. At a distance (*vide* Blake, *l. c.*) of five and a half miles from the Soynai the Stikine turns suddenly to the **N.** and then to the **NW.** At the convexity of the curve granitic mountains rise abruptly from the water. Between the mountains and the river on the north side of the bend is a considerable gravelly flat, overgrown with willows and shrubbery. Between this point and the sea the current varies from two and a half knots to three and a half knots per hour. The difficulty experienced in reconciling different accounts will be understood when it is remembered that Professor Blake and most other map-makers put this bend about fifteen miles from the delta; yet according to the Rynda hydrographic sketch the distance is but seven miles.

The flat above mentioned is terminated by a rocky point, called by the Indians **Kokaydai.** Professor Blake refers to this as a good locality for a settlement or station, as there is a good landing and its height secures immunity from floods. Directly beyond and nearly opposite to this point is the valley of the **Skoot** or **Iskoot River**, extending to the eastward. This is a large stream, navigable by canoes, and entering the Stikine apparently by several mouths. The Skoot extends to the eastward about fifty-five miles, when it bends to the northward, receiving at the angle thus formed a tributary, the **Nin-kun-saw**, which flows from the southward and eastward a distance of over twenty miles. At the summit, where the headwaters of this branch are intimately associated with those of the Naas River, the elevation attained is twenty-six hundred feet. By ascending the Skoot and making the portage the Stikine Indians can descend the Naas River and reach Fort Simpson in six days after setting out.

The extent of the great bend of the Stikine is variously estimated at from two to four miles. Above it the general course of the river is **NW.** by **N.** ¼ **N.**, to the mouth of the **Little Cañon.** In

the bend the depth is from seven to twenty-four feet (May), and the current reaches four and a half knots per hour.

A short distance above the mouth of the Skoot is the first village or camp of the Tinneh Indians of the interior, as distinguished from the T'linkits or Kaloshians of the coast. In the same vicinity, on the western bank, a fine glacier extends far back among the hills, and has a width of a mile or more parallel with the axis of the river. To the eastward, some distance behind the hills adjacent to the river, a high serrated range of sharp peaks is visible. The miners term the rugged region of this vicinity the **Glacier Mountains**. The *Mining Press* sketch indicates the boundary line as being about half way between these mountains and the Little Cañon, or about sixty-five miles from Fort Wrangell. Until more exact data are obtained this must remain in doubt. A Hudson Bay Company's post is situated on the British side of the supposed boundary.

For the remainder of the distance covered by the Rynda chart it appears that at that season a six or seven-foot channel might be counted on with tolerable certainty. Above the bend the current increases in velocity, attaining in some places a rate of six knots per hour. As nearly as they can be correlated, this distance would seem to reach to Blake's Camp VI, eleven miles or thereabouts by the Russian determinations, or about twenty-five miles from the mouth of the river.

The approach of the Little Cañon is marked by Cone Mountain, a regular and conspicuous peak on the eastern bank. The cañon itself is less than a mile long, and here the whole stream is compressed in a narrow rocky gorge. On the north side, for a part of the way, an eddy or counter-current exists, which may be of assistance in ascending this part of the river.

Above the cañon the river is much wider and flows quietly between terraced banks. A short distance above is a rapid, where a portion of the river is obstructed by rocks and boulders. This was named the **Sergieff Rapid** by the Rynda party, who lost a man of that name at this point by drowning. It may be the "Kloochman Cañon" of the miners. According to the Western Union map it is about fifty miles from the Little Cañon to the mouth of the Great Cañon and the head of steam navigation. About thirty-eight miles from Little Cañon the Dominion Government has established a reservation for government purposes, upon which reservation is a house for the local officers. Six or seven miles above is **Buck's Bar**, a celebrated locality for placer mining, and five miles or so farther is the mouth of the Great Cañon. Here is a Hudson Bay Company's trading post and some miners' and Indian camps. The cañon is in many places very narrow, indeed is for the greater part of its length navigable for no craft whatever, and is avoided by the natives and miners, who take to trails entirely away from the river, whose branches are crossed by suspension bridges of Indian invention and construction. The mining is chiefly carried on in the region of the headwaters of the river and the localities change to some extent annually. Notwithstanding the severity of the temperature, miners frequently travel to the different camps on the ice or over the snow in winter. The distance from Buck's Bar to the shore near Fort Wrangell has been made on foot in three and a half days in the month of March. The entire distance from Dease Lake, by the miner's trail to Buck's Bar and thence on the river ice to Port Rynda, has been made on foot in eleven days.

Next in order of consideration are the

MITKOFF AND ASSOCIATED ISLANDS,

separated by the following

STRAITS LEADING NORTHWARD FROM SUMNER STRAIT.

Dry or Soukhoi Strait.

That which is nearest to the continent is Dry or Soukhoi Strait of the Russians, otherwise known as that part of Frederick Sound of Vancouver which extends between Mitkoff Island and the mainland, including the flats of the Stikine delta. This strait extends from Point Blaquiere about fifteen miles in a **NW. ¼ W.** direction with an average width of less than three miles, whence it trends more to the westward for some four miles, to its junction with the eastern portion of Frederick Sound. The continental shore of this strait is very imperfectly known. About nine miles **NW. ½ W.** from Point Blaquiere an anchorage is indicated by Russian authorities in a small bay or cove, the headlands of which appear to extend in the form of reefs somewhat less than a mile in a northerly direction, the anchorage being placed between these reefs. The track of the Russian traders is indicated on the Russian hydrographic charts over the Stikine flats, showing that light-draught vessels at least have made use of the passage in the past, and it is quite possible that a careful survey might develop a practicable channel, which would meet the needs of traders at the present time. Meade examined this region in 1869, and says he found the strait impassable for vessels of over four feet draught owing to the shifting sands which everywhere obstruct it. No information is on record in regard to the depth of water in the northwestern part of the strait, but it is beyond question that sundry large glaciers exist upon its continental shore, and that at times its waters are more or less incommoded by floating ice broken off from them.

a. See Notes & sketches H.E.N. See Morse's work of 1882.

b. See H.E.N.

1882 December Point, Wrangell Strait place by F. Morse in 56° 32′ 35″ N Lat 132° 54′ 26.3″ Long.

WRANGELL STRAIT.

The next navigable passage northward from Sumner Strait is Wrangell Strait, named and first surveyed by the Russians. It was entered by one of Vancouver's boat parties, but reported by them to be impassable on account of shoal water and in fact to terminate in a cul-de-sac.

The entrance is situated between **Point Alexander** on the east and a nameless point of Woewodski Island, distant a little more than a mile in a **SW.** by **W.** ½ **W.** direction; thence the strait extends in a generally **N NW.** direction for some eighteen or twenty miles, including curves. The position of Point Alexander is differently estimated by different authorities, the more modern authorities placing it in

Latitude ..... **56° 34′ 30″ N.**
Longitude ..... **132° 52′ 00″ W.,**

or

Latitude ..... **56° 35′ 25″ N.**
Longitude ..... **132° 58′ 12″ W.,**

the second being the position assigned by U. S. Hydrographic Chart No. 225. Northward from Point Alexander the navigable width of the channel varies from an eighth to half a mile, and averages somewhat over a quarter of a mile.

On account of some rocks immediately adjacent to Point Alexander it should not be approached within three cables. Six cables **NW** ½ **W.** from Point Alexander lie the *Midway Rocks*, a small patch, covered at high water, and with twelve fathoms adjacent to them. In the same direction, on the opposite shore, is a small shallow cove, from the northern point of which, called **Point Deception**, rocky ground extends two cables and a half **S SE.**

Three miles and a quarter **N NW.** from Midway Rocks are the **Battery Islets** of Lindenberg's Russian chart, called Clear Islands on the U. S. Hydrographic sketch.* They are small, plainly visible above water, and have about them some *foul ground*, taking on an elongated form and trending with the channel. These dangers extend for half a mile in the middle of the strait; the navigable channel passes to the eastward of them. There are some patches of *foul ground* close along shore **N.** by **W.** from these rocks about a quarter of a mile.

A mile and a quarter northward from the largest of the previously mentioned Battery Islets lies **Burnt Islet** of the Russians, Captain's Island of the U. S. Hydrographic sketch of Captain Meade's reconnaissance.

The channel usually followed lies between Burnt Islet and the shore to the eastward; it is very narrow and continues about two cables in width **N NW.** for half a mile. *Foul ground* to the northward and southward of Burnt Islet trends with the shore for nearly half a mile and forms a narrow elongated strip with the islet in its midst, as in the case of the Battery Islets. This contracted part of the channel has been termed the Wrangell Narrows.

On a MS. chart of this locality, obtained from Russian sources, **SE.** ½ **E.** and **NE.** by **N.** from Burnt Islet, on the Mitkoff shore, are *patches of rocks*, extending off shore from one to two cables. Meade's sketch does not show these rocks, but brings the islet farther to the eastward than the MS. chart. The width of channel given is about the same in both.

On Meade's sketch, **SW.** from Burnt Islet lies **Keene Island**, a small wooded island in the entrance of Duncan Passage leading to Duncan Canal. To the northward and westward of Keene Island there appears to be a channel with two fathoms or less water. This channel leading into Duncan Passage is termed **Keene Channel**, and does not appear on any of the older charts.

From Keene Island Wrangell Strait trends **N.** ¾ **E.** for four miles. **N.** by **E.** somewhat over a mile from the island, and extending a quarter of a mile into the channel from the Mitkoff shore, lies the *South Ledge*, awash at low water and constituting a serious danger. It is a rocky patch a quarter of a mile in extent. Nearly north, three-quarters of a mile from it, is the *North Ledge*, also awash at low water, and extending four cables westward from the Mitkoff shore, between which and it is a passage a cable wide called the **Schroeder Channel**; but the chief and only advisable channel passes to the westward of the ledge. The *North Ledge* is about three cables in length **N.** and **S.**, and four cables **NW.** by **N.** ¼ **N.** lies the outer edge of an extensive *reef or rocky patch* extending from the Kupreanoff shore half-way across the strait. To the northward of this is a large *mud flat*, which is covered at low water, and behind all this the shore appears considerably

Dangers.

*The several charts are very discrepant in this vicinity. Only two plans of the strait have been published,—one by the Russian Hydrographic Office, No. 1441, in 1850, from surveys by Lindenberg in about 1838, and one by the U. S. Hydrographic Office, No. 225, in 1869, from a reconnaissance made by Messrs. Bridge, Pillsbury and Schroeder, of the U. S. S. *Saginaw*, R. W. Meade, jr., commanding, on March 20 and 21, 1869. This reconnaissance was for the purpose of correcting the Russian plan by Lindenberg, and, being the latest, is followed in the accompaning description.

In regard to Wrangell Strait, as a whole, Meade says: "I cannot consider Wrangell Strait a difficult passage for a vessel of fifteen feet draught. The soundings are very regular, the turns easy, except near the mud flats, and the tide is not very strong anywhere." In going through at dead low water two and three-quarter fathoms was the least water obtained, and that happened in only one place. All the rocks are easily seen at low water. Except a few! Meade quite mistaken I think. H. E. M. 02

broken, having a number of small openings to the westward. The muddy and rocky ground is six or seven cables wide **W NW.** and **E SE.** and extends along the shore nearly a mile and a half. The outer portion of the reef or rocky bank is represented on the older charts as having a passage behind it, and is named by Lindenberg Bare Islet. Immediately east from these flats the main channel again hugs the Mitkoff shore. Immediately opposite the most southern part of these rocky flats, at the northern end of the Schroeder Channel, is **Spruce Point** of Lindenberg, or Point Schroeder of Meade. It has a small cove **SE.** from it. A mile **NE.** by **N.** ½ **N.** from Spruce Point lies **Anchor Point.**

From Anchor Point **NE.** lies an unsurveyed opening, probably without a ship-channel, known as **Dry** or **Blind Passage,** and said to extend to Sumner Strait, where it opens **W NW.** from Vank Island. There is an island in the opening near Anchor Point, and Lindenberg clearly indicates a bar clear across both branches. From Anchor Point **NW.** by **N.** ½ **N.** lie, firstly, *a shoal patch* at the distance of about half a mile; and, secondly, at the distance of more than three-quarters of a mile, a point indicated by Meade under the name of **Point Vexation,** and by Lindenberg under the name of Woody Island. There are several openings in this vicinity, and it is not improbable that a number of islands exist here separated by shallow passages.*

Half-Moon Anchorage.

Between Point Vexation and the shoal patch previously mentioned a narrow three-fathom channel exists, but offers no advantages. The curve of the channel between Spruce and Anchor points is called by Meade Half-Moon Anchorage.

Six cables **N.** ¾ **E.** from Point Vexation, on the ~~eastern~~ side of the channel, and extending about two cables from the shore, is *a rocky patch* apparently covered at high water, bold-to, with five fathoms on its ~~western~~ side. This is *Danger Rock* of Meade's sketch. An opening in the Mitkoff shore exists near it, and, indeed, the whole of the shores of the strait in this vicinity appear to be much broken. Off a point which bears **NE.** half a mile from Point Vexation the MS. chart before alluded to locates *a patch of sunken rocks* extending two cables southward from the shore. To the eastward of them is a bight occupied by *shoal water.* The patch is of small extent and is not found on the published charts, so far as it is possible to correlate their discrepancies.

In the vicinity of *Danger Rock* the northerly flood-tide from Sumner Strait and the southerly flood from Frederick Strait meet each other.

Reef.

N. by **W.** ¼ **W.** about a mile from Point Vexation is the southern end of *a reef* which makes out from **Rock Point** of Meade, and which extends from the shore in a curve, nearly **S.** by **E.** ¾ **E.** about three cables. This constitutes a serious danger, and by Meade's sketch is directly abreast of two bare rocks in the strait,—**Green Rocks** of Lindenberg or Fairway Rocks of Meade, with a ~~six~~-fathom channel a cable wide between them and the reef.

About a mile farther northward the shores on either hand assume a flat and rather low character, covered with a luxuriant growth of herbage. Simultaneously the channel is encroached upon on either side by *muddy* or *sandy shoals,* reaching two or three cables broad-off the shore, which extend along the channel for a mile or more, when the latter becomes gradually wider until it occupies the greater portion of the bed of the strait.

From Green Rocks the direction of the strait is nearly **NW.** ⅓ **N.** for six miles, when it turns **NE.** by **N.** ¾ **N.** around a point on the Mitkoff shore, called by Lindenberg **Blunt** or **Tupoi Point** and by Meade Cone Point.

Opposite this point a stream falls into a cove, and to the northward the channel becomes narrower by the extension of *shoals* from either shore. About three miles from Blunt Point Wrangell Strait connects with Frederick Strait. Two miles and a half **N.** by **E.** ½ **E.** from Blunt Point is a ~~*bare (?) rock*~~ in the strait, adjacent to the Kupreanoff shore, though called *Middle Rock* by Meade. The channel passes to the eastward of it.

Directly to the westward of this rock is **Prolewy** or **Straits Point** of Lindenberg, called Proliva by Meade. This in a general way forms the northwestern headland of the strait, and according to Meade its geographical position is

Latitude	**56° 52′.5 N.**
Longitude	**132° 52′.0 W.**

The least water in the channel through the strait appears to be two and three-quarter fathoms† at low water, and most of the distance there is not less than four fathoms. Anchorage may be had almost anywhere, but it must necessarily be an uneasy berth on account of the tidal currents.

The ordinary range of the tide is stated by Lindenberg to be fifteen feet.

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*On most general charts, including Russian Hydrographic, No. 1494, and British Admiralty, No. 2431, the eastern end of Duncan Passage is represented as opening upon Wrangell Strait at this locality; an error corrected in the local reconnaissance of Lindenberg and Meade.

†According to Meade, "Any vessel drawing less than seventeen feet water can go through at low water, and the largest vessels can do so at high water."

See H.E.N. notes.

In the present state of knowledge it is impossible to be more explicit with safety. The navigator here, as almost everywhere on these coasts, must make up for the defects of the charts by extra watchfulness and caution.

Russian Hydrographic Chart No. 1441 contains Lindenberg's reconnaissance chart. Meade's sketch is to be found on U. S. Hydrographic Chart No. 225. Neither is to be implicitly relied on.

SAILING DIRECTIONS

FOR WRANGELL STRAIT.

From the Southward.—In entering, the navigator should not approach Point Alexander within three cables,—the rocks near its southern point being thus avoided. The course passes to the eastward of Midway Rocks, which may be closely approached; except at extreme high water they are visible or marked by a small ripple.

Hence the course is nearly in midchannel until up with the Battery Islets, which should be passed midway between them and the shore of Mitkoff Island. Burnt Islet should also be passed on the eastern side in midchannel. The course then veers toward the Kupreanoff shore, which may be approached within two cables, avoiding the South and North ledges on the eastern side of the channel. The shore from Spruce Point to Anchor Point should be kept well aboard, avoiding the reefs and shoals on the Kupreanoff side; the course will then be nearly in midchannel until Point Vexation shall be passed, when the navigator should be on his guard against Danger Rock, whose position is not well determined, and when up with Green or Fairway Rocks they should be kept within half a cable to westward to avoid the ill-determined rocks and dangers which may be not more than a cable to eastward of Green Rocks. Thence the course is nearly in midchannel until Frederick Sound is attained.

The variation of the compass in 1838, according to Lindenberg, was **26° E.**; in 1867 Meade records it as **28° 30′ E.**

KUIU AND ASSOCIATED ISLANDS.

The next western passage to Frederick Sound from Sumner Strait is that between Kupreanoff and Kuiu Islands, called by the Russians

KEKU STRAIT,

a name derived from the local appellation of the T'linkit tribe of Indians which inhabit it.*

The southern entrance of this strait is situated in about latitude **56° 31′ N.**, some two miles and a half to the northward from Conclusion Island, as previously mentioned.† From this vicinity the strait trends nearly **N.** by **W. ½ W.** for nine or ten miles with an average width of over a mile. At this point it turns sharply to the westward, expands to a width of two miles and a half, and so continues for eight or nine miles in a **N NW.** direction. Throughout the whole of this portion, and indeed the whole of its extent, the strait is greatly embarrassed by islets, rocks and foul ground. Little has been done in the way of exploration in this vicinity since the time of Vancouver. All existing charts are based upon his, and the obstructions appeared to his party so great as to render this strait wholly unavailable for navigation except in boats or canoes. A note on U. S. Hydrographic Chart No. 225 states that there is passage for small craft,‡ and it is by no means improbable that a navigable channel exists for vessels of moderate draught; though the difficulties attendant on such navigation are likely to deter traders and others from making the attempt except in cases of necessity.

At the last-mentioned point the direction of the strait again changes, and an islet of more than average size lies in midchannel. From this islet the general direction of the strait is **W. ½ N.** eight miles, and the width gradually increases from two miles to about three miles, with very broken and irregular shores.

At a distance from the aforesaid islet of four and a half miles in a **W.** by **S. ½ S.** direction is a point forming the northeastern headland of Port Camden of Vancouver. The opposite headland is distant about a mile and a half in a westerly direction. In the entrance are two islets, and, on the eastern side especially, a number of rocks. The course of this inlet for five miles is about **SE.** by **S. ¼ S.**, when it gives off a short rounded arm somewhat over

Port Camden.

* It has been written **Kekou, Kiku** and **Kake Strait** by various authorities; the original Russian form has been adopted and is essentially that found on all the charts.

† See page 76.

‡ It is stated (in the Directory of Bering Sea and the coast of Alaska, issued by the Bureau of Navigation, U. S. N.) that fifteen feet of water may be carried through. In U. S. Hydrographic Notice No. 13, 1869, Meade reports that it is said that no vessel drawing more than four feet can pass through Keku Strait, but he doubts the truth of this. Nichols hears that 15 ft can be carried through

* It was also called Menzies Straits by the traders as late as 1799. Cf. Journal ship Eliza.

a mile in extent in the same direction, while the main body of the inlet turns to southward,—terminating at a distance of some six and a half miles, and after forming some unimportant curves, in latitude **56° 38′.5 N.** according to Vancouver. Here only a comparatively low and narrow isthmus separates it from another inlet which opens upon Chatham Strait.

Vancouver says, "The shores of the southern parts of this branch * * * are pretty free from islets and rocks, but those to the northwest of it are lined with them, and render the approaching of it extremely dangerous." It is reported to the U. S. Coast Survey that coal was discovered, May 1868, in the rounded arm previously alluded to, in about

Latitude ..... **56° 42′ N.**
Longitude ..... **133° 51′ W.,**

according to British Admiralty Chart No. 2431. It is represented to occur in several small six-inch seams cropping out about twenty feet above low-water mark, and separated from each other by intervening hard strata twenty to fifty feet in thickness. The direction of the coal seams is nearly east and west, with a dip of 30° or 40° to the southward. According to the same report the entire beach is a formation of sandstone; the tide ranges about thirty feet; the harbor is perfectly safe, with good anchorage in six to fifteen fathoms, soft muddy bottom; and from the thickly wooded adjacent country numerous streams flow into the harbor.

So far as the material at hand affords a clue, it indicates that no special chart of Port Camden has up to this time been made public or has been urgently required. From the western headland of the port the shore curves to the westward for some twelve miles, terminating at Point Cornwallis, which forms the western headland of the large bay through which Keku Strait communicates with Frederick Sound.

The whole of this strip of shore is profusely studded with rocks and islets, which extend off the coast to a distance of several miles, and are sometimes known as the **Keku Islets.** From the western headland of Port Camden **N.** by **W.** about four miles lies the southern headland of Hamilton Bay, named by the U. S. Navy, and sometimes called **Hamilton Harbor.** Vancouver's party entered this inlet, and describe it as a mile wide and stretching five miles in an easterly direction. Two islets lie to the westward of but quite near to the southern headland, and two more at the mouth of a small cove just to the eastward, inside the northern headland. Little has been made public in relation to this bay. It is stated that "the chart exhibits the approaches as being difficult of navigation on account of islets and rocks," but that the navigation is "not so, at any rate for steamers."

Hamilton Bay.

The geographical position of the harbor, as determined by the U. S. S. *Saginaw*, is

Latitude ..... **56° 52′.8 N.**
Longitude ..... **133° 36′.0 W.**

A coal seam eighteen inches wide, of "good bituminous coal," is reported to have been discovered here in July, 1868. A large settlement of the Keku or Kake Indians was destroyed here by the United States authorities about the same date, and it is worthy of note that the native inhabitants of this vicinity have a very bad reputation, and are unquestionably not to be trusted in the absence of a force sufficient to control them. Vancouver's party noted eight villages on the bay, some of them in ruins or deserted, and none inhabited at the time of his visit.

From the entrance of this bay to **Point Macartney,** the northeastern headland of the expanded northern portion of Keku Strait, the shore curves in a generally **NW.** by **W.** direction some seven or eight miles. It is broken by various minor indentations and guarded by a multitude of islets and rocks which extend off two or three miles. The width of this bay from Point Cornwallis to Point Macartney is about ten miles in a **NE.** by **N.** ¼ **N.** direction, and it would appear by the charts that more than two-thirds of the area to the southward and eastward of this line, between the shores of Kuiu and Kupreanoff Islands, is thickly infested with obstacles or dangers to navigation.

Dangers.

CHATHAM STRAIT.

Returning once more to Cape Decision, Chatham Strait* is next in order.

For present purposes Chatham Strait will be considered as extending from Cape Decision to Point Couverden, where it divides into two branches. The western branch is now known as **Icy Strait,** while to the other, named by Vancouver **Lynn Canal,** the term "strait" is inapplicable.

* This, the most extensive and remarkable of the inland highways of the Alexander Archipelago, was named by Vancouver, who included in it the strait which separates his **King George Third's Archipelago** from "the land to the eastward." This comprised also a part of what is generally known as Icy Strait. The expanded portion at the southern extreme of Chatham Strait, including the waters northward of the Hazy and Coronation Islands, was called **Christian Sound** by Colnett in 1789. To the same waters the name of **Chirikoff (Tschirikow) Bay** was given in 1786 by La Perouse, and **Ensenada del Principe** by Malaspina in 1791.

Between Cape Decision and Point St. Albans is an island with a dangerous reef not noted on Hydr. Office chart. See Ad. Ch. 2431. I note on map. H.S.N. 1882. In range with the bar and island midway between them. See report of the Rush, Capt. Bailey p. 35

As here considered, this strait has a length of one hundred and thirty-five miles in a **NW.** ¼ **N.** direction. Its greatest width is sixteen miles, at its southern entrance; it is contracted to two and three-quarter miles near Point Marsden. With these exceptions it is remarkably uniform, averaging about six miles in width during its entire extent. It is very deep, hardly any soundings being reported from it, and there are but few dangers except those immediately adjacent to the land. The western shore of the strait was partially imperfectly surveyed by Vancouver, and but little has been done there since his time; hence, with the exception of its most general features and certain anchorages, this coast is as yet almost unknown in its details.

BARANOFF AND ASSOCIATED ISLANDS.

Cape Decision, forming the southwestern extreme of Sumner Strait, at the same time forms the southeastern extreme of Chatham Strait, whose opposite headland is **Cape Ommaney**, named by Colnett in 1789.* It is situated at the southern extremity of Baranoff Island, and according to Vancouver "constitutes a very remarkable promontory, that terminates in a high, bluff, rocky cliff, with a round, high, rocky islet lying close to it." By the shore "on its eastern side, taking a sharp northerly direction, it becomes a very narrow point of land." †

From its height, and especially from the height of the land to the northward of it, this cape is readily recognized, and is the most conspicuous portion of the land seen by vessels to the westward, bound for Sitka, when they make their usual landfall. This land to the northward of the cape was seen at a distance of forty-five miles by Vancouver when off Cape Addington. La Perouse placed Cape Ommaney in latitude **56° 11′ N**, and Malaspina in **56° 09′.5 N.** Its geographical position, according to Tebenkoff, is

Latitude ..... **56° 10′.5 N.**
Longitude ..... **134° 28′.5 W.**,

nearly agreeing with Vancouver's position. The islet near it was named **Wooden Islet** by Vancouver after one of his men, who was lost overboard in this vicinity.

Cape Decision bears from Cape Ommaney **E.** ¼ **N.** about nineteen miles.

The section of Chatham Strait to be first considered extends from Cape Decision to Point Kingsmill. From the former the coast of Kuiu Island trends nearly west for about three miles, then **NW.** ¾ **N.** eleven miles, to a rocky point which forms the northwestern extremity of a rocky peninsula. Between this point and the western angle of Cape Decision the shore is very irregular, "has in it many small open bays, and at some distance from it lie many rocks." ‡ According to Vancouver's chart some of these rocks extend nearly two miles off shore into the strait.

From the rocky point above mentioned **NW.** by **N.** ¾ **N.** a mile and a half lies the southeastern headland of Port Malmesbury of Vancouver. This port has not been described by any other navigator, and no detailed survey was made by Vancouver. The general course of the port from the entrance is **N.** ¾ **E.** three miles, whence it turns abruptly to the **SE.** for three miles farther. The northwestern shores are very irregular and guarded by numerous rocks and islets, which extend, according to Vancouver's chart, about half way from that shore across the port toward the opposite shore. There are also some rocks or islets at the extreme head of the bay. The clear and navigable portion of the port is that along the **SE.** shore, and this varies from a mile to half a mile in width. A cove exists immediately **NE.** from the southeastern headland, which is represented as clear of rocks and well sheltered, but no soundings are recorded in it. Vancouver remarks, in relation to the port: It was "found free and easy of access by keeping near the southern shore;" the inner portion of the harbor "having some islets and rocks in it, notwithstanding which it affords very excellent shelter, with soundings from 17 to 34, and 12 fathoms water;" and "is conveniently situated to the ocean."

Port Malmesbury.

From the southeastern point of entrance the northern headland bears **NW.** by **W.** ¼ **W.** two miles according to Vancouver, who named this headland **Point Harris.** § According to Vancouver this point is rendered very remarkable by being a (low) projecting point "on which is a single hill, appearing from many points of view like an island, with an islet and some rocks extending near a mile" to the **S.** and **SE.**

The geographical position of this point, according to Russian Hydrographic Chart No. 1494, is

Latitude ..... **56° 17′.7 N.**
Longitude ..... **134° 14′.0 W.**,

while other authorities place it in **134° 12′** or **134° 09′ W.** longitude.

* In 1786 La Perouse had named it **Cape Chirikoff (Tschirikow)** a name adopted by Sarycheff, but the account of his explorations in this vicinity was not published before the subsequent name had come into use. It was named **Punta Oeste de la Entrada del Principe** by Malaspina, and **South Point** by Lisiansky in 1804. Mengies Cape by traders in 1799. see "Eliza"

† Vancouver, vol. iii, pp. 266–7.

‡ Vancouver, vol. iii, p. 286.

§ Which by transcription into Russian letters, an error in lettering and retranscription into English, appears on some charts as **Point Garns.**

From this point, **NW.** by **N.** ½ **N.** three miles and a half, lies the southern headland of a large open bay, which, since no name has been applied to it previously, may be called Tebenkoff Bay. This bay is about nine miles in width at the entrance, the general course of the main stem being about **E NE.** for seven or eight miles. This divides into several ramifications, some of which reach within two miles of the eastern shores of Kuiu Island. One of these branches extends some sixteen miles in a **N.** ¾ **E.** direction from the southern headland of the bay, terminating in latitude **56° 33′ N.** Another with a generally **E SE.** course terminates in latitude **56° 23′ N.**, eleven miles from the above headland, in a **NE.** by **E.** ¼ **E.** direction. A third branch stretches **E SE.** and **SE.** by **S.** ½ **S.** to a point where it ends in about latitude **56° 15′ N.** Since these inlets and bays have not been carefully surveyed, it seems better to defer a minute description of their intricacies until more is known about them. Almost the entire bay is occupied by innumerable islets and rocks. Only one Indian habitation was noted by Vancouver's party.

Tebenkoff Bay.

The northern headland of this bay, called by Vancouver **Point Ellis**, is situated nine miles **NW.** ¾ **N.** from the southern point of entrance before alluded to. The position of Point Ellis is believed to be

Latitude	**56° 31′ N.**
Longitude	**134° 14′ W.**,

the latitude being derived from Vancouver, and the longitude taken from U. S. Hydrographic Chart No. 225. It appears to be of ordinary height, with some rocks about it, and forms the southeastern extreme of another large inlet which has not been named hitherto, and which, from the abundance of rocks within it, may take the name of the Bay of Pillars. This bay has a generally **NE.** by **N.** direction, with a width at the entrance of over seven miles. Its northeastern portion is divided by an irregularly wedge-shaped tongue of land into two principal ramifications with irregularly indented shores. The southeastern of these is a long narrow bay extending in a generally **NE.** by **N.** direction some ten miles from Point Ellis to a point where it terminates in a strip of low land, which separates it from the inner extreme of Port Camden by a distance of about a mile and a half, across which the natives are asserted to make canoe portages. The northwestern arm extends in the same direction as the other, to a point about six miles from the northern headland of the bay. The whole bay fairly bristles with islets and rocks. Those trending to the **S SW.** from the tongue which divides the two arms extend not less than three miles and a half from the shore, and some of them, according to some authorities, actually pass outside of a chord joining the two headlands.

Bay of Pillars.

The northern headland is **Point Sullivan**, named by Vancouver, and bearing from Point Ellis **NW.** ¾ **N.** about seven and a half miles.

Two islets lie to the southeastward and two to the southwestward from the point, and there are numerous rocks, the whole within a radius of a mile from the extremity of the point. The shore-line to the **E NE.** of the point is greatly indented and guarded by rocks and islets; to the northwest, on the contrary, the shores are less rocky and become firm and compact.

The geographical position of Point Sullivan appears, by a comparison of discrepant authorities, to be nearly

Latitude	**56° 38′.0 N.**
Longitude	**134° 16′.5 W.**

The longitude is doubtful to the extent of 3′.0.

Taking up the western shore of Chatham Strait **N.** by **W.** ¼ **W.**, from Wooden Islet seven miles, a small islet forms the eastern headland of Port Conclusion, named and surveyed in detail by Vancouver in 1794. A point five-eighths of a mile **E.** by **S.** ¾ **S.** from the islet above mentioned is the "southern point of entrance" of Vancouver, from which his "opposite point," according to his chart, bears **NW.** by **N.** two and a half miles; the greatest depth on which line is seventy-five fathoms. There seems no reason, however, why Point Eliza does not constitute the real northwestern point of entrance, while the islet forms the southeastern headland; the two bearing reciprocally nearly **NW.** ½ **N.** and **SE.** ½ **S.** a mile and a quarter from each other. From this line, with an axial direction about due south, the port extends for a distance of two and three-quarters miles to its termination. For about half this distance it has a width **E.** and **W.** of somewhat less than a mile; for the remainder of its extent it averages about a quarter of a mile in width. The depth of water in the middle of the port varies from eighty-seven fathoms near the entrance to twenty near its southern termination.

Port Conclusion.

These soundings appear to be rather irregular and the character of the bottom varies from stony to mud or sand. There is nowhere any impediment to its free navigation, though a few rocks exist close to the shores. **S.** by **E.** three-quarters of a mile from the islet is an open cove with a sandy beach, and five to seven fathoms water.

S. ½ **W.** a mile and three-eighths from the same islet is the entrance to Ship Cove, where Vancouver moored his vessels. This is a very small cove, a cable wide **NW.** and **SE.**, and about two cables long, with its entrance still further contracted by some rocks

Ship Cove.

adjacent to the end of the point or spit which forms the cove. Within there is a depth of four or five fathoms, rocky bottom. It is necessary to moor here, and there is a small beach at the head of the cove.

The shores are mostly steep and covered with a rather dense growth of spruce and other evergreen trees. Halibut were caught near the mouth of the port by Vancouver's party.

The geographical position of his astronomical station at the head of Ship Cove is

Latitude	**56° 14′ 55″ N.**
Longitude	**134° 22′ 30″ W.,**

and the variation of the compass, according to the most recent authorities, is about **28°** easterly.

No information is accessible in regard to the tides, except that in Chatham Strait, in this vicinity, the flood invariably comes from the southward and runs about two hours.

Vancouver's survey has not been supplemented by any subsequent work. His original sketch of this vicinity has been copied or adopted by various Russian authorities, and by the U. S. Coast Survey in its Atlas of Harbor Charts. Tebenkoff's scale of miles represents one mile divided into quarters, but on his copy of Vancouver's sketch it has much the appearance of representing a total of four whole miles. On Russian Hydrographic Chart No. 1494, the longitude of Vancouver's Ship Cove is indicated as about **134° 34′ W.**, but on later charts either Tebenkoff's position, which is **134° 28′ W.**, or a position between the two has been adopted.*

The inner portion of Port Conclusion is separated only by a narrow isthmus from the head of Larch Bay which opens to the Pacific. Ship Cove is likewise divided by an isthmus less than a quarter of a mile wide from Alexander Bay of Russian authorities, a small basin whose very contracted entrance is situated **S.** by **E.** ¾ **E.** from the islet at the entrance of Port Conclusion. It is only half a cable wide in a **N.** and **S.** direction, the northern headland consisting of a narrow rocky tongue. Within, the bay extends **NW.** by **N.** ¾ **N.** about a mile with irregular shores, especially to the north. The southern half has a width of about a quarter of a mile, while the northern portion is more contracted with some rocks in it and terminates in a sandy beach. The depth of water in the entrance is about four fathoms, in which kelp grows, and within the depth varies from three to eight fathoms.

Alexander Bay.

Outside, to the northward of the entrance, is a small islet with some rocks. In regard to this basin Vancouver remarks: "The surrounding shores are generally steep and rocky, and were covered with wood nearly to the water's edge, but on the sides of the adjacent hills were some spots clear of trees and chiefly occupied by a damp, moist, moorish soil in which were several pools of water. The surface produced some berry bushes," and on the west side of the basin "were found a few deserted Indian habitations."

The northern headland of Port Conclusion, as herein regarded, was named by Vancouver **Point Eliza**, a rocky point from which in a **N NE.** direction some islets and rocks extend for a short distance with deep water close to them. This point forms the southern headland of Port Armstrong of Vancouver, called **Armstrong Bay** on Tebenkoff's chart, another of those singular land-locked basins not uncommon in this region. The opposite headland is a small projecting point distant from Point Eliza about two cables **N NE.**, of which distance about one-third is rendered unavailable by the rocks and islets on the southern side before alluded to. The northern shore appears to be steep-to.

Port Armstrong.

The entrance to the basin is half a mile **SW.** ½ **S.** from the northern headland with a width of an eighth of a mile, which appears to be clear of obstructions. The shores of this passage are steep-to on both sides, and there is a clear navigable passage of eight to twelve fathoms in the middle and five fathoms near the shores. The basin itself from its mouth is about a mile long **SW.** ½ **W.** and four cables wide. The soundings are tolerably regular, from thirty in the middle to ten fathoms near the shores; the entire basin is free from any rocks or islets. Immediately within its north point is a sandy beach and a fine stream of fresh water, as is also the case at its head. Another beach lies just within its south point of entrance. In the vicinity of these beaches, especially about the entrance, "is a small extent of low land, but the other parts of the shores are composed of steep rugged cliffs on all sides, surrounded by a thick forest of pine trees which grew with more vigor there" † than about Port Conclusion.

The liability to strong and irregular tidal currents in the entrance, and to land-squalls or "woollies" from the high land about these basins, should be borne in mind by the navigator who may be tempted to make use of them in preference to less protected yet really more commodious bays which may be entered or left with almost any wind.

From the islet off Port Conclusion the western shore of Chatham Strait trends nearly **NW.** by **N.** ½ **N.** for some thirty-two miles. Within this space, especially within that portion included by the southern half of it, are a number of openings which have not yet been surveyed, as well as numerous

* As Tebenkoff states that he copies from Vancouver, it would seem at least possible that the "28′" is a clerical error for "23′," the approximate value of Vancouver's position.

† Vancouver, vol. iii, page 269.

smaller irregularities of the shore. Tebenkoff indicates that some of these openings are connected by chains of lakes and streams through marshy valleys with bays on the western slope of Baranoff Island or Archipelago.*

Returning to the vicinity of Point Sullivan, the shore of Kuiu Island trends thence about **NW.** ¾ **N.** thirteen miles to **Point Kingsmill,**† a conspicuous point, named by Vancouver, and forming the southwestern point of entrance into the spacious sheet of water known as

FREDERICK SOUND.‡

Its southwestern entrance, between Point Kingsmill and Point Gardner, is nearly ten miles wide **NW.** by **W.** and **SE.** by **E.** The Sound is bounded to the westward by the shores of Admiralty Island, between points Gardner and Gambier, a distance of thirty-four miles; to the northward and eastward, by the shores of the Continent from Point Windham to the mouth of Dry Strait, a distance of over forty miles; to southward and eastward, by the shores of Kuiu and Kupreanoff islands for about sixty miles. Its general form is irregularly trilobate and its greatest width about fifteen miles. It is not known that any soundings have ever been taken in it.§

Frederick Sound forms the third in order of the grand transverse valleys of plication of which Dixon Entrance, Sumner Strait and (as will be hereafter shown) Cross Sound with Icy Strait form the more conspicuous examples. The Frederick Sound plication fails, apparently, to cross the Baranoff Archipelago; but even here an unexplored opening and indications of low land traversing the island, as shown on some of the charts, are clearly a part of the same furrow and are continued in the same trend.

The shores of the sound are for the most part exceedingly irregular, and in the number of off-standing islets the sound contrasts very unfavorably for navigation with Chatham Strait.

From Point Kingsmill **Point Cornwallis** of Vancouver bears nearly **N.** by **E.** ½ **E.** about six and a half miles. It is stated to be long, low, narrow and wooded, and, as previously mentioned, forms the northwestern extreme of Keku Strait. Between this point and Point Kingsmill lie two bays. Of these, Security Bay of Meade|| and the U. S. Hydrographic Chart No. 225 is immediately to the eastward from Point Kingsmill, which forms its southwestern point of entrance, and from which **Cedar Point,** the northeastern headland, bears **NE.** ¼ **N.** somewhat less than two miles. The northern angle of Point Kingsmill has been called **South Point,** and is immediately opposite and about a mile and a half distant from the Cedar Point above mentioned. It has *some rocks* extending a cable north from it. From the middle of the entrance Security Bay trends **E.** by **S.** over six miles,—its extreme head being still unsurveyed. For the greater part of its extent it has a width of one or two miles.

Security Bay.

The passage into Security Bay is obstructed by an extensive *patch of foul ground,* including several islands. This patch is about a mile and a half long **E.** and **W.** and about half a mile wide. Its outer extremity bears from South Point **NW.** by **N.** ½ **N.** three-quarters of a mile; its eastern termination is separated by a boat-passage from the shore of Cedar Point and southward for half a mile. The general course of this shoal is marked by a succession of islets situated within its limits, and most of which are in line with one another **E.** ½ **N.** and **W.** ½ **S.**

Foul Ground.

The outermost and westernmost is **Roadstead Islet,** from which the western end of the shoal bears **W.** ¼ **S.** a quarter of a mile. The other islets in the series successively eastward from Roadstead Islet are **Rock Islet, Flat Islet, Round Islet,** and one not named. There is another series formed by **Cedar Islet,** the southern buttress of the shoal, and **Harbor Islet** with deep water about it, though the passage is very narrow on the side toward the shoal; these bear **SE.** ½ **E.** from Roadstead Islet a quarter and half a mile, respectively. The shoal extending outside of the mouth of the harbor forms a bight between its western extremity and the shore on either hand. These bights and the ground to the westward of the shoal are known as Security Roads, for good anchorage in ten or twelve fathoms, muddy bottom, is obtainable within a radius of seven-eighths of a mile from Roadstead Islet.

Security Roads.

The entrance to the harbor lies between South Point and Cedar and Harbor islets. This passage in the clear is four cables wide, and twelve to fourteen fathoms, muddy bottom, may be carried in.

* On a MS. chart the name of **Point Hoyt** is applied to the northern headland of one of these openings, in about latitude 56° 24′ N.; and for the northern point of entrance to another opening situated in about latitude 56° 34′ N., the name of **Point Scott** is used,—both apparently without any explorations as a basis.

† Erroneously called **Kingemill** on Russian Hydrographic Chart No. 1494.

‡ Named **Prince Frederick Sound** by Vancouver in 1794, which title has been adopted by nearly all subsequent hydrographers. It has also been termed **Frederick Strait.**

§ The older navigators seem to have applied the term *sound* to bodies of water of approximately equal length and breadth, or less elongated than a strait, especially if interspersed with islands, rather than with any reference to depth of water. After three-quarters of a century of usage it is, perhaps, unnecessary to alter such established names to suit any theory of the derivation of general terms.

|| Named by Meade on account of its advantages.

The anchorage lies one mile from South Point, with the northern edge of the point and the southern edge of Harbor Islet in one **W.** by **S.** and **E.** by **N.** **E.** by **N** $\frac{3}{4}$ **N.** from South Point about a mile and a half is a high bluff point, called by Meade **Retaliation Point,** half a mile to the eastward of which, in 1868, an Indian fishing village was destroyed by the U. S. Navy in punishment for outrages committed by the inhabitants. Other villages farther up the bay were also destroyed at the same time. Two-thirds of a mile **SE.** by **E.** from Retaliation Point lies **Cleft Islet,** named by Meade on account of a chasm which nearly divides it east and west into two narrow portions.

This islet is about half a mile long **E.** and **W.** and a cable and a half wide. At its eastern end *a reef* and at its western end *a shoal* extend in the trend of the islet, respectively, about a cable length. South from the islet lies Indian Rock, of small extent, with *a small shoal* about it; **NE.** by **E.** $\frac{3}{4}$ **E.** from the extremity of the reef of Cleft Islet is **Expedition Point.** Between this point and Retaliation Point is a bight a mile and three-quarters long **E.** $\frac{3}{4}$ **S.** and **W.** $\frac{3}{4}$ **N.**, and two-thirds of a mile broad. The eastern portion, immediately under Expedition Point, has gained the name of **Cedar Bight.** That to the westward, and between Cleft Islet and Retaliation Point, constituting the preferable anchorage, was named by Meade Snug Harbor. The anchorage here is indicated in six or seven fathoms midway between the western end of Cleft Islet and Retaliation Point, bearing **SE.** by **E.** and **NW.** by **W.**

Snug Harbor.

The bay, south from an **E.** and **W.** line drawn through Indian Rock, has not been examined for depth or dangers. To the eastward from Expedition Point there are numerous islets. The deepest water is ten fathoms, in the middle of the bay westward from the islets; farther east it rapidly shoals to two fathoms and less, and the extreme head of the bay has not been surveyed.

According to Meade's* sketch (U. S. Hydrographic Chart No. 225) the approximate geographical position of South Point is

Latitude ..... **56° 52′ N.**
Longitude ..... **134° 20′ W.,**

with a variation of the compass of **28° 30′ E.** The range of the tide is stated to be fourteen feet.

DIRECTIONS

FOR ENTERING SECURITY BAY.†

The entrance bears **SE.** by **E.**, six miles from Yasha Island, and is easily recognized as the entrance immediately **NE.** from Point Kingsmill.

From the Northward.—Roadstead Islet should not be approached within half a mile until the **NE.** edge of Cedar Islet bears **E.** $\frac{3}{4}$ **N.** well open from the **SW.** edge of Roadstead Islet; when the course will be **E.** $\frac{3}{4}$ **N.** until South Point bears **SE.**; then the course will be **E SE.** for the outer anchorage, with the southern end of Harbor Islet bearing **E SE.** When in midchannel between Roadstead Islet and South Point bearing **N.** and **S.**, respectively, anchorage may be had in twelve fathoms, muddy bottom.

From the Southward.—The course will be **NE.** by **N.** for the eastern end of Roadstead Islet until the southern end of Harbor Islet bears **E SE.**, when anchorage may be had as above.

For the inner harbor.—From the outer anchorage a course rather to the northeastward of midchannel, between the islets and South Point, will carry clear of the reef at the end of South Point, and anchorage may be had almost anywhere between Harbor and Cleft islets and the shore to the northward. The extension of the entrance shoals renders it inadvisable for the navigator, when eastward from Harbor Islet, to stand to the northward after the southern end of Cedar Islet bears **W.** $\frac{1}{2}$ **S.**

DANGERS.

The extension of the Entrance Shoals **W.** $\frac{1}{4}$ **S.** a quarter of a mile from the western end of Roadstead Islet and some rocks extending a cable northward from South Point, are the chief dangers known about the entrance, but they may readily be avoided.

* Commander Meade, of the U. S. S. *Saginaw*, anchored in this bay February 16, 1869. The sketch of the bay which appears upon U. S. Hydrographic Chart No. 225 is from observations by Midshipman Bridge upon that day. Commander Meade considered this bay as immeasurably superior as a harbor to anything he had seen in Alaska, on account of, *first*, its proximity to the ocean; *second*, a good roadstead outside the harbor; *third*, a clear channel; *fourth*, a southern exposure for a proposed settlement; *fifth*, abundance of fresh water and timber; and *sixth*, perfect security from all winds. It has long been known to and used by officers of the Hudson Bay Company. Captain Lewis of the *Otter*, and formerly of the *Labouchere*, vessels of the Hudson Bay Company, agrees with Meade in his estimate of the bay. Although so long used by this company's vessels no plan of it appears to have been made before Meade's.

† Based entirely on Meade's sketch chart.

N. by **E.** ½ **E.** two and a half miles from Cedar Point lies the southern headland of Saginaw Bay, named by the U. S. Navy in 1869. The northern headland is formed by Point Cornwallis, distant from the southern point **N.** ¾ **W.** about two miles and a half. This bay is about five and a half miles long **E.** and **W.** and two miles wide **N.** and **S.**,—the northern shore being irregularly indented. Between Security Bay and Saginaw Bay the shore is guarded by rocks which extend seaward about a mile, mostly visible. From Point Cornwallis an arc described with a radius of a mile appears to include nearly all the off-shore rocks of that vicinity. **Saginaw Bay.**

No detailed chart or sketch of this bay appears to have been made public; the bay on the general charts is represented as much obstructed by rocks both at and about the entrance and also within. If the charts are even tolerably accurate Vancouver's description of the bay as filled "with many islets and dangerous rocks" is fully warranted. It is, however, reported that a safe anchorage exists in this bay one and a half miles within Point Cornwallis, on the northern shore, nearly "abreast of the Indian village, both east and west," over muddy bottom, in seven to eleven fathoms. It is stated that "though open to the northwest the anchorage is completely sheltered," is easily found, and is accessible to sailing vessels or steamers with fair or head winds. There is said to be room for a dozen large vessels. The Indian village is not represented on any of the charts, but it is said that the *Saginaw* found its geographical position to be ***Dangers.***

Latitude	**56° 55′.5 N.**
Longitude	**134° 10′.5 W.,**

by which it would appear to be situated on a narrow point, in which case the obscure expression previously quoted may mean that there is anchorage either east or west from this point abreast of the village. This anchorage has been called **Halleck*** **Harbor** by the U. S. Navy. In the absence of any sketch of the entrance it is hardly necessary to call attention to the need of great caution in entering the bay.

SAILING DIRECTIONS

FOR ENTERING SAGINAW BAY.

"In entering keep the port or eastern head of the bay aboard, say a quarter of a mile distant, until you reach the bold bluff point of the northern side of the anchorage, when steer for the ruins of the settlement, and anchor when you get eight fathoms."†

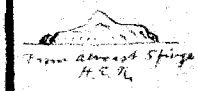
Great numbers of codfish are reported about the bay, and at one time the establishment here of a United States military post was contemplated.

The northern headland is Point Cornwallis, and within a radius of a mile from its extremity there are several rocks.

About ten miles **NE.** by **N.** ¼ **N.** from this headland lies **Point Macartney** of Vancouver, the **NE.** extreme of this part of Keku Strait. It is described by Vancouver as a "large, rounding, though not lofty promontory, in which were several small open bays, and near it several rocks."‡

From this point, according to the latest charts, the coast trends in a **N NW.** direction about four miles to a promontory, which has been named **Cape Bendel**,§ from whence Point Napean bears **W NW.** six or seven miles across the sound. The cape is moderately high, and from its northern face, in a generally **N.** by **W.** direction, a succession of irregular rocky patches, reefs and islets make off between three and four miles.

At the northern extreme of this series of obstructions is a small island called by the Russians **Poverotni Island**, or, in translation, Turn-about Island. This island is associated with others still smaller, of which three are indicated by Tebenkoff, while other charts very generally omit all but Poverotni. The latter is wooded and rather moderate in height. There is a passage between Poverotni and Cape Bendel, but under ordinary circumstances, unless with good local knowledge, its use cannot be recommended to navigators.



These reefs, nearly connecting the island with the Kupreanoff shore, would, in the presence of an extensive commerce, constitute a serious danger. As it is, they are the most and only serious obstruction to navigation between Wrangell and Peril Straits on the inside route to Sitka.

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*This harbor was selected by Major General Halleck as the site of a military post, but subsequently abandoned for Kootznahoo. Meade anchored here February 14, 1869, and destroyed five of the six houses that constituted the settlement as a punishment for murders committed by these Indians. The bay will shelter a large fleet, but the depth of water is so great that it is an undesirable anchorage.

† U. S. N. Hydrographic Notice No. 13, 1869, p. 17; from Meade's Remark Book.

‡ Vancouver, vol. iii, p. 292.

§ On U. S. Coast Survey Chart No. 701, corrected to 1877. From Mr. B. Bendel, formerly of Bremen, an Alaskan pioneer, now deceased, to whom the Coast Survey parties have been repeatedly indebted both for valuable information and generous hospitality.

See notes on Chart 10, by Nichols.

~~Portage Bay.~~

The appearance of the land would not justify a stranger in seeking anchorage there without a chart. ie. NW. of Pt. Vandeput H.E.N. 1882.

The whole country from Pt. Highland to Horn Cliff is a mass of most remarkable mountain peaks. At the bottom of the bay east of Pt. Vandeput is a mountain almost perpendicular from the water. showing scorings of eight or ten landslides. H.E.N. 82.

Navigation course from Portage Bay to [illegible] about [illegible] W.½N.

Portage Bay the [illegible] known [illegible] Chatham [illegible] H.E.N. Portage Islets are much closer together than shown on the chart. At entrance to bay the tide at 7.10, runs 2 knots over the bay and at springs the flood comes in with strong eddies as far as Hunter Pt.

There is a passage on each side of the Sonkhoi Islets, the one to the westward is to be preferred and appears perfectly clear and shorter, though not so on chart 10. H.E.N. 1882

– Fortune rocks 20 ft. high off Cape Faushaue and lying about NW. from the Cape. [illegible] distant about 2 miles, the channel between the Fortune and a [illegible] island with [illegible] NW.

– on Oct 27 attempted in a strong SE gale to make a bay known as a prominent point just east of Pt. Vandeput; it was nearly low but the reef off H.E.N. was very plain. There seems to be a fine large bay between the points noted, [illegible] off the east entrance point [illegible] promise well and dropped [illegible] finding six fathoms. Sounded out at [illegible] and [illegible] found 10 fms & more. [illegible] between Pt Vandeput & Appleby is a small extent of low flat land well wooded [illegible] immediately before the high mts. This is no doubt a glacial morraine and between it and the mts. is open water in fact the Patterson glacier discharges itself behind this island(?) The entire north shore from the remarkable Horn Cliff [illegible] approached with caution.

At 930 A.M. Portage Ids on portbeam 3/4 mile heading W.½N. at 11.34 Cape Faushaue 1 mile on starboard beam, at 11.35 course NW., 11.37 course NW. ½N. at 12, course N by W, at 12.40 East Five Fingers Id 2 miles on port beam, average speed of Hassler about 6 knots. Nichols 1882.

City of Chester average speed 9-10 kn. Course NW. ¼W. at 8.08 Sonkhoi Ids starboard beam 1 mile set log. 8.23 course WNW. at 8.53, cape of the Straits 1 mile portbeam, log 9 3/4 miles; course to W⅛N. 10.40 Cape Faushaue starboard beam 1 mile, log 26 miles. course to WNW ¼N. at 10.47 Course to NW by N ⅜N. 10.57 Bare Rk starboard beam ½ mile. 11.19 E. Five Fingers Id. port beam ⅓ mile log 32½ miles.

From Cape Bendel the shore of Kupreanoff Island trends **E NE.** in a general way for about twenty-one miles. This stretch of coast is not known to contain any harbors, although there are numerous small indentations. Off the small projecting points are numerous rocks at no great distance from the shore. The latter is nearly level and moderately wooded for three or four miles back from the beach. In the vicinity of Cape Bendel the immediate shore is bluff and heavily timbered. About twenty miles **E NE.** from the Cape and about a mile from shore are the **Perenosnaia** * or **Portage Islets,** consisting of ~~one or~~ two small and rather low islets, which serve as land-marks for the entrance of Perenosnaia or Portage Bay. The bay is about ~~three~~ miles long ~~**NW. and SE.**~~, and less than a mile in average width. There ~~are several islets~~ in its southern part. It is separated by an isthmus about two miles in width from the northern extreme of Duncan Canal. Across this isthmus the natives are accustomed to make portages, from which the name of the locality, alike in Russian and English, is derived. Both Russian and American authorities indicate that this bay affords a desirable harbor. The regular rounds of the trading vessels of the Russian Company included a visit to this harbor. Can always be made by a sta. H.E.N.

Portage Bay.

No special chart has been made, nor are any soundings given on the general charts. See Survey of 1882.

The general direction of the shore of Kupreanoff Island continues about the same, that is **E NE.,** from the eastern headland of Portage Bay for ten miles to a point, where the coast gradually rounds to the eastward and southward. The charts differ as to the abruptness of the change of direction, but it would appear that a moderately high bluff or cliff is here exposed, to which the name of **Cape of the Straits** has been applied by English authorities. Hence the shore trends **SE. ¼ E.** toward Prolewy Point, nine miles distant.

This strip of coast is more or less broken or indented, and off it lie three islets, termed by the U. S. Navy † the **Soukhoi Islets,** which extend about a couple of miles off shore, nearly reaching midchannel of this part of Frederick Sound. Little is known of them. The portion of Kupreanoff Island to the eastward of the narrow isthmus at Portage Bay will properly take the name of the **Lindenberg Peninsula,** which is the essential meaning of a term applied to it on Russian Hydrographic Chart No. 1494, but which might be literally translated as the **Lindenberg Shore.**

From the Portage Islets **NW. ¾ W.** eight miles lies **Cape Fanshaw,** named by Vancouver, "a very conspicuous, low, projecting point, situated in latitude **57° 11′.**"‡ It is heavily timbered. A deserted village was found here by Whidbey, and a present settlement is reported by the U. S. Navy.§

Cape Fanshaw divides the eastern part of Frederick Sound into two tolerably distinct arms, one of which continues in the same general trend as the western portion of the sound, namely **N NE.,** while the other, and much narrower portion, trends to the eastward at first about **E.** by **N.** From the cape, the shore indented, low and densely wooded, has a generally **E.** direction, and at a distance of six and a half miles **E. ¼ N.** lies **Point Highland,** named by the U. S. Navy, probably from some change in the character of the topography near it. Between this point and the cape are two indentations of small extent, separated by a point which extends southward nearly into line with Cape Fanshaw and Point Highland. Eastward, four and a half miles from the latter, is an entrance to a ~~small~~ bay in which are several islets. No information is at hand in relation to it, but it has the aspect on the chart of a glacial lagoon. Will look it up next year. large bay. H.E.N.

Hence about five and a half miles **E. ½ N.** lies the extremity of **Point Vandeput,** named by Vancouver, and described by him as a low, narrow point of land, two miles long in a **N.** and **S.** direction, and about half a mile broad. See opposite page. top.

From its southern extremity a shoal extends somewhat over a mile. In the western angle, formed between the point and the main shore, the Russian hydrographic charts indicate an anchorage, without soundings or details. In the corresponding angle on the eastern side a small bay is formed, at the head of which the U. S. Coast Survey party believed they could distinguish from a distance a large glacier. Could see only the Patterson glacier. H.E.N. 82

SE. by **S. ½ S.,** four miles from the termination of Point Vandeput, lies the Cape of the Straits, and the clear passage between them is reduced by *shoals* to a width of about two and a half miles, according to the latest charts. No astronomical observations apparently have been made on the point.

About **NE.** by **N. ½ N.,** some eight or nine miles inland, ~~the U. S. Hydrographic Chart No. 225 indicates a rem~~arkable pinnacle or stone four hundred feet high, on the top of a mountain, to which the U. S. Navy has applied the name of the **Devil's Thumb.** Three miles eastward from Point Vandeput the U. S. Coast Survey party of 1869 report bold mountains of considerable height coming to the water's edge. Their wooded and precipitous sides are said to be scored with the whitened tracks

It exists H.E.N. 82

* Named **Perenosnaya Islands** by Meade in 1869, who called the Bay **Perenosnaya Creek.** The entrance is very narrow and the turn rather sharp before the bay widens. It was named **Perenosnaia (Portage) Bay** by the Russians, and has also been called **Portage Harbor.** Meade states that the course from Point Highland to Perenosnaia Creek is **SE. ¾ E.** nearly, but this is contradicted by the chart, which would make this true of Cape Fanshaw and not of Point Highland. See opposite page

† They were named by Meade in 1869, who says of them that they are an excellent guide for entering Wrangell Strait.

‡ Vancouver, vol. iii, p. 280.

§ There is a strong probability that many of the villages found unoccupied by Vancouver's parties and reported as deserted were not permanently abandoned, but merely left unoccupied while the population were temporarily engaged in their annual fishery, trade or hunting in some other locality.

The entire north shore of Pr. Trelle Sd. should be approached with caution. HER. 82
See notes on back of map 10.

Foulground between Pts Agassiz & Vandeput. HER.

of land slides or avalanches. The shores of this portion of Frederick Sound are very imperfectly known, and a more careful survey would probably develop the need of considerable change in the charted shore line. So far as its features are here referred to, they are taken on the authority of the more recent English and American charts. From these it appears that about seven miles in a **SE.** by **E.** ½ **E.** direction from Point Vandeput there lies a low wooded point which was named* **Point Agassiz**, on account of its association with the remarkable and sublime glaciers in its immediate vicinity. These creep from the snowy summits and ravines of the coast range toward the water's edge, which at certain seasons they overhang, covering the adjacent sound with miniature bergs so begrimed with mud and gravel as to be readily and frequently taken for half-submerged rocks.

Off the end of Point Agassiz, as at Point Vandeput, *a shoal* makes off for a mile or so, which prevented Whidbey from landing, and kept his party wet, cold and hungry, in their boats until dawn. **NW.** ½ **N.** from this point *a sunken rock* and two visible rocks are reported, the former about two miles away. It is quite possible that these "rocks," which do not appear on the older charts, may have been suggested by mud-covered ice fragments.

A short distance northward from Point Agassiz is a magnificent glacier, with three feeders in the coast mountains, which discharges its burden of ice directly into the water. Six miles **E.** by **S.** from Point Agassiz rise the **Horn Cliffs**, being the front of a remarkable bold head over a mile in extent, eighteen hundred feet high, falling directly to the water, with a sugar-loaf peak or pinnacle towering above and behind the brink of the cliffs. In the same vicinity, a little to the eastward of the cliffs, the U. S. Coast Survey party of 1869 reports a remarkable glacier, which "appears to fall from an altitude of 2000 feet at an angle of **45°**;" when one thousand feet or more below its source the angle becomes smaller, the slope more gradual until the water is reached, and then the broken fragments of ice almost cover the surface of the adjacent portion of the sound. The bay into which it falls Carlile Bay of Lull in Cotter.

Glacier.

In this vicinity, in certain places at least, according to Vancouver, there is a small extent of low, flat land, well wooded, lying before the coast mountains, which rise abruptly to an extraordinary height. In the vicinity of Horn Cliffs are some islets. The cliffs themselves form the northeastern headland of Soukhoi Strait, and thence the entrance to Wrangell Strait appears to bear about **S SW.** about five miles distant.

Before proceeding to describe the northern and western shores of Frederick Sound, the group of islands whose coasts have just been reviewed may be briefly characterized.

KUPREANOFF AND ASSOCIATED ISLANDS.

They compose a well-marked and tolerably compact group, wedged between Sumner and Chatham Straits, Frederick Sound and Soukhoi Strait. It comprises, besides a multitude of islets and rocks, **Mitkoff, Woewodski, Kupreanoff, Kuiu,** and also **Coronation Islands.** An island is perhaps formed by Dry Passage and Wrangell Strait, between Woewodski and Mitkoff islands, but until Dry (or Blind) Passage is fully explored it is hardly worth while to do more than indicate the presumed division. The land composing these islands is but moderately elevated. Mr. Johnstone, who explored the greater portion of this group, states, in his report to Vancouver, that the western portion of Kuiu Island "is by no means so high or mountainous as the land composing the adjacent countries on the opposite or northeastern side of the sound," but is "chiefly of moderate height, and produced a noble forest of large and stately pine trees of clean and straight growth, amongst which were a few berry bushes and some alders. The shores along the bays and arms they had visited were in general low, and presented a probability that if the wood were cleared away the soil of the country might be advantageously employed under cultivation. These bays and arms abounded with a greater number of salmon and sea-otters than Mr. Johnstone had observed on any other part of the coast."† Kupreanoff Island includes more than half the area of the group, while most of the remainder is comprised in Kuiu and Mitkoff islands. Kuiu, in its form and topography, is one of the most remarkable islands in existence.‡

The natives of this vicinity, especially those about Keku Strait, have the reputation of being treacherous and turbulent. The naval forces of the United States, and formerly of Russia, have been several times employed to punish, by destroying their villages, the inhabitants of some of the settlements of worst repute. It is, therefore, advisable here that a strict watch should be kept and no natives allowed on board at night, or without proper precautions in the day, by masters of unarmed vessels, particularly those of small tonnage and low free-board.

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*U. S. Coast Survey Chart No. 701, corrected to 1877.

†Vancouver, vol. iii, p. 293.

‡Its outline, as indicated on the charts, strikingly suggests a mass of entrails thrown out upon the ground, while the surrounding islets and rocks recall, in number and relative size, the flies which are usually congregated in such a vicinity on a warm summer day.

Port Houghton 1882 H.E.H. Passed Point Walpole and the island at the S.E. side of the entrance about 2 P.M. Nov. 6. Fresh NE. wind with snow squalls. So far as I could judge there are no sand shoals off Pt. Hobart. The land on that side is at least 1000 ft. high and descends steep to the sea. It is not cliff and may be shoal a short distance off the bank from washing from the NW. Vancouver says "the approach to the anchorage lies between the shoal off Pt Hobart on the NW. and the islets on the SE. and there is a clear passage as far as known". Vancouver also gives the bearing of the anchorage from Pt. Hobart. Following that bearing and the chart I steamed past the small islands in the middle of the bay to seek the anchorage. A "black" snowstorm was coming up and I was anxious to get the anchor down. I hunted until dark for bottom but got none though I noticed several very ugly rocks a long way off shore and which cover at 1/4 flood. At dark I turned back for a place I had noticed coming in as possibly affording anchorage. It was snowing so hard & black that I could not see and finally hauled in at a venture when I thought I had run my distance up and anchored in 7 fms blk sd & sh. at low water — See my sketch —. The weather was such that I did not try to do any work. An anchorage in 10 fms low water a little further out would ordinarily be better than this. A strong NW. wind or sea has a good sweep in the bay and bage. I am certain that I am safe in saying that there is no anchorage in Port Houghton outside of the possibility of one eastward of Walter Island which I did not examine and the present one of the Hassler. At 1 P.M. Nov. 7 got underway and searched to the westward as far as the islands at entrance for an anchorage but found none and came back to the old place for the night. Anchored about two cables off shore in 15 fms (or, blk. sd. br. sh.) at nearly low water with Pt. Hobart bearing NW. 3/4 W. magnetic. There is but the one other place where an anchorage is possible and that I will look up next year (D.V.) H.E.H. 82

ADMIRALTY AND ADJACENT ISLANDS.

It remains to describe the northern and western shores of Frederick Sound.

From Cape Fanshaw **N.** by **W.** $\frac{3}{4}$ **W.**, five miles, lies **Point Walpole** of Vancouver, with some islets and *sunken rocks* near it; the shore between it and Cape Fanshaw is somewhat indented and bordered by a large number of rocks. About **NW.** $\frac{1}{2}$ **N.** from Point Walpole, at a distance of two and a half miles, lies **Point Hobart** of Vancouver, about which *sandy shoals* extend to a moderate distance from the shore.*

This point forms the northwestern and Point Walpole the southeastern headland of the entrance of an extensive bay called Port Houghton by Vancouver. This bay extends from its entrance five or six miles in a **E NE.** direction, with an average width of a mile and three-quarters.

Port Houghton. There are some islets and rocks in the mouth of the port, placed by Vancouver to the **SE.** of the middle of the entrance, ~~but by later charts about midway between the two headlands.~~ The entire southern shore of the port is much encumbered by islets and rocks extending off shore about a mile. About three miles **E.** by **N.** from Point Hobart anchorage may be had in six to ten fathoms, sand and mud, some distance from the shore. The approach to the anchorage lies between the shoal off Point Hobart on the **NW.** and the islets on the **SE.**, and there is a clear passage as far as known. According to Vancouver, this nook affords a snug harbor. The innermost portion of the port is also encumbered by rocks or islets. The shores are composed of a narrow border of low land from which rise lofty mountains.

Off the entrance of the port, at various distances from the shore, lie a number of groups of rocks or islets, the presence of which probably influenced Vancouver when he named this body of water a **Sound.** One of these groups is called by Meade the **Five Fingers,**† perhaps on account of its appearance from certain points of view. It is situated about four miles **W.** by **S.** $\frac{1}{2}$ **S.** from Point Walpole, and is composed of a cluster of six or seven islets. Another is formed by a pair of islets not named, in the same direction as the Five Fingers, seven miles from Point Walpole. To the northward there are still others, of which **The Twins,** five miles **NW.** $\frac{1}{4}$ **N.** from Point Walpole, are two small islets, and **Sunset Island,** about a mile in extent, lies in the same direction, seven and a half miles **NW.** $\frac{1}{4}$ **N.** from Point Walpole. These were named by Meade in 1869.

From Point Hobart the shore extends without noticeable indentations **NW.** $\frac{3}{4}$ **N.** ten miles to the entrance of a small cove encumbered by islets. Hence the shore trends **SW.** by **W.** $\frac{1}{2}$ **W.** about three miles to **Point Windham,** named by Vancouver, and forming "the eastern point of entrance into Stephens Passage."‡ It is a rather flat-topped bluff, about two thousand feet high, descending rapidly to the water, bare above and on its face, with its lower flanks clothed with pines, which also intervene between the foot of the bluff and the water's edge. Meade gives a view of it on U. S. Hydrographic Chart No. 225, and says it resembles a gigantic ladder of three steps. From this point *rocks* extend under water a mile to the westward. Behind the point to the northward is **Mount Windham,** two thousand feet high, named by the U. S. Navy. The geographical position of Point Windham, according to the latest charts, is

Latitude	**57° 30′ N.**
Longitude	**133° 32′ W.,**

from which the nearest land on the opposite shore bears **W SW.** about three miles; but the southwestern headland of Stephens Passage, named by Vancouver **Point Hugh,** bears from Point Windham **SW.** by **S.** $\frac{1}{4}$ **S.** four and a half miles. According to Vancouver this is a lofty rocky promontory, with a ledge of rocks extending from it southward nearly a mile and three-quarters, upon which, with a strong southerly wind, heavy breakers were observed. It is less timbered than the adjacent shores. Point Hugh is reported to look as if it were in the middle of Stephens Passage when viewed from the southward. This is due to the fact that immediately to the southward from Point

Seymour Canal. Hugh is the opening of Seymour Canal, named by Vancouver, and extending **NW.** by **W.** from its entrance a distance of some twenty-nine miles.

This canal has a width varying from one and three-quarter to five miles, and, including islands, averaging about three and a half miles. Its southwestern point of entrance is **Point Gambier,** named by Vancouver, and lying from Point Hugh **S.** by **W.** about two miles. From this point the western shore of Seymour Canal to the northwestward is moderately elevated and produces fine timber; the immediate shore along the beaches is low and the beaches in many cases are sandy. It is much indented with small bays and coves, and at some point on this shore it is supposed that a channel comes in from the Hutsnu region, separating the land of the Admiralty group into at least two major divisions.

The eastern shore is more irregular and studded with a larger number of islets.

Neither have been sufficiently explored to describe in detail. The canal terminates, according to Vancouver, in latitude **57° 51′ N.,** at the mouth of a small stream. One mile from the southern

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* It has been called **Point Gastineau** by Homfray.

† Meade also applies the name **Five Fingers** to the **Pointers** off Port Simpson, and calls them a *fearful reef.*

‡ Vancouver, vol. iii, page 280.

termination of this stream is an island about three miles and a half long and half as broad; half a mile from the southeastern point of this island lies another of about the same width and six miles long. This appears on some MS. charts as **Tiedeman Island**. These islands trend **NW.** by **W.** ½ **W.** and **SE.** by **E.** ½ **E.**, or nearly so, are situated in the middle of the canal, whose northern extremity they longitudinally divide into two parts, of which the portion to the northeastward is much obstructed by islets, while on the southwest shores of the islands some rocks are said by Vancouver to occur. The adjacent country is moderately high and covered with timber of large growth except toward Point Hugh.

From Point Gambier **False Point Pybus**, the Point Pybus of the Russian Hydrographic, U. S. Hydrographic, and British Admiralty charts, but not of Vancouver or Tebenkoff, lies south four and a half miles. Four miles from the point, in an **E.** by **N.** ¾ **N.** direction, lies Ship Island, of small extent, named by the U. S. Navy.

From this island, in a **S.** by **W.** ¾ **W.** direction, extends a chain of unnamed islets for a distance of twelve miles. These islets are gathered in small clusters, or single and separated from each other by gaps of two or three miles, and from the adjacent coast by an interval of about the same extent. The southernmost islet is quite small, and was called **Yelowy** or **Spruce Island** by Zarembo.

From Point Gambier **Point Pybus** of Vancouver (correctly followed by Tebenkoff) lies **S.** ¾ **W.** about seven miles. On an islet in close proximity to this point Whidbey determined the latitude to be **57° 18′ N.**

The shore to the south and west of Point Pybus is much indented with small bays and guarded by "vast numbers of small islets and rocks, both above and beneath the surface of the water."*

About ten miles **S.** ¾ **W.** from Point Pybus lies **Point Napean** of Vancouver,† a high, steep, bluff, rocky point, situated in latitude **57° 10′**, off which a ledge of rocks extends half a mile.

Woewodski Harbor.

Immediately northward from the point is Woewodski Harbor, named by Zarembo.‡ This harbor consists of the southern half of a small double-headed bay about two miles in length **NW.** by **W.** ½ **W.** and **SE.** by **E.** ½ **E.**, and about three-quarters of a mile in width. This bay is divided into two nearly equal portions longitudinally by sundry shoals and islets, which form the protection of the anchorage from the north while reducing its available width to about a quarter of a mile.

SW. ⅓ **W.** from the northern end of Yelowy Islet two and a half miles lies **Deepwater Point**, or **Glubokoi Point** of the Russians, which is about two miles northward and westward from Point Napean. This forms the southern point of entrance to Woewodski Harbor. There is deep water close to it, from whence the name is derived. Half a mile **N NE.** from the point lies **Polivnoi Rock**, apparently a bare rocky islet of very small extent, with two smaller rocks close to it. Nearly midway between the point and Polivnoi Rock, **N NE.** and **S SW.**, lies *a submerged rock*. The channel passes to the southward from it. No soundings are recorded between the sunken rock and Polivnoi. **W.** by **N.** ¾ **N.**, about three-quarters of a mile from the latter, is **Liesnoi Islet**, named by Zarembo, **S.** by **W.** from which is the anchorage. The islet is about four cables long **W.** by **N.** and **E.** by **S.**, quite narrow, and connected by shoals with the land to the westward. To the southward from it the depth of water varies from three and a half to eleven and a half fathoms. The head of the bight westward from a north and south line drawn by the western end of this islet is infested by *submerged rocks, shoals and banks* with from four to two fathoms water.

Near a stream on the southern shore is or was an old fortified retreat belonging to the natives. There appear to be several sand-beaches about the anchorage; wood and water are adjacent and easily obtained.

A sketch of this anchorage, from which the above information is derived, made by Zarembo in 1838, is to be found on Russian Hydrographic Chart No. 1396. From this sketch it appears that the geographical position of the mouth of the stream near the head of the bay is

Latitude ..... **57° 12′ 30″ N.**
Longitude ..... **134° 05′ 00″ W.**

The variation of the compass in 1838 was 27° **E.**

SAILING DIRECTIONS

FOR ENTERING WOEWODSKI HARBOR.

After rounding either Point Napean or Yelowy Islet at a distance of not less than a mile to avoid reported dangers, a course may be laid for Deepwater Point to pass it at a cable length, there being

* Vancouver, vol. iii, page 273.

† This point has been termed **Nepean, Nepen, Nepkan,** &c., on Russian charts and in other publications; the name which is spelled **Napean** by Vancouver in four places in his text is found as **Nepean** on his chart, whence it has been copied on to most modern charts. The orthography of Vancouver's text has not been noticed on any chart.

‡ After one of the governors of the Russian colonies in America. Eliza's Harbour of Rowan in 1799.

The shores of Frederick Sound should be approached with caution especially the northern off which there are evidently many shoals. H.E.M. 88.

abundance of water bold-to the shore. Thence the course will be **NW.** by **W.** ½ **W.** one mile, until the western edge of Liesnoi Islet bears **N.** by **W.**, when anchorage may be had in about seven fathoms.

In passing out the navigator should keep at a cable length from Deepwater Point until out of the range between the point and Polivnoi Islet.

These directions are solely founded on Zarembo's sketch, above mentioned.

From Point Napean **SW.** ½ **W.** about three miles, across an indentation of considerable size, (whose shores appear to be fringed with rocks and which affords no anchorage,) is a point with rocks extending a mile to the eastward from it. This forms the northeastern point of entrance to Herring Bay, (**Seldovaya** in Russian,) named by the Russians, and used as a stopping-place by their trading vessels. It is small, in general form and direction resembling Woewodski Harbor, but apparently less convenient to enter on account of the *reefs*, which are represented as extending from the heads at either point of entrance. There are also rocks inside, at its head. No soundings are given, nor is there any published survey of this bay, which to be entered by any navigator will require the exercise of prudence and circumspection, and is not at present recommended without a local pilot.

Herring Bay.

The southern point of entrance of this bay is separated by another indentation, containing an islet and about a mile and a half in extent, from **Point Townshend** of Vancouver, from which point **SW.** by **S.** ¾ **S.** eleven or twelve miles distant is **Point Gardner**, named by Vancouver, and forming the **NW.** headland of the western entrance of Frederick Sound. The shore between this point and Point Townshend is marked by numerous irregularities and off-lying detached rocks. Vancouver describes the topography of this vicinity as rugged but producing abundance of very fine pine timber, some trees of which measured twenty-three feet in girth. The opposite shore of Chatham Strait appeared less fertile and with a more abrupt ascent from the water's edge. Point Gardner itself is two miles long by three-quarters of a mile in width, apparently moderately elevated, and stretching out into Chatham Strait, of which the width is here reduced to less than five miles. By Vancouver's observations and the latest charts the geographical position of Point Gardner appears to be

Latitude	**57° 01′ N.**
Longitude	**134° 28′ W.**

Among the rocks and islets which cluster to the northeast of Point Gardner are two anchorages which owe their names to tragedies which have taken place there, with natives as actors and whites as victims. The first of these, named Surprise Harbor by the U. S. Navy, is about two miles **NE.** from the point, and reported to be unsafe in southeast weather but convenient with northerly and westerly winds. It is sheltered to the **NE.** by two islets. No survey has been made and no soundings have been reported. In this vicinity coal is reported to exist.

Surprise Harbor.

On the **NE.** side of the islet is another anchorage, named Murder Cove by the U. S. Navy, in regard to which no special information has been received. The traders occasionally anchor here, and one small party, while asleep on the beach, were murdered by natives, their boat rifled and bodies left to be destroyed by wild animals.

Murder Cove.

According to Vancouver, **S. 23° E.** (true) three-quarters of a mile from Point Gardner are some rocks. In nearly the same direction, three miles **SE.** by **E.** ⅛ **E.**, lies **Yasha Island**, observed by Vancouver but named by the Russians. It is low, small and wooded, apparently bold-to, and may be passed on either side.

This concludes the description of Frederick Sound. Very imperfect. [illegible]

Next in order are the western shores of Baranoff and associated islands.

CAPE OMMANEY TO PERIL STRAITS.

From Cape Ommaney, in about latitude **56° 10′ N.**, the main coast of the land known as Baranoff Island trends in a general way **NW.** by **W.** ¼ **W.** to the vicinity of Sitka Sound, a distance of some fifty miles. This shore is much broken by bays and indentations of variable extent. It is generally bold and rocky, rising rapidly from the water, and culminating within a short distance in high mountainous country, very much broken, and densely wooded with coniferous trees. The interior of this country is absolutely unknown. Two miles and a half **W.** by **N.** ¾ **N.** from Cape Ommaney is **Bobrovoi Point** of the Russians, forming the southeastern headland of Larch Bay, (**Listvinichnaia** in Russian,) a large open bay three and a half miles wide from headland to headland in a **NW.** by **W.** and **SE.** by **E.** direction, and extending northward about the same distance. Its head reaches within a mile or two of Port Conclusion. The southeastern shore of this bay is represented as remarkably *infested by rocks*, and on none of the charts is it represented as affording anchorage. The shore in this vicinity is represented on Tebenkoff's charts very differently from the same coast as it appears on the Russian Hydrographic Office publications.*

Larch Bay.

* The known errors introduced by Tebenkoff are so numerous that, in cases of doubt, on this part of the coast the determinations of the Russian naval officers are usually entitled to precedence and will herein be adopted unless the contrary be mentioned.

W. by N. ¾ N. eight and a half miles from Bobrovoi Point lies **Puffin Point**, Point Toporkoff (Puffin) of the Russians, the southeastern point of entrance of Puffin Bay, Toporkoff Bay of the Russians. This headland would appear to be a prominent point, with a small islet immediately southward from it. The shore between Larch Bay and this entrance appears to be high and bold with a narrow fringe of detached rocks along its base. The northern headland of the entrance lies about a mile in a northwesterly direction from Puffin Point and forms a double-headed promontory, with a small bight between the two angles containing a small islet close to the eastern point. Another small islet lies close to the western angle of the headland. The bay extends about four miles in a nearly **N NE.** direction from the entrance with an average width of three-quarters of a mile, numerous small coves indenting the shores. At the entrance, according to Russian Hydrographic Chart No. 1494, about equally distant from both headlands and somewhat outside of a line joining them, is **Sea-lion Rock**, (Siuchi Kamen,) a bare rocky islet apparently bold-to; another chart places the rock nearer to the northwestern headland. Between it and Puffin Point thirty-five fathoms are reported, and within the water varies in depth from four to twenty-four fathoms. From the conformation of the bay, if it be correctly represented by the charts, it must afford good protection in almost any weather, though doubtless subject to land-squalls or "woollies" (like other narrow bays of this region which are surrounded by high land) and also to a certain amount of ground-swell. No special chart of this bay has come to light, and it is impracticable to give further sailing directions than are comprised in the advice to enter it between Sea-lion Rock and Puffin Point rather than between the former and the northwestern headland.

Puffin Bay.

Somewhat to the northward of **NW.**, about three and a half miles from Sea-lion Rock, lies an unnamed point, which, with **Redfish Cape**, bearing from the first-mentioned point **W.** ¾ **N.** about three miles, bounds the entrance of an extensive bay.* A chain of several islets known as the **Redfish Islets** extends **S SE.** to nearly a mile from the eastern spur of the cape. This forms the western headland of Redfish Bay, **Krasnoi Ribi** or **Krasnoi Bay** of Russian charts, a name especially applicable to the small body of water **NE.** from the Redfish Islets, between them and a narrow island a mile in length **NW.** and **SE.**, which separates this small and unprotected body of water from the mouth of Big Branch† Bay. The entrance of this bay is situated between a small island at the **SE.** end of the long narrow island above referred to and the northern headland of **Little Branch Bay**. The passage is about three cables wide, from which the bay extends in a generally **N.** by **W.** ½ **W.** direction about five miles with irregular shores. It has a width of a mile in several places and also contracts to less than half a mile. About midway between the entrance and the head of the bay is an islet, from which, two and a half cables **NE.** ½ **N.**, is a *sunken rock*. No soundings are given in the bay on the general charts, nor has any detailed survey been made public as far as known.

Redfish Bay.

Big Branch Bay.

Directly eastward from the entrance of Big Branch Bay, whose eastern headland forms its northern point of entrance, is Little Branch‡ Bay, lying broad open to the **SW.** swell of the Pacific. The entrance is less than a mile wide about **W NW.** and **E SE.**, and the bay itself extends two and a half miles in a **NE.** direction from the entrance with a width of less than half a mile. Shoals are indicated on its **SE.** shores, and there are some islets near the entrance. In this vicinity the variation of the compass was determined, in 1847, by the Russians to be **28° 15′** easterly.

Little Branch Bay.

There is no chart of this bay except such as are included in the general charts. No soundings are there noted. It is, however, probable that shelter may be had near the entrance of the bay. These details are only known to the coasting or trading masters of the region, as the bay has been seldom visited except during the Russian occupation.

For some fourteen miles from Redfish Cape the coast (excepting some small coves) is compact and bold, trending nearly **NW.** and **SE.** Off this piece of coast are three remarkable pillars, (called on the Russian charts **Kekuri**,) called the **First**, **Second** and **Third Kekoors**, at a distance from Redfish Cape of four, five and nine miles, respectively, in a northwesterly direction. There are also some small coves, apparently snug harbors for small craft, of which no information has been received, and which are known as **Snipe** or **Kulichkoff Bay**,§ six miles northwestward from Redfish Cape; **Sandy** or **Peschanaia Bay**,‖ eight miles and **Close** or **Dushnaia Bay**,¶ nine and a half miles from the same promontory. These and all other bays opening on the Pacific and facing **SW.** or thereabouts are in the calmest weather uneasy berths for anchorage, from the never-failing and pervasive southwest swell characteristic of this part of the Pacific. Only when this is broken by a barrier of land can an absolutely quiet berth be found.

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*This cape, which obtains its name from the **Krasnoi Riba**, or "redfish,"—a salmon much esteemed by the Russians,—is also called **Krasnoi Ribi Cape** and **Red** or **Krasnoi Cape** on various charts.

† **Bolshoi Strelka** of the Russians, literally **Big Arrow**, but used here in the sense of *off-shoot* or branch.

‡ **Maloi Strelka.**

§ **Koulitchkow** of U. S. Hydrographic Chart No. 225.

‖ **Pestchanay** of U. S. Hydrographic Chart No. 225.

¶ **Doushnai** of U. S. Hydrographic Chart No. 225.

Thirteen and a half miles about **NW.** ½ **W.** from Redfish Cape is **Point Lauder**, the **SE.** point* of entrance of a large bay whose **NW.** headland, **North Cape**, named by the Russians, bears **NW.** by **W.** ¼ **W.** about four miles from Point Lauder and is formed by the off-shore extremity of a small island. Between these headlands is the entrance to Whale Bay.†

Whale Bay.

According to Tebenkoff, Whale Bay extends in a northerly or north-northeasterly direction six or seven miles from the entrance with an average width of two miles. In this vicinity it gives off several branches of considerable size; one, the **Larger**‡ or **Great Arm**, extends from four (Tebenkoff) to eight (Dixon) miles in a northerly direction and is about a mile wide. At its head is a sandy beach, behind which is a valley the bed of which appears to be occupied in part by a shallow pond or lagoon which has not been fully surveyed. At the western point of entrance lies **Kakovo Islet**, in a small bight. To the westward about two miles is the entrance of the **Lesser**§ or **Small Arm**. This has a course nearly parallel with that of the Great Arm, appears to be about a mile shorter, and near its **W.** point of entrance has two islets, the larger called **Makhnatoi**, northward from which, near the eastern point of entrance, anchorage is indicated. About four cables southward from Makhnatoi Dixon sounded in forty fathoms. The third arm, Rakovoi Bay,‖ is of smaller extent and branches off in a southeasterly direction from the **SE.** extreme of the Great Arm. It is about two miles long and half a mile wide. The shores are indicated as shoal and the entrance is very narrow and obstructed by islands, to the eastward of which is the channel. The charts are discrepant about some features of this bay which is hardly of sufficient importance to justify a lengthy statement of the differences.

Rakovoi Bay.

From the mouth of the bay a series of three principal islands, connected by *shoals*, extends in a westerly direction about two miles. The shore south from them and their own outlines are irregular and indented. The western extreme of the most western island was called by Dixon **Sea-Otter Point**, but his chart of this vicinity is too incomplete to have much value.

The point and island are separated by an exceedingly narrow passage from the northern extreme of Port Banks of Dixon,¶ which is the most important anchorage included in Whale Bay. The entrance of Port Banks is indicated to be four or five miles northward from Point Lauder. It is somewhat contracted by an islet adjacent to the southern headland, which apparently leaves a passage some three cables in width with a depth of nineteen fathoms. Within, Dixon records fifteen to twenty-two fathoms. Tebenkoff indicates only eight fathoms in the narrowest part of the entrance and from fifteen to seventeen inside the port. The harbor extends in a southeasterly direction about two miles from its entrance and averages half a mile in width. Dixon's anchorage was in twenty-two fathoms, muddy bottom, **NW.** one or two cables from a small islet, indicated by Dixon, though not shown by Tebenkoff, as lying nearly in the middle of the port. A cove into which a stream falls is represented by Dixon near the head of the harbor. It is represented by Dixon that this port is completely landlocked; the land to the northward and southward rises above the snow-line, (June;) to the eastward it is considerably lower; "the pines appear to grow in the most regular and exact order; these, together with the brush-wood and shrubs on the surrounding beaches, form a most beautiful contrast to the higher land and render the appearance of the whole truly pleasing and delightful."** They experienced fine weather while here, the mean of the thermometer being fifty degrees. Spars and a top-mast were obtained, but no village or inhabitants were observed. The geographical position of the anchorage was determined by Dixon to be

Port Banks.

Latitude	**56° 35′ N.**
Longitude	**135° 00′ W.,**

but the Russian Hydrographic Chart No. 1494, prepared by naval officers, makes it

Latitude	**56° 39′ N.**
Longitude	**135° 00′ W.,**

which is probably more reliable, while Tebenkoff indicates

Latitude	**56° 35′ N.**
Longitude	**134° 53′ W.**

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* Named by Dixon, in 1787. The **South Cape** of most later charts.

† **Kestovaia** of Russian authorities, **Kay-e-ghlen** of the natives, **Port Guibert** of La Perouse, and the **Port Banks** of some authorities. This bay was first entered by Dixon in June, 1787, who prepared a rough compass sketch of some portions of it. A reconnaissance sketch on a smaller scale appears on Chart VIII of Tebenkoff's atlas.

‡ **Bolshoi Rukav** of Russian authorities, the "**Great Sleeve**" (!) of British Admiralty Chart No. 2431.

§ **Maloi Rukav** or "**Small Sleeve**" of the above-mentioned authorities.

‖ Named by the Russians.

¶ Entered and named by him in June, 1787, and of which he has given a tolerable sketch. The name has been, by some, extended to the whole of Whale Bay, which was not surveyed by Dixon, and to which, on nearly all modern charts, the name of Whale Bay (here adopted) has been applied. The port has also been called **Closed Bay** (**Zakritoi**) by Tebenkoff and others.

** Dixon, Voy., p. 195.

Dixon found the variation of the compass to be 24° easterly in 1787. The Russian officers in 1847 determined it at 27° 45′ easterly.

About a mile and a quarter **S SW.** from the southern point of entrance of Port Banks an islet or rock above water indicates *a shoal*, and should not be approached within half a mile without great caution.

Still Harbor.

From the entrance to Port Banks, about three miles to the southward, is the entrance to another indentation, named on the Russian hydrographic charts Still Harbor.*

This harbor was indicated by Dixon in his sketch, but, except for its relative position, in an unrecognizable manner. From Tebenkoff's sketch it appears that the western headland is formed by the promontory of which Point Lauder forms the **SW.** extreme. From the western face of this promontory rocks extend to the distance of half a mile, and from its northwestern extremity two or three small islets project in a northwesterly direction about the same distance. These mark the entrance of Still Harbor, which, perhaps, in the clear is not more than a cable wide **N.** and **S.**, widening within to six cables, and about two miles long in a **NW.** by **W.** and **SE.** by **E.** direction. No soundings are given, but one or two islets are indicated by Tebenkoff, and a large number on the Russian American Company's chart of 1849. This harbor deserves a closer examination. It is more convenient to the ocean than Port Banks, and if found convenient in other respects would form a desirable harbor of refuge for vessels bound from or to Sitka and embarrassed by southeasterly weather.

Without further information it is inexpedient to give sailing directions for these harbors, and if the charts are correct they are hardly needed.

The entrance of Whale Bay was noticed by La Perouse, who placed it in latitude **56° 38′ N.** and called it **Port Guibert.** His position agrees with that adopted on the Russian American Company's chart of 1850, and the charts of the Russian Hydrographic Office, which have usually been found, in geographical positions, more reliable than those of Tebenkoff. Point Lauder, according to the best attainable data, is in

Latitude	**56° 36′ N.**
Longitude	**135° 05′ W.,**

while North Cape appears to be about four miles to the north and west.

La Perouse remarks, in regard to the appearance of this part of the coast from seaward:

"The land is covered with trees, and of the same elevation as that to the south of Cross Sound. The summits of the mountains (August) are slightly capped with snow, and they are so numerous and peaked that a trifling change of situation (on the part of the observer) is sufficient to alter their appearance. These heights are some leagues within the land, and appear in the distance; in front of them are hills; and these subside into a low land with gentle risings, which terminates in the sea. Before this undulating coast are islands," &c.

The accuracy of this description has been confirmed by the repeated observations of the U. S. Coast Survey parties, not so much for this special locality as for a large part of the oceanic shores of the Alexander Archipelago.

From North Cape the coast trends five miles in a direction **N. ¼ W.**, then, rounding, **SW. ½ S.** four miles to a cluster of islets called by the Russians the **Yamani Islets.**† From these islets North Cape bears **SE. ½ E.** about four miles. The waters thus inclosed form Necker Bay.‡ It is uncertain whether this bay affords an anchorage or not, but the probabilities are against it, and as it opens directly in the teeth of the ceaseless Pacific groundswell it could afford but an uneasy berth at best.

Necker Bay.

Directly in the mouth of the bay are a cluster of islets, which may be called the **Guibert Islets.**§ There are four principal islets and several smaller ones. All these islets and islands from this group to Biorka Island were included by La Perouse under the name of **Isles Necker,**‖ a name which, in his text, has somehow been transferred to Cape Orford Rocks on the coast of Oregon.

Immediately beyond the Yamani Islets in a westerly direction lie the **Slate**¶ **Islets.** They are very numerous and small. They are situated at the southeastern extreme of the entrance to an arm of the sea named by the Russians Crawfish Inlet.** The features of this inlet are differently represented on different charts, but it appears to extend in a northerly direction about two miles with an average width of two-thirds of a mile; then trending somewhat more to the westward it is contracted to a quarter of a mile or less. From thence it trends for a mile or more nearly **N.** by **W.**, receiving a

* **Tikhaia** of the Russians, the **Tichai Harbor** of the U. S. Hydrographic Chart No. 225.

† A term meaning full of pits or holes; probably applied with reference to their water-worn appearance.

‡ **Port Necker** of La Perouse; **Rocky Bay (Kamenaia** or **Kamenistaia)** of Russian authorities, a name which is of too frequent occurrence in this region; and "**Stone**" **Bay** of other charts.

§ To distinguish them from the host of others which have likewise received from the Russians the title of **Egg (Yaichnia) Islands.**

‖ Cf. views, 2d sheet, fig. 8, continuation; La Perouse, Atlas, pl. 30.

¶ **Aspid** of the Russians, elsewhere indicated as the **Aspid Islands.**

** **Rakoff** or **Rakovoi** in Russian, **Rokovoy Bay** of English authorities.

Biorka Id. named by Vasiliff. For the derivation of this and other names about Sitka, see Golovnin (capt. R.N.) Путешествие вокругъ свѣта etc. 4°. St. Petersburg, 1822. Vol. 2 p. 82.

narrow arm of the sea from the southward and westward. It then expands to a somewhat greater width for a distance of about two miles, first giving off a small cove to the westward and then a small narrow creek or arm from its northeastern extreme. The wider portion or basin gives off a contracted passage about two miles long in a northwesterly direction and in some places hardly two cables wide, with irregular shores, connecting with a broader passage or arm of the sea, which it will be more convenient for the present to consider under the name of the western arm as forming a part of Crawfish Inlet, though when carefully surveyed it may be found to be hydrographically distinct.

Crawfish Inlet.

The shores of the eastern arm of the inlet are quite irregular, and no soundings or anchorages are indicated within its limits on any of the charts. The western arm extends from near its junction with the other from six to eight miles in a southerly and westerly direction to the Pacific, and is represented as free from obstructions and as having an average width of about half a mile. The southern portion of this arm for three or four miles is usually indicated as a mile or more in width, with numerous rocks and islets on either hand, especially about its entrance from the ocean. Throughout its length this arm appears to have a clear passage, but no soundings are recorded in it on the charts. It has been stated that an anchorage exists within the inlet, which is quite probable, but there are no detailed charts of any part of it. The land inclosed between the two arms of Crawfish Inlet is composed of five principal and many small islands, the largest of which is about four miles long in a **N.** and **S.** direction and about half as broad; but none of them are yet delineated in detail on any chart.

About three miles northward from the junction of the western arm with the ocean it gives off a branch in a northwesterly direction, extending some two or three miles along the coast between the main shore and a congeries of rocks and islets. This branch is less than half a mile wide, and at its northwestern termination it communicates with the waters of the Necker Archipelago by several channels. The most northern of these opens by a very narrow passage, affording only two or three fathoms water, and extends in a northwesterly direction with constantly increasing width and depth to the distance of about a mile, where the shore of Baranoff Island is indented by Hot Springs Bay,* a small cove less than half a mile in extent, considerably incommoded by islets and rocks except at its head.

Hot Springs Bay.

The chief importance of this locality is derived from the springs to which it owes its name. In 1860 a hospital for rheumatism and skin-diseases was opened by the Russian American Company at this place. The Indians had previously been in the habit of resorting hither in cases of illness. The springs have a temperature of 122° Fahr., and the water contains sulphur, iron, chlorine and manganese. A number of buildings were erected, and the physicians of the company reported very favorably on the results for patients. It is probable that since 1867 these buildings have fallen into decay, and it is not known whether there are any whites at present settled at this point. Between the cove and the southern extreme of Deep Lake † is a low and rather narrow valley portage less than a mile in extent.

Between the entrance of the eastern arm of Crawfish Inlet and Sitka Sound, off the main shore, the **Necker Islands** of La Perouse form a tolerably compact body, a band of elongated triangular form, with its apex near the Slate Islets and its broadest part **N.** and **S.** in the vicinity of Hot Springs Bay. It is composed of all varieties of islets from a tidal rock to islands of considerable size, almost all of which have received names. The group is over eight miles in extent **E.** and **W.** and three or four miles wide in an opposite direction. The navigation of the passages between the islands of which it is composed would seem, from the multitude of obstructions, to be only open to small craft, yet the depth of water varies from ten to over twenty-five fathoms. No good purpose would be served by enumerating the names of all these islets and rocks, but it may be stated that the largest of them are **Yelowoi** or **Spruce Island, Legma Island, Tava** and **Biorka islands.**

The only island of the group of particular importance is **Biorka Island,** the largest and, excepting some rocks that make off from it, the most western of all.‡ It is situated **NW.** by **W.** ½ **W.** fifty miles from Cape Ommaney. It is about two miles and a half in extent **NW.** by **N.** and **SE.** by **S.,** and less than two miles wide in an **E NE.** and **W SW.** direction.

Two coves, one from the northward and the other from the southward, indent the northern and southern shores of the eastern part of the island—their heads being separated by a low isthmus less than a cable in width. From this cause the eastern extreme takes the form of a ⊣-shaped peninsula. The whole island is but moderately elevated and is well wooded. In approaching from the northward and westward it is difficult to differentiate the island from the main shore behind it—which may serve

* **Kluchevoi** of the Russians, and **Kluchev** or **Klutcheff Bay** of English and American charts. In Russian Hydrographic Chart No. 1494, British Admiralty Chart No. 2431, and U. S. Hydrographic Chart No. 225, the name of this locality has been erroneously transferred to a larger bay more than a mile farther to the southeast, which is nearly free from islets and has twenty fathoms water. The cove or bay of the Hot Springs, on the other hand, has only three or four fathoms water in it; the outer portion is so obstructed by rocks and islets that only small craft can enter, and is represented in its proper place on the British Admiralty Chart No. 2337, and the Russian charts from which that was derived.

† To which the name of **Kluchev Bay** has been erroneously transferred on some charts.

‡ It was named by the Russians and is the **South Island** of Lisiansky.

as an explanation of an apparent discrepancy by which, to the southern extremity of this island, Vancouver's name of **Point Woodhouse** has been applied.*

The point is but moderately high, wooded, and in its neighborhood are several small rocky islets. In line with the point and **Impassable (Nepropusknoi) Islet**, about half a mile **S SE.** from Point Woodhouse, is the *Vasilieff Shoal*, marked in rough weather by a breaker. It is *Vasileva Rock* of British Admiralty Chart No. 2337.

W SW. from the western point of Biorka about two miles lies *a sunken rock*, ten feet below the surface at low water. It is stated by Russian navigators familiar with this locality that a heavy sea breaks only once in five or six minutes, and in but one spot,—leading to the inference that the rock must be very pointed. Tebenkoff indicates twenty-seven fathoms near to it and forty-nine midway between it and the islet at the western end of Biorka. The extensive rocky patch laid down on the British Admiralty Chart No. 2337 does not exist according to the Russians, and no evidences of any such patch have been observed here by the U. S. Coast Survey parties.

Lieutenant Symonds, of the U. S. N., locates this rock one mile and a half **W SW.** from the small islet at the western extreme of Biorka Island, from information obtained from the pilot of the steamer *California*, who passed the patch twice a month and has taken many bearings upon it; and Lieutenant Symonds adds, "I am satisfied that the position is reliable and relatively correct."

The shores of Biorka are mostly bold-to but infested by numerous pointed rocks, also having deep water about them, and which extend off the shore to about a quarter of a mile. Part of the northern and western coast is free from these obstructions, and the depth of water in general half a mile from the shores varies from twenty-five to forty fathoms.

The southern indentation is merely a small rocky cove, but the northern one is a good harbor and has received from the U. S. Navy the name of Symonds† Bay. It is about three-quarters of a mile long north and south and one-third of a mile wide, with a regular shore-line, and a regular bottom shelving gradually from about twenty fathoms at the entrance up to the sand-beach at the head. The entrance to the bay is distinctly marked by two islets, **Hanus Islet** marking the eastern and **Entrance Islet** the western head. Hanus Islet, low and bearing a few trees, is barely separated from the shore of Biorka, while Entrance Islet, bare and rugged, admits of the passage of canoes only between it and the shore. Hanus and Entrance islets are a half mile apart, and bear from each other **SW.** by **W.** ½ **W.** and **NE.** by **E.** ½ **E.** The bay is perfectly sheltered from all winds except those from **W NW.** round by **N.** to **N.** by **E.**, and the holding-ground is good.

Symonds Bay.

At the head of the bay is a fine beach of white granite sand, and behind this a house and a patch of low land, where a vegetable garden has been successfully cultivated for several years. It is fenced in to keep out the deer which abound on the island. Fresh water and wood are abundant. The watering-place is on the eastern shore, about a quarter of a mile south of Hanus Island.

SAILING DIRECTIONS

FOR SYMONDS BAY.

The only directions necessary for entering are to keep out of the kelp and avoid approaching the shores within a cable; to steer for the middle of the white sand-beach about **S SE.**, and anchor immediately seven fathoms are obtained. In this position the middle of Entrance Islet will bear **NW.** by **W.** ¾ **W.** five and a half cables; the middle of Hanus Inlet **N.** five cables, and the house on the beach **S.** ¼ **W.** three cables.

This cove, recommended by the Russians as a proper site for a pilot-station, would also serve as a good port of refuge for any navigator who did not choose to venture on the intricacies of the Sitka channels in a southeaster. The use of the lead in approaching it, however, would be advisable, although there is no special reason for believing that any unknown dangers exist in its approaches.

In some cases it is possible that a vessel, by reason of disability or otherwise, might find it impracticable to weather the island of Biorka in a southerly gale. Is is therefore not unnecessary to mention that relief might be afforded by a rather narrow, but apparently clear, passage which exists between

* Vancouver gave this appellation, erroneously written **Wodehouse** by some authorities, to the "southeast point of a spacious opening," whose northwest point was formed by Cape Edgecumbe, and which comprised Dixon's Norfolk Sound. From the bearings and distance given by Vancouver it seems evident that he applied the name to some part of the high land immediately to the westward of the western part of Crawfish Inlet, which, from his distance from the shore and the consequent invisibility of many of the low islets of the Necker group, appeared like the southeastern headland of the sound. His text and charts are in accord on this question. As early as 1818, however, bearing in mind the intention rather than the erroneous location, the name was applied on the chart of Sitka, made by Russian naval officers and forming No. XIX of the old Russian series, to the south point of Biorka Island, which has since been known by the name of **Woodhouse**.

† This bay was surveyed August 22 and 23, 1879, by Lieutenant F. M. Symonds, U. S. N., and Master G. C. Hanus, U. S. N., of the U. S. Ship *Jamestown*, Commander L. A. Beardslee, and named **Symonds Bay** by the Navy Department. The above description is from the MS. map of Symonds and Hanus, furnished by the Navy Department to this Office.

Cape Edgecumbe of the English = Cabo del Engano of the Spanish = Cape Trubitzin of the Russians.
Trubitzin was a boatswain with Chirikoff. See Golovnine (V. M.) Voyage etc. (in Russian) Vol 2 p. 69.

Biorka and the islands eastward from it. This passage is half a mile wide at its narrowest point, and from a point off its entrance half a mile east from the position of the Vasilieff Shoal the course is for the **SE.** end of Peiser Island, bearing **N. ¾ E.** This carries through the passage clear of known dangers, when shelter may be had in the cove or under the lee of the north shore of Biorka. Lieutenant Symonds cautions navigators against the use of this passage, saying that it is "full of sunken rocks and dangerous breakers," but no survey of it seems to have been made by him and the charts do not show such a state of things.

MS. page 442 follows.