No. 1 1891

I.

George M. Dawson

Private Diary

1891.

July 9. 1891. Got preparations finally completed today & traps packed. Got on board private Car 'Cumberland' at C.P.R Station shortly after 11 A.M. Attached to Western train & off by 12.35 Party consists of Self, Sir George Baden Powell, Mr Froude, & Mr James Malcolm. Destination Behring Sea.

July 10. Travelling westward. A warm sultry day. Toward evening much smoke in the air & after dark ran through burning woods for many miles.

July 11. Pulled up this morning at Jack Fish. A fall of rock & derailed engine ahead. Delayed over 5 hours, but managed during that time to write some letters, etc. Fog covering the lake & day cool & overcast. Made up some time in afternoon & evening.

July 12. Reached Winnipeg about 2 hours late. Spent the time thus reading writing etc & up town for lunch. Left at 2.20 on time. Cloudy day with heavy rain in afternoon & evening, accompanied after night by strong wind. Had a call in car from Consul Taylor & W.F. King. Time spent as formerly partly in rather desultory work over reports blue-books etc.

July 13. Travelling on westward. A fine bright day today. Spend much of time in reading reports & other work.

July 14. Travelling on westward. A fine day & excellent views of Selkirks in passing through. Beautiful balmy eve. At Kamloops got blankets & gloves etc which telegraphed for from Donald.

July 15. Reached Vancouver at about 12.30 Pm. Found steamer Danube at wharf. A number of Vancouver leaders on hand to know when a deputation could be received. Got

Section [illegible]

staff etc on board the Dunlo.
Lunch on board. Deputation at 2 Pm
remained about an hour. Called with
Sir George on the Admiral at Vancouver
Hotel. Sailed for Victoria in Dunlo
about 5 P.m. very fine weather.
July 16. Tied up at outer Wharf,
Victoria at 1.30 a.m. Received
deputations from Board of Trade &
Sealer's Assn. at 10 am. Remained
on board talking etc for about two
hours. Got an early lunch & drove
into town. Called on Mr Milne, &
Mr Dowell. Shopping & looking
up various letters required as
per memoranda.
July 17. Left wharf about 5 am. the
'Princess Louise' leaving at same
time also bound north. Pleasant run
up strait of Georgia with following wind
& warm weather. Found after getting away
that hunter & 2 boat-pullers who
had been engaged with their boat
had gone ashore owing to some

misunderstanding. The arrangement had been made through Capt Horne & was supposed to be all right. Unfortunate, as doubtful whether we shall have a chance of getting another experienced man. Passed the steamer 'Queen' a few miles south of Cape Mudge, crowded with Alaskan' excursionists & bound south. Much waving of handkerchiefs & demonstration on board

July 18. Call at Alert Bay & put ashore a last mail. Tide very low & Captain did not go to wharf, but put off a boat. Took a turn on deck at 4 am when we were at Alert Bay, then turned in again & at breakfast time found we were just getting into the open past Hope Island. Ran along some miles north of the Scott Islands getting rather a good view of them. The outer Hancock islands & Triangle Island have many sharp pointed rough & high rocks about them, with steep & evidently mark the worn bases of former

larger islands. Triangle Island is remarkably bold & appears to be green & grassy without trees. Possibly, however, covered with shrubs such as Sal-Sal bushes. See several small whales today.

July 19. Passed a skin boat of some kind about 9 a.m. almost completely submerged. Must have drifted here from the Aleutian Islands. Engines stopped for about an hour before noon, the packing having given out. Time occupied fishing for sooty albatross of which several have been following yesterday & today. Two caught, but apparently not fully plumaged birds.

July 20. Sighted a schooner going S, some miles off, early this morning. Gleams of sun in morning but thickening up in afn, & then light drizzle. Wind ahead, but not strong & in afn backing to southward enough to allow sail to be made. Position at noon Lat. 52° 2' Long. 140° 29'

July 21. Morning wet, afternoon finer, with gleams of sunshine, but

cool & cold. Tried a couple of shots with Kodak at the black albatross following. Skinned the bird previously caught. Day otherwise uneventful. At noon Lat. 52° 28′ Long. 146° 13′.

July 22. Cloudy day & cool with but occasional glimpses of sun, but no rain. Light winds & calm sea. Nothing seen or to note. At noon Lat 52° 49′ Long 152° 02′

July 23. Cloudy & overcast all day & generally more or less foggy & drizzling. Did some work as usual on boots & documents. Schooner seen this morning early apparently going to Shumagin Islands. When about 100 miles S.W. of Shumagin Islands we reported seeing a fur sech.

July 24. Made the land this morning a long way off & loaded with fog & clouds. Gradually outbanked it, but seeing only bits at a time through low fogs, while all the higher parts of the country buried in clouds, very difficult to tell

Exactly where we were. This difficulty increased by the evident imperfection of the Charts & the fact that we on board knew the Coast. Gradually began to place ourselves & through rifts in the Clouds saw mountains of the high islands well covered with snow in large fields & patches coming quite low down. Sighted once or twice the plume of solid looking smoke hanging over the volcano on Atkatan Island. Plume pretty clear upturned to seaward of the land, along South side of Atkatan Island had a fine view of the rugged & bold cliffs which fronted the shore, heading into stacks & pinnacles at the points & retiring between into verdant valleys. Coloring of rocks fine & varied & contrasting well with the green slopes of steep & irregular hills & ridges running up to the snow. Absolute treelessness & greenness of islands quite striking. The mountains though volcanic have rather irregular forms & in deep valleys

erosion show evidence of prolonged subaerial & stream action. Saw as yet no symmetrical new-looking volcanic cones, though some of the mountains still smoulder. Took a couple of other distant Kodiak shots at coast of Aleutians. Then through Aleutian Pass into Behring Sea & round Cape Kalekhta into Illiliuk Harbour in Unalaska Island & finally stopped off as Unalaska. Very striking & pretty bay with bold green mountains about it & distant snowy ranges seen in bits through rolling clouds. Tide 14 ft.
Pleasant at anchor with transport collier Costa Rica in outer Harbour. In inner harbour, where we anchored, US. Cutter 'Rush' the so called 'prison ships' Ah-Ki, with guard of marines on board. A topsail schooner (whaler) staged for sealing & owned in San Francisco, with some other vessels.
July 25. Ashore after breakfast making some arrangements & picking up odds &

Ends required. Back to steamer at
10 P.m. & meet officers from Rush &
al-Ki, also Capt. Turner from U.S.
which had arrived. Afterwards down
to inspect & photograph the schooners
docked in the harbour. 'Dante' having
taken water at wharf in morning
moved in p.m. to outer harbour where
cargo brought up for ships to be
discharged into Costa Rica. In run
& meeting the U.S. steamers Alert, Albatros
& Thetis came in. The Albatros from
San Francisco with the U.S. Commissioners
Mr Wendenbell & Dr Merriam. Met
these gentlemen with others at Mr Newmans
where had a most interested sederunt.
Newman is in charge here for the
Alaska Commercial Co — the old company
which missed getting the lease at
renewal. Had intended leaving this
evening for the Islands, but decided to
remain long enough to interview the U.S.
Commissioners & sail in the morning.
Capts. Turner & Hadley on board for

dinner. Altogether quite too lovely & delightful day & much too comfortable in the matter of liquor &c. &c. offered & entertainment taken. Macoun spent good part of day on the hills collecting plants, of which a number of interesting species got. Secured an Aleut & Russian interpreter to take with us.

July 26. Left Sitkidak 8 a.m. steering for St George Island. Spoke whaler Bessie Freeman 30 miles N.W. of Uyalaska. About 5 p.m. saw & communicated with U.S.S. Mohegan, an officer coming on board from her. Saw several seals during day. Weather with very occasional glimpses of sun. Much of time during foggy.

July 27. Dense fog all day with calm sea. Tried for some time to make St George Island, but finding that we had probably overshot it, continued on to St Paul Island, steering slowly, anchored before dark, in very dense fog.

July 28.
Got under up early this morning & foggy lighting towards were sounded & made in to anchorage at St Paul's. Went ashore & had rifle in charge here for Governor & Company. Dinner at Company's house. Before dinner went with Mr Zigler during the whole length of the reef rookery. Ran. to Sukanon & Kitchie Rookeries. Altogether quite a good day's excursion. Foggy off shore & cloudy & misty overhead but rather warm & not wet. 'Albatross' came in in the evening with U.S. Commissioners. Had Major Williams & Col. Murray to dinner on board in the evening.

July 29. Raining this morning & light rain almost continuously all day. Thick & foggy at sea. Got ashore & arranged to visit the rookeries to Eastward, getting a boat from Col. Murray manned by aleuts & steered by the chief, all dressed in walrus intestine waterproof coats. Walk round edge of & examine Zapadnie Rookery

& as far as the point. Then return to house marked on map, where had lunch from stuff brought in boat, & fed natives. Then returned slowly rowing quietly along close to shore & examining E. Zapedne, Zolotoi & Lagoon workings carefully. Back to ships about 4 P.M. where glad to change having got totally through wet. Wrote up some of notes, early dinner. Landed & spent a couple of hours discussing matters generally with the U.S. Commissioners in the 'Govt. house', comparing instructions etc.

July 30. Wrote out some of notes after breakfast. Landed & had another long talk with Mr Zeigle. Lunched at Company's house & in P.M. went out on Rockery along reef to inspect it at leisure & Sudiemus took a couple of photos, though weather very unfavourable. Dull & spitting rain. Talk with Mr Redfearn on return. Going landed again. Talk Dr Wernicke, Nunes & Zeigle & Saunders on board for St George.

July 31. Left at 8 a.m. for St George.
Got up as soon as anchor up & took
out for seals & then distribution between
islands. Foggy morning. Met 'Pheasant'
shortly after leaving. Spoke her & learned
that Capt Hedley would accompany us.
Round West end of St George. Dropped anchor
at Zapadnie, followed by Pheasant. Landed
& examined Zapadnie rookery. Back
round West end of island. Left steamer
opposite Sharp artel rookery. Steamer
to go & anchor opposite village. Examined
Sharp artel rookery & then conducted along
whole front of North Rookery, landing at
village. Morning pretty calm. But
shortly southerly wind, but hung off shore,
did not suppose prevent it, though very wet
& rainy. Macoun & Dr Merriam walked
across island from Zapadnie. Very
strong off shore wind ~~[illegible]~~ tonight.
Aug. 1. Breakfast early & go ashore to
witness a killing of seals which to be
driven up for that purpose & ready
ashore at 8 a.m. Saw the condemnation

by the drive & 20 seals killed, using circumferences & stunning stomachs. Then walked through very wet grass over high hilly country to Great Sarkin Rookery, accompanied by Leander & Jingle. Back again over same route. Drizzy rain & stiffy wind, very wet & uncomfortable. Lunch at Company's house. Then walked out over similar ground & in similar weather to Little Sarkin Rookery. Back & on board, pretty well soaked. Remarkable display of sea lions about Gt Sarkin Rookery. Evening had Capt Hadley & Mr Cove from Pheasant to dinner.

Aug. 2. Heavy southerly wind all night, but anchored in pretty good lee & not much affected by it. Still blowing from southward in morning with rather heavy swell rolling in. 'Carwin' appeared from East end of island & anchored for a time, making a squadron of four vessels – undoubtedly more than has before been in this anchorage. Went ashore & had a talk with Webster

who has been longer than anyone on these islands & officials & be broadly willing to give all the information he can. Back & on board 'Danube' with Dr Merriam as a passenger for St Paul. Coasted Southward along St George & then ran out to position of Kelp point shown on maps, but could not find it. Turned off & returned to St Paul's anchoring in last anchorage at 8.45 P.m. Observing seals on sea surface during passage. Pretty heavy swell rolling in from Southward or South-westward but wind light & sky for weather sky with clear lying on this P.m. Glimpses of sun this morning during which tried for a few Kodak views.

August. 3. Ashore at 8 a.m. to see killing of seals for native food, of which we had previously been notified. Arrived on ground just as killing was in progress & with Dr Merriam endeavored to get some photos. of it. 118 seals killed. Had stomachs of most opened & with Dr Merriam

Examined contents. Saw skinning & skins counted lot salt tours. Natives all down on Kellay ground cutting up & carrying away flesh for food. Afterwards had a talk through interpreter with 6 of the older natives to ascertain their opinions & views of the present state of affairs etc. Back on board later in the afternoon. Capt Hadley & Stewart called & arranged with him provisional plan for a cruise to northward with a rendezvous at N. E. point of Nuverak S. writing up notes etc.

August 4. Astor at 5 A.M., meeting Mr Teigle with his buckboard & mules & driving out to Polavina rookery, over five miles distant. Take camera & Kodak & get some views. A very fine day & beautiful display of flowers over the grassy interior, particularly the little yellow poppy which makes some parts a blaze of colour. Dr Rau, Sir George & Mr Troude go on launch with Capt. Hadley to Otter Island

The day being unusually fine, decided to try for some photos. of seals on Rey Rockery. Landed with Camera & Kodak, & with Dr Morrison's assistance rearranged the bellows & put in a new roll of film using Mrs Brown's dark room in Company's house for the operation. From 3 Pm to 5 on the Rey today with Malcom & Peter. On return went with Mrs Brown to see locality from which fossils obtained at Fort landing. Fossiliferous material consists of fragments, apparently of Coleanian sandstone contained in clay of bedded basalt breccia & scoria. Evidently parts of old sea-bed dipped up at time of eruption. Evening had Rev. Woodwhell, Dr Morrison, Mrs Brown & Mr Tingle on board to dinner.

Aug 5. Had arranged for visit of Mr. Commissioner & Capt Farmer to go today in steamer albatross to North Fort Point Rockery. Left at 10 am. Beautiful day & almost absolutely

Colon. Made a very easy landing after lunch. Walked all over the Island or rather along its whole length. Took a number of Kodak views. Back on board at 5 P.m. & round to village anchorage by west side of Island. Stayed some time on board albatross talking with Captain Oz & with Capt. Coulson of the 'Rush' who came on board. Found that there will be a chance of sending mail by 'albatross' & spend some time in writing & in arranging despatches. Turn in but turned out at midnight.

Aug. 6. Sent mail on board 'albatross' & communicated with the shore. Postponed starting for some time to see whether the weather would turn. A rather strong North easterly wind, with spitting rain, cloudy & hazy. As wind did not appear to be freshening, got up about 11 a.m. Passed close to Wolbrens Island, covered thickly with birds & breeding birds all around it. Then shaped course for Dunnick Island

Malcolm keeping seal log till P.m. when he succumbed to sea sickness. Afterwards kept by self & man in watch. Short choppy sea & very raw & chilly with occasional rain. Now, at 9.45 P.m. plunging along into a rather dark dirty night. Informed that the Island of Nunivak being sketched on the chart & probably not quite correct in position, but safe to reach Nunivak with 'Pheasant' at Etolin anchorage near N.E. point some time tomorrow.

August 7. Bright-looking wind & a spitting rain. Made the land of Nunivak in the morning before 11 am & shortly after saw the 'Pheasant'. Communicated with her, & as the wind would evidently render landing on N. Shore difficult, crept in under lee of land & 'Pheasant' came to anchor. Sir George & Malcolm off in boat to shore with Capt. Hedley. Dante went on some miles eastward along coast, but as we could see no sign of any settlement, we returned & anchored near Pheasant. Three Eskimos came off in a couple of kayaks & after

paying the 'Pheasant' a visit, behaved as in the same way. Had some ivory objects of small value to trade but wanted a good deal for them. Party from shore returned late from a tramp in the interior.

Whole south-west side of Hermannsk is rather low, with vertical cliffs of 100 to 150 feet in height rising higher at the points & low rocky shores or sand dunes & sandy beaches in the bays. Entirely fissured & with not trees. Patches of snow where drifts have been formed deep in winter, still lying under the cliffs in places. Cliffs show several separated & tilted layers of basaltic rock & the whole of this part of island is basaltic or at least volcanic with basaltic appearance. Specimen of basalt obtained at landing is basicular & rusty. Some hills & plateaux showing in interior of island.

The Eskimo here seem very untutored & to have had little contact with whites. Asked at once, however, for tobacco. All three wore dirty 'Kamliakas' apparently little more of clients made from sea-lion

intestines. Rather shapeless, perhaps pen use, baggy & often tell like at the bottom resembling very badly made night shirts & giving wearers a very comical appearance. Kayaks well made & peculiarly shaped at ends.

Aug. 8. Anchor up & off at 6.30 Am. Got up when I heard the engines start in order to see the abode of the Nunivak Coast. Round the West end of the Island & along north coast at distance of some miles to avoid doubtfully placed reefs there. Thought of calling at village marked as being on N. shore, but rather heavy rolling swell with no appearance of shelter for landing caused us to keep on to Anderage at N.E. point of C. Etolin. Before the anchor down here 21 Kayaks with Eskimo — in some cases two crowded in one Kayak, — put off & surrounded the ship. Anchored at about 2.30 P.M. went ashore & made short reconnaissance, but finding only boulder rocks & nothing of particular interest returned on board, while rest of party went off to some distance shooting.

sterns.
sterns

Eskimo round & came on the ships all afternoon, with articles for barter. Can talk no English & have no means of communicating with them, but understand them to ask for tobacco, powder, watches, old clothes etc. Most of the men seem to be inveterate curiosity hunters & much interested in getting ivory objects, spears, paddles etc etc. Eskimo here do not seem to have any idea of money & part easily with such things as they have for a trifle. Very dirty & with little taken of having anything but their native costume. Dressed in Kamlickas, marmot skin parkas, & in some cases in parkas made of bird skins sewn together - feathers inward. Kayaks are well made, & show some diversity of form in stems & sterns, as opposite.
The whole west & north coast of Nunivak island resembles the southern coast seen yesterday. Horizontal basalt apparently in cliffs everywhere & similar horizontal lines seen in some of the hills in the interior. None of hills probably over 500 feet in height

& no appearance of trees anywhere. At Cape Stolin brown basalt in layers or pseudo layers & not distinctly columnar. See no appearance of foreign drift material & no old high beaches. Very little doubt that the whole island is basaltic in formation. Carroll passed northward up Stolin or Cook Strait as we anchored. 'Pheasant' followed as round the island & anchored alongside in the evening. Capt. Hadley & Mr Melvill on board for dinner.

August 9. Had arranged to rendezvous at St Matthews Island with 'Pheasant' & as she steams (unless passed) eleven knots Dauntless agreed that she should leave early this morning while we took a run across towards Cape Vancouver on Mainland Coast. South setting wind with occasional spitting showers all day. Got across to Cape Vancouver & anchored in lee of its north side early in forenoon. Landed & then coasted in boat along shore into bottom of bay to north of the Cape. This appears to be Hazen Bay, but is quite incorrectly shown

on the Coast. Found an Eskimo village but most of people were away. Received on board, however, by a priest & found that a mission here, which has been established for 3 years, from St Michels. Jesuit missionaries 2 French & one from Baltimore, named Barnum & claiming some relationship to the late great showman. Very distinctly gentle in tone & peculiar to find living here & dressed in costume of a priest. The mission a very confined little place, doubtless owing to scarcity of drift wood suitable for building. Asked to remain & dine with the priests & very kindly received by them, but declined to stay. Suggested that they might send an Eskimo in Kayak to our anchorage & get some newspapers, which they accordingly did. Got up anchor & started about 2 Pm for St Matthew Island direct.

Cape Vancouver is bold & high though scarcely mountainous, probably not more than 1000 or 1500 feet in height. On north side scarped bluffs showing good exposures of sandstones & sandy shales, well bedded

Dipping southward at low angles on north side of Cape, but undulating. Apparently bent near extremity of Cape & possibly were decidedly folded & at higher angles to south of extremity, but this uncertain as only imperfectly seen from a distance through rain & mist.
Sandstones etc are grey, bluish & brownish, rather soft, sometimes nodular. Contain some very thin & dirty seams of coal or lignite. None seem more than a few inches. Numerous carbonaceous impressions in the sandstones & a very few leaves of a recognisable character, of which two collected. Abundance of nodular basalt on beach with appearance from a distance of tops of hills behind the extremity of the Cape seem to show that the sandstones etc are capped by basalt. Very little doubt that the whole series Tertiary though older leaves can be determined the so mighty course belongs in the Cretaceous.
Facing distinct terrace, but quite narrow & somewhat irregular, inside Cape & facing bay to north. Height say 80 or 100 feet.

# "Porpoise" Blue Star Minstrels

MC W. A. B. Bray.

Skins, J. Gillan Bones, J. Lambert

## Programme

| | | |
|---|---|---|
| Opening Chorus | "Ohio States" | The Company |
| 1. Song (sent.) | "Roses underneath the snow" | W. Manning |
| 2. Song (comic) | "Both been there before" | J. Lambert |
| 3. Song (sent.) | "Cabin with the roses round the door" | J. Bickers |
| 4. Song (comic) | "Absent-minded man" | A. Tomkinson |
| 5. Song (sent.) | "The song that reached my heart" | A. Hawkes |
| 6. Song (comic) | "U. O. N. E. Y." | J. Green |
| 7. Song (sent.) | "One little room of my own" | A. Best |
| 8. Song (comic) | "Eighteenpence" | A. 2's Part |
| 9. Song (comic) | "Hen Convention Show" | J. Gillan |
| 10. Song (parody) | "Sailing" | W. Morgan |

## 2nd Part.

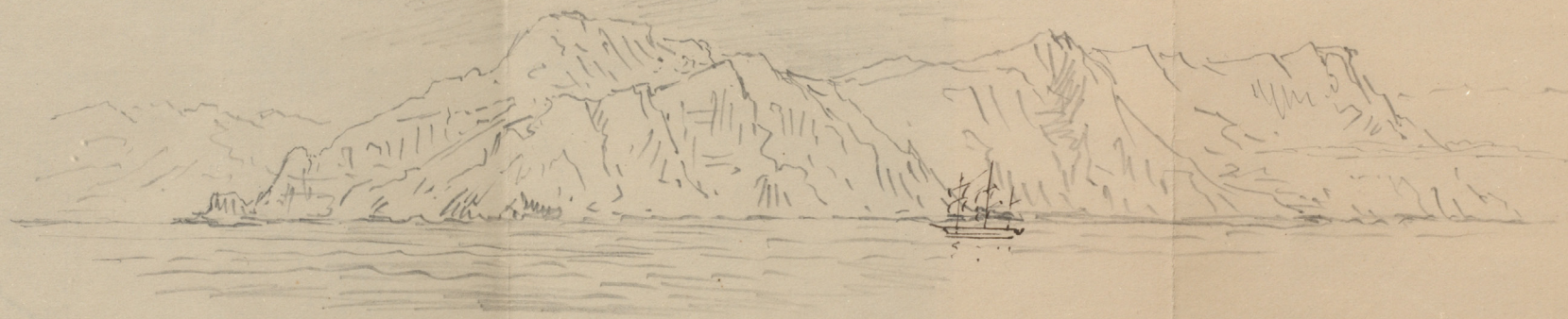
| | | |
|---|---|---|
| Character Song | "Mc Ginnis" | T. Modley |
| Stump Speech | "On Electricity" | J. Gillan |
| Character Song | "Here on guard" | J. Bickers |

## 3rd Part

"Johnson's Ball"

"God Save the Queen"

Aug. 10. Steaming westward all night & this morning. Almost perfectly calm, but foggy & sometimes very thick. Running slow part of the time this morning & at 12.15 made the land dimly. Clearing up partially, high cliffs seen at a distance. Steered toward them, taking them for Pinnacle Island shown on chart to south of St Matthew I. Still under impression that land was Pinnacle Island, set off in boat for it, steamer to wait at north end till we rowed round it. Landed in pretty heavy surf on a small gravel beach under high cliffs tenanted by myriads of birds. Collected a couple of specimens of rocks & then decided to go on round south end of island. On rounding south point saw at once that the cliffs were those of Cape Upright & were attached to & form the east end of St Matthew Island. Turned back & soon sighted the steamer in bay to westward. Landed again on the beach to west of the cliffs & on north shore of the island. Decided to return to steamer, after wandering a while on shore, but as we were



Cape Kalekhta
Unalaska I.
July 24. 91.

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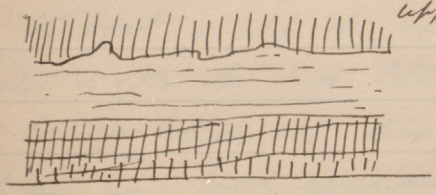
hulking off, hailed by a couple of men on the beach. Rowed ashore & when they came, & found ~~that~~ then to be the Doctor & another man from the U.S. Thetis. A third man shortly appeared. Found that the three had landed on the south side of the island early in the morning to hunt & walk across to anchorage on north side. Had been walking & wandering about all day without being able to reach or find the place they had started for, & were about played out. They glad to be taken on board & given something to eat. Steamed round to bay where anchorage lay on north shore & found both the Thetis & Pheasant anchored there. Pheasant had got in about 2 P.M. & Capt. Hadley was away in launch to the westward. Dingy came off from Thetis & took the men. Boarded by three men who are living on the island. They explained that they had been landed here by Schooner 'Mattie Dyer', finding that sealing had been stopped, & decided to pass the winter hunting bears, walruses or whatever they could get. The trio consists of a Corsican, a Scotchman from Paisley &

a Sandover. They are about to go to Hall Island to endeavour to shoot walrus. Have been there once before & saw very walrus. Polar Bears also common there & blue foxes. Some bears on this island but now the skins are of no value. Arrange to take them on board with the boat & land them on Hall Is. tomorrow, starting early. Shells steamed off about 7.30, going E eastward.

Cliffs at East end of island, Cape Lisburne etc, seem about 500 feet high, very rugged & broken & full of sea-birds. Partly wrecked in fog & caused such green herbage where possible for plants to grow. Rocks very much shattered & jointed. So far as examined showed mainly chiefly of greenish & purplish porphyritic rocks, more or less altered volcanic & not unlike those of Clear Mountains in B.C. Intrusive or Eruptive noticed of grey colour & somewhat granitic aspect (examine) which appears to be charged with angular fragments of the porphyritic rocks. No definite line of division made out between these classes of rocks. After an interval of good beach to

the westward of high land of Cape Upright, rocky cliffs jutting out between the beach & anchorage, appear darker in colour, possibly basaltic. At the extreme of the point a bed or layer of some thickness of greyish yellow colour & very probably of sedimentary rock such as sandstone or shale intercalated in the darker rock & dipping southward ∠ 15° about. Under surface seems to rest not quite conformably on layers of lower dark rock, & upper surface irregular as though flooded off by upper dark rock. Somewhat as below. —

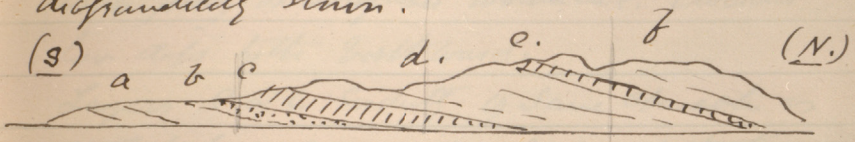



August. 11. Got off with 'Danube' at 5 am for Hall Island, Capt Hadley & Mr Cove from 'Pheasant' on board. Got up when whistle blew & on deck to examine the coast of St Matthew as we pass along it. Moderately clear, though fog banks at sea & wreaths of fog hanging about hills of islands.

anchored on E. side Hell Island & after an early breakfast got off in two boats about 7 a.m. with the three hunters mentioned yesterday to look for walrus near north end of Hell Island where they are known to haul out. Did not find the large herd of walrus described by the hunters, but actually sighted about seven, sleeping on a large flat rock sloping to the water. Saw a polar bear on the hillside before we sighted the walrus, but left it in case by shooting we should alarm them. Ranged pretty close to the walrus in the boat & while they were lurching into the water & after they had taken to the water, rained a lot of bullets into them. Several were hit & one was badly wounded but all got off. Capt Meyers & some men in small boat had landed to go on rocks to walrus & seem got near enough to shoot. When the fusillade was over they forged ahead again in their boat & began firing at a polar bear which appeared on the hillside. It ran back, apparently wounded but coming abreast of our boat was soon stopped by a number of

bullets. Capt Rogers & men from swell boat landed & skin the bear, while we in second boat kept on & crossed a second walrus wallow, which was, however, found abandoned. Returned half a mile & some of party went up looking for more bear on the hills. I remained on beach taking a couple of photos. & examining rocks. Eventually returned to Dauntless with Capt Rogers & Macoun. Got some lunch & went ashore opposite ship. Took some photos. with large camera, examined rocks along shore etc. Remainder of party returned on round Hell Island in their boat, came back to ship late in the afternoon with another bear. A third, wounded & alone, was secured & men from the U.S.S. Thetis, which had come in an anchored alongside 'Dauntless' meanwhile. Capt. Reiter of 'Thetis' left cards on board & was returned his call. Then got up anchor & steamed back towards opening where 'Pheasant' had remained. Macoun made a good haul of plants & some birds.

Structure of Hole Island, as examined along Eastern side, appears to be as below, very diagrammatically shown.




a, d & f represent or rather represent volcanic rocks, considerably altered, more or less silicified & often rich in irregular bands, probably from decomp. of pyrites. Sandstones show more or less columnar structure, but generally very irregular. Small irregular columnar structure, particularly near North End. Material of these parts of formation appears perfectly porphyritic of some kind, greyish purple, pinkish or grey. Layers c & e are pale grey & consist of tuff or fine agglomerate or ash, evidently water bedded & in some places in perfectly fine layers. This applies particularly to c, ~~also~~ e being scarcely perceptibly bedded. c is 200 or 300 feet thick & is undulating of a somewhat thickness of coarse brownish & blackish agglomerate, holding some worn

Jenerol

one & three yards in diameter. The whole evidently represents products of volcanic eruption which partly or altogether subaerial. Everywhere low dips to the south west.
Layers C & E evidently of same character as the pale layer referred to yesterday & this layer is very probably identical with one of those on Hell Island. A similar layer appears again, with low southerly dips, generally, in several places between mouth average & westward of St Matthew.
Rocks are all much fractured & jointed, very nice under action of sea & bold rugged & picturesque cliffs take place of Cape upright.
Much chalcedony & jasper, the latter generally red the former white or milky in the porphyritic rocks & fairly considerable proportion of jewel in beach in some places.
Taken as a whole St Matthew Island may be described as consisting of the unobscured parts of a range of bold rounded hills, not naturally scarped, but cut back into sea-cliffs along all the shores. What would otherwise be three islands

separated by narrow straits, have been united by low level gravelly flats worked in by action of sea. These often include lagoons, into which the streams fall & from which the sea the water issues through the altered banks of gravel. Hall Island is in every way similar to St Matthew, but happens to be separated by a strait. See nothing on these islands like crater forms or unaltered volcanic cones. Here rather the appearance of residual parts of much more extensive volcanic accumulations of which all the higher portions have been removed by denudation. No volcanic rocks of surface formation seen. No tracts of brownish colours & modern aspect such often besides those like those of Nunivak & Pribylov Islands seen. Volcanic rocks of these islands appear to be more modern or at any rate less deep seated in origin & more basic in composition. Neither see any beaches or raised shore lines on St Matthew Islands, nor any recognisably travelled boulders

General
gl.

or other signs of glaciation.
If this absence of glacial evidence is found about islands etc. of Behring Sea may it show that low land extended to the north here in glacial period & that all this region was part of the non glaciated area to N.W. of Cordilleran glacier.
Aug. 12. Party went on board Pheasant this morning for breakfast, by invitation of Capt. Hadley & officers. Left 'Dennite' at anchor & steamed round Cape Upright. Surprised to find the 'Nymph' anchored on South side of island to west of Cape Upright. Pheasant exchanged signals with her & explained that we were going to Pinnacle Island. On arriving off Pinnacle Island, after lunch, went in steam launch & small boat towing behind to the island, Pheasant lying off. Landed on narrow beach on E. side in surf, wet very bad. Some of party climbed to crest & came back reporting a bear on the other side. Remarked a steamed round to west side in launch, finding

a large she bear & two well grown cubs moving along the rocks. Fired on them from the boats, Mr Welvill getting first shot into the old bear. Second pattern afterwards launched & despatched the two cubs. Towed the carcasses up with a line & got them into the boat. Did not myself fire at the bears at all as others seemed to enjoy doing so & to me the killing under the circumstances appeared rather a tame affair. Afterwards in launch to Seal Rock where eight or ten sea lions with some young were found. Fired at them but all got up into water. Pursued them in launch, firing at them when they rose, for some time, but without perceptible result though some evidently hit. If killed they doubtless sank at once. Returned to boat, which was violently signalling for us, & found that they had descried two more bears — female & cub. Decided to leave them, as it was getting late, though some of party seemed inclined to attack them also. Back to 'Pheasant' &

on board, the whole ships company collected in admiring crowd along the rail to watch the return & bringing on board of the trophies. Dined on board while 'Pheasant' on way back to anchorage, where arrived some time after dark, in rather thick fog. Back on board 'Dennitt'. 'Pheasant' did not anchor, but turned out again & started off toward St Lourenco Island, where we were to rendezvous again according to arrangement made. Saw 'Nuguph' steaming round E. end of island to northward as we returned

The firing at a pennant of the sea lions in the steam launch, dipping about in a rather bold swell which was breaking on full ~~island~~ rock & adjacent rocks was rather good sport, but the days work as a whole only play & nothing to do with the seal enquiry.

Great numbers of birds, cormorants, guillemots, puffins etc all over Pinnacle Island & flying up in dense clouds

swarms between a short period. At other times lining the shelves & ledges or thickly dotted over the steep green slopes when they occurred — circling like roots in the sun all about the island in innumerable throngs.
Pinnacle Island is a long, high ridge of jagged rocks running N & S. Picturesque & wild vertical & overhanging cliffs rent & forked, with projecting narrow parts at tops & low caves along the water line. According to Chart etc. 900 feet in height & named by Capt Cook.
Rocks very similar to those of Cape Upright & evidently part of same volcanic lot.
Dark purplish rock (see specimen) occurs in distinctly stratified or stratiform condition, dipping at various angles.
South side of St Matthew Island distinctly seen from a distance & appears to be similar physically & in rock formation to northern side. No evidence found anywhere on this group of islands of anything but volcanic rocks.

Aug. 13. Left at 7 a.m. & steaming northward all day toward St. Lawrence Island. Very fine & nearly calm. Good distant view of St Matthew Island from the sea. This northern trip is entirely on Sir George's motion & so far as I thought it well to express opinion contrary to my advice. It is of course interesting enough in a general way to see any or all of islands & coast but has no visible connection with seal problem. At St Matthew quite beyond limit of seals so far as known or reported & though conceivable that some stray seal might be seen anywhere, would have no bearing on regulations or other matters pertaining to the fur-seal that I can see. The main point appears to me now to collect personal observations in the seal-frequented part of the sea & not to get incidental negative observations elsewhere. Weather is now fine & very suitable for this purpose & cannot reasonably count on its continuing indefinitely, while we are cruising away beyond the seal regions. Altogether we have no spare time to run out thus

of the best we made on the trip as a whole.

Aug. 14. Got in under St Lawrence Island early this morning, but in so dense fog that after getting echo from cliffs unable to go further & did not know exactly where we were. Remain at anchor most of day in dense thick fog. Hear some shots at a distance, which we suppose to be on shore. Shortly after hear a steam siren at a considerable distance which we suppose to be the 'Pleasant'. Later in afternoon hazy clearing showing first a man of war going up in southerly direction, then a bark apparently a whaler – close the cliffs of the shore. Uncertain whether the man of war was the 'Pleasant' but as she did not offer to communicate, got up anchor & proceeded westward along coast & then northward toward rendezvous at Chibukak Cape. After dark going dead slow, Captain not wishing to reach the Cape before daylight.

Just before dark, immense flights of birds seen. Appear to be leaving the cliffs & flying out near the surface of the sea for some

miles, then returning in a continuous upper current to the island, at a considerable height.

The shore between South-west Cape & Cape Sanachino means all rugged cliffs several hundred feet in height, with some outlying rocks & reefs. Cliffs scored & fissured much like those of St Matthew Island, but much larger banks of snow resting in the hollows. Higher snow-covered hills dimly & partially seen through clouds behind.

These cliffs show generally a massive looking, grey & very probably granitic rock below, capped by softer irrigated & slightly inclined brownish & reddish brown stratified materials which probably mainly volcanic, but some probably sedimentary tuffaceous or agglomeritic than bioclastic. Low plateau-like hills probably composed of similar volcanic materials a few miles inland. The more lofty & further back hills not sufficiently well seen to enable even a guess at their character to be made.

Aug. 15. Morning fine, without fog, though as usual completely overcast. Got in to anchorage to East of Cape Chibukak at about 5 am, finding the 'Pleasant' anchored there. She had arrived yesterday afternoon, having escaped the fog by which we had been delayed. The most important remaining Eskimo settlement on St Lawrence I. is situated on a low spit forming the extremity of Cape Chibukak & we were followed in to anchorage by several large skin boats crowded with people who soon covered the deck & were very anxious to trade, but had very little of any interest or value, whalers & traders calling here having already got everything. Landed after an early breakfast & spent about an hour on shore, then, finding little of interest, returned on board & about 10.30 left for Plover Bay, on the Siberian coast, about 60 miles distant, following the 'Pleasant' across.

One white man at Pleasant at Cape Chibukak, a carpenter left here by one of

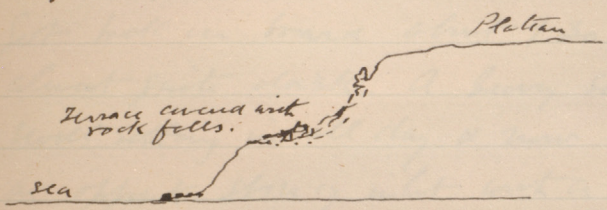
Reverend Cutlers to build a mission house or school, as near as we could understand. The natives certainly appear to need some attention for they are a dirty degraded looking lot & can scarcely speak or understand a word of English. On the East side of the cove, when we landed, several deserted houses of the usual underground style, with low connecting passages. Roofs had been supported by bones of large whales & walls etc, partly built of stone. On rocky large rectangular house or enclosure in ruined state formed of stones, also several small circular shelters or starting places built of stone & bones of whales & perched on large boulders or corners of rock. Appear to have been places for lying in wait for game of some kind. Many old broken walrus skulls lying about.

Surface of island so far as can pass see or capture wholly barren moorland with grass & moss, often rocky. No appearance of trees bushes stunted anywhere.

The north-west point of the island consists of a plateau about 200 feet in height, with nearly level outline, but declining southward to low lands which connects it with the rest of the island. This plateau breaks off seaward in cliffs or rough rocky slopes with here & there projecting pinnacles of fissured rocks on them. No solid unweathered rock surfaces seen anywhere, much of surface of plateau also uncovered & consisting of scattered angular blocks.

The whole of this part of the island consists of uniform & rather coarse grained grey granite, with nothing of volcanic origin. No evidence of glaciation seen, though faintly if unbroken rock surfaces had occurred such might have been found. Saw no travelled boulders on surface of plateau, though some stones on beach which appear not to belong to immediate vicinity. Surface of plateau might be a plane of marine denudation & if so may faintly represent an old terrace level. On east side of Cape a pretty distinct terrace at height

of about 50 feet above sea, but partly obscured by falls of rock from the old degraded cliff behind, which have covered any beach of rounded stones which may have remained there.




Views of the island as a whole from Cape Chibukuk vicinity, clear distant view from sea to westward, with very clear atmosphere, do not show any distinct volcanic cones or craters so far as I could see, neither is there any evidence visible of Muirs 'overwhelming glacier'.

Reached Oliver Bay & anchored beside 'Pheasant' in Providence Harbour about 6 P.M. Harbour is formed by a semicircular gravel bar attached to the East side of the inlet, & is very convenient by access. Native settlement on the gravel spit. Off up the inlet in boat, towed by Pheasants steam

Cutter for a time, & afterwards moved round into Emma Harbour. Met Capt Healy & a couple of officers of Pheasant who had walked across hills shooting. Loundered about for a short time & eventually got back on board about 9.30, when almost quite dark. A heavy southerly swell setting in all day & now breaking on opposite shore of inlet with a steady roar.

Aug. 16. 'Pheasant' left early this morning for Unalaska. After an early breakfast went ashore at native settlement & took some photos. of settlement & inlet. Had a look at rocks on E. side Port Providence & returned on board. Steamer off about 10 A.M. for Southward, after making certain amount of soundings & cruise in toward Pribyloff Islands & some observations on seals in vicinity. Nearly & both dating ~~South westerness~~ wind, but heavy swell continues from Southward making steamer plunge about a good deal

Geology of vicinity of Plover Bay. The land of this part of coast high & mountainous everywhere but not attaining any very great elevation. See no mountains probably over 4000 feet in height. All entirely bare & treeless, brownish or grey with only here & there, generally in valleys & flats green colour of herbage. Fiord like inlets & straits characterize this part of coast, but on small scale, water in these deeper than sea outside. Plover Bay is one of these small fiords, surrounded by bold bare mountains, very deeply carved sometimes with talus & broken angular rock, with frequent crags & spires projecting on steeper slopes, particularly those toward sea. Generally speaking the mountains show ordinary denudation forms, with wide buttresses & intervening steep valleys or ravines. Resemble for instance those of Slate or Van Horn Mts. in Rockys, & forms seem to show that rocks very much jointed & weather readily & in almost any direction indifferently. In the seaward the ravines end in cliffy capes evidently due to action of surf in

wearing back. On whole west peculiar feature the great abundance of loose angular material everywhere. Doubtful to what extent this directly attributable to action of sub arctic climate, or in how far may be accepted as evidence against late general glaciation here.

From Cape Tchaplin to Cape Nieuwenni, as seen from sea, & as far as Cape Tchukotski rocks have grey colours generally & are very probably granitic. Seaward end of range to E. of Valley holding Lake Moore also grey, but a couple of miles back dark range from shore become rather brownish & reddish. Similar brownish & reddish weathering rocks characterize west of range between L. Moore & Plover Bay, including not Slovianka, but from what afterward seen in Plover Bay this change in colour may not indicate any essential change in composition. Rocks all along west side Plover Bay & on coast beyond for some miles, predominantly grey & very probably granitic. In cliffs at Bold Head

grey rocks traversed by several well marked dykes, yellowish-weathering & blackish. Rocks seen at Port Providence & thence to Emma Harbour appear chiefly granitic, little specimens, but with considerable proportion of porphyritic (?) material (see specimens) which sometimes reddish in tint & forcibly intrusive in the granites. Some grit considerably resembles (cf.) the reddish material intrusive in grey granites on W. side Okanagan Lake. This material may be volcanic (?) but if not no evidence of volcanic rocks seen. No distinctly stratified rocks seen anywhere.

Low land spreading upon like in front of point to West of Lake Moore, cut out diff of sea (not correctly shown on chart) as seen from sea much resembles boulder clay. Weathers fawn-coloured. Thickly charged with large boulders which arranged more or less definitely in lines & thus apparently at least roughly stratified. Similar material exposed in angle of bay

on east side Bald Head, about mouth of Reindeer River for considerable length — though seen only from a distance — & also in a couple of places on Emma Harbour.
Examined the exposures in south part of Emma Hr. Material thus partly bared is bluish grey, rather hard & contains much coarse sand & gravel as well as clayey material, many boulders of rather varied lithological character, sub-angular, but could not convince myself that any certainly showed glacial scratching. Inclined on the whole to believe, however, that this deposit resembles boulder-clay. They do not anywhere form a definite terrace, but can not extend — at least not in any rivers — above a height say 200 feet above sea, while in places quite wide spread below this height. May thus be assumed to show an approx. terrace or be in some definite relation to a depression of land of about that amount.
(Compare Muirs very vague & indefinite description given in one of Cruises of Corwin.)
Valleys between mountain ranges rather wide

& flat-bottomed when they open both sea.

The people living here are Chukchees (varying spelt) Several of them can speak a little English but none any Russian. Their intercourse evidently chiefly with the whalers. Appear to live chiefly by fishing & particularly by taking hair seals. One very big in nets of seal hide thong. Living now in skin tents of rectangular form & appear to live in winter in circular houses made of whale bones set upright & sods piled between. Roofed of skins? One of informants appeared to say that these circular (now roofless) enclosures were for reindeer in winter, but saw no traces of this, which scarcely appeared sensible. Many dressed deer skins & clothing made of such skins, but whether tame or wild did not learn. Wood evidently very scarce & apparently little drift-wood comes ashore here. Fuel oil brought in lamps. Building material chiefly bones of whales. See no kayaks, but many large skin boats exactly like those of Eskimo of St Lawrence

Island & Nunivak, also two good whale boats – evidently obtained from whalers. Appear to be much better off, cleaner & more comfortable than the Eskimo of St. Lawrence. Much more civilized than the Eskimo of Nunivak. Dress retained mostly, still in original style. Women baggy deerskin dress all in one piece, loose & gathered in about the neck, very comical in its effect. Most of the women are tattooed & the style precisely same as that of St Lawrence I as shown on p. 36. Crane of Corwin Inds & Mems. 1881. Some of St Lawrence I women tattooed down on back of wrist & forearm. Did not particularly notice this here but cannot say it does not exist. Time in short much too brief to make any satisfactory notes on these people. Seem to be fairly well described in Dall's Alaska & not to have changed much since his time.

Aug. 17. Steaming Southward all day on course well to west of St Matthew Island, with purpose of therefter following nearly along 100 fathom line till nearly abreast St Paul's Island. Weather rather fine but somewhat hazy smothery swell continues all day without apparent cause. Passed through one belt of thick fog in Pm. Fine clear sunset & moonrise.

Aug. 18. North setting wind sprung up during night & blew pretty fresh. Sea right abeam, & about daylight became very rough. Steamer rolling & plunging about in most lively manner, rendering further connected sleep quite impossible. Everything on board rolling about & breaking away. Cabin a scene of confusion & ruin. Got up two or three times & took after things. Impossible to keep anything on shore in galley or on table in saloon & breakfast a very light affair at which Aug Sir George & self attended. Sunday rocket continued all the morning & got most unpleasant character. A sandwich lunch at noon in the hallway holding on with one hand. Sea & wind

decreased in P.m. & able to take a proper dinner. Rain & cold all day with occasional drizzle.

Aug. 19. Searching for St Paul Island all this morning in dense fog. Rather heavy northerly swell still rolling in. Sight the land for a moment before noon & about 1 P.m. come to anchor at the village. Boarded shortly by Col. Murray & Col. Barnes, now in charge here for U.S. Govt, Major Williams having left. Go ashore. Take a couple of reels of film & some of natives for Col. Murray. Then in boat to English Bay near partly wrecked Tolstoi Rookery. Get some photos. of rookery. Back to village & out along Reef Rookery. Back on board, accompanied by the two Colonels who dined with us. Rather fine with some sun this p.m., thickening up & tending to blow toward evening.

Aug. 20. Get off about 7 am this morning, though pretty strong northerly wind blowing, with falling barometer.

Had intended running out 50 or 60 miles eastward, radically from St Paul, before making for Unalaska, but sea too rough ~~that little chance of close observation on seals.~~ Strike out for East point of St George I. very thick & dirty. Made the land at last, — Captain going full speed ahead as usual — very close & found ourselves opposite Starry Arteel Rocks, having been carried to the westward by strong current. Round E. end of island & South. Eastward till dark, then shaped course directly for Unalaska. Heavy rough sea all day, running irregularly in various directions & giving us a good tossing at times. Making such observs. as possible on seals as we proceed, but circumstances unfavorable.

Aug. 21. Rough all night & quite thick this morning. Running in toward Unalaska this forenoon & eventually made the land some miles west of the harbour. After ascertaining our position, turned for the

harbour & came to anchor about 11.30 a.m. Weather clearing as we got in sland & Pleasant & seeing very fine & pleasant. Find Pheasant, Magnesia, Porpoise, Mistigan, Thetis, Alert & Indian in harbour, besides Costa Rica – coal vessel Al-Ki & Ed. Corwin came in after dark – Calls from Capt Cotton, Bartlett, Burr (of Porpoise) Turner, Hadley etc. Astor & call on Mrs Newman. Reading letters & papers of which a considerable number had arrived by the expected mail.

Fine & very picturesque view of the coast & harbour as we came in. The steep bold-outlined green mountains partly wrapped in clouds. Makushin volcano & the high ranges about it deeply covered with snow & in some places evidently holding small irregular glacier masses, more or less crevassed. Makushin is by no means a typical conical volcano, but irregularly rounded & lumpy more with some rather bold spurs & buttresses from about the upper parts, which seem to

evidence considerable denudation. A plume of white steam or smoke burns on the summit, but from one pretty vein rising behind shoulder. Denudation generally about here has not progressed far enough to give rounded forms or light slopes. Hills all sharp edged, jagged & bold, but often covered with herbage nearly to tops. Show cliffs from abreast Wakarkin to harbour, show tangated or slightly inclined bedding. Layers rather too thin & uniform to represent lava flows, rather seem to be sloria or something of the kind entire sub-aerially (or more probably submarine) accumulations.

Aug. 22. At Unalaska. Very rainy & stormy most of day. Sir George & others off fishing. Macoun collecting. Myself did not leave go ashore. Reading, writing &c. Commander Bartlett of Warren & Capt. Burr of Portric on board for dinner.

Aug. 23. Dennis alongside wharf taking in water till late in Am, when steamed out again to outer anchorage. Another quiet day, writing letters, reading etc. Took a couple of photos. ashore in Pm & strolled up to lake behind village. Cloudy & dark most of day, but little rain. Evening dined with Capt. Colton on board his ship the Morrison. Capt Bartlett of Marion & Captains Turner & Burr of Nenaph & Porpoise, Sir George & Mr Trinde composing company.

Vegetation met with in strolling about Unalaska much reminds me of that of the higher foot-hills again East of the Rocky Mountains. Many of the plants appear to be identical or where not exactly the same of closely representative species & with analogous habit of growth. Vegetation here, however, rather more green & luxuriant because of greater dampness of atmosphere. Moerman says that the plants found by him on the higher hills here, though

lot many in species are identical with those to be found in association on the Selkirks – several species not catalogued from elsewhere found also here. This close similarity is quite a remarkable fact.
Carefully scan all the slopes about here for any evidence of old beach lines, but with out success. Seems to have been no notable upward movement of this land since the denudation which has given it shape occurred. The little flat about the town & extending round the lake is based on gravel, covered with black soil & is perhaps 20' above high water mark. Might almost be setting a beach deposit at present storm level, but perhaps may indicate a very slight rise of the land.

Aug 24. Captains Turner, Burr & Hadley on board for breakfast at 8 am. Make final arrangements to rendezvous with Capt. Burr at Alton on Friday next. Get off at-

Doppler

10 A.m. Occasional showers but day generally dry, though overcast with some fog banks. Pass Bogoslov in the evening, but at some distance. See only its rough craggy form against grey cloudy sky with volumes of steam rolling away from one end of it. This volcanic rock has risen from the sea since the Russian occupation, or within about 100 years.

Decidedly rolling very heavily again this evening at times.

Aug. 25. Steaming eastward all day to north of Aleutian Islands. Rather fine, with light winds, but almost constantly overcast & fog-banks generally obscuring the islands, of which in consequence get very imperfect view. In afternoon get somewhat better sight of Siguam Island & ascertain position as well as very imperfect charts admit. Fairly good view of Amlia Island for a short time, showing mountain peaks along it. Hard tried to reach Nazan Bay

Cozian.

Attka Island before dark, but found this impossible & about 7.30 began going dead slow so as not to run in shore during night. Fine & nearly calm this evening with very little rolling.

Aug. 26. Morning fairly clear. Ran in toward Nazan Bay & anchored in a pretty well sheltered, but rather contracted place opposite the village before 8 a.m. Landed & found a white man named Dirke in charge for the Alaska Commercial Co. A trading store & village of natives housed very well in frame houses built by the company, & like the store painted with red ochre. The village is a little crescent of the green foot-hills of the higher mountains, quite concealed till the last turn made into the bottom of the harbour. Had a talk with Dirke & got some information. Then talked with aid of Dirke & Peter with the chief of this community, named Cosian. Visited Cosian's home, which really very clean & comfortable looking, of trouble in

its appointments. Then allowed us to inspect the Church, which though barn like without contained some rather good looking Russian paintings & decorations of the usual Greek church style. Five old Russian bells of various sizes hung on a bridged beam near the door of the church. It seems that a priest comes round here once a year, but that at other times the chief performs such services as may be required. Deike gives us a rather doleful account of the decrease & protracted extinction of the aleuts, saying that in 10 years he believes there will not be a full blooded native left. All the settlements proving existing on the many islands of the Chain were concentrated into a few by the Russians & these have since contracted (besides the eastern settlements) into the two settlements of Atka & Attka. There are now here but 15 hunters or in other words 15 able-bodied males & probably about a dozen families.

Returned on board Dennis & got away before noon for the westward, giving a rather

2

strong head wind, which however gradually died away & became nearly a calm before dark, though with moderately heavy head sea still against us. Unfavorable, because of clouds, but interesting views of mountains along north shore of Atka Island. High volcanic peaks striped & spotted with snow. About Sundown a fine distant view of Great Sitchinsk Island, which is apparently a single great conical volcanic mountain of more than 5000 feet in height. Heavily covered with snow on upper part & draped in changing wreaths of clouds, the whole projected against a flaming in an amber sky.
All the lower hills & slopes of Atka Island covered with the same uniform verdant herbage as Unalaska, which seems characteristic of all islands here. Flora appears to be much the same.
Formation of Atka Island & other more or less imperfectly seen, appears to be entirely volcanic. Islands in Nazan Bay & Cove harbor have a basaltic appearance & more or less columnar structure. Do not know,

known that the rock is lithologically a basalt. The rock on the beach at the village is a greenish porphyrite or diabase? which in places holds a good deal of dissem. iron pyrites, & appears to be considerably altered — possibly because a rather deep-seated product of eruption, subsequently uplifted & denudation. U.S. Chart No. 8. notes the occurrence of lignite & fossil wood in Karovinskoi bay on the opposite (west) side of this island.

In small brooks which have cut a little ravine near the village note a considerable depth of earthy material overlying rocks & forming soil etc. Similar on other islands on lower slopes & flats. When shown here, this material exhibits a certain amount of stratification which follows the slope of the ground. Is brownish or reddish-brown in colour & probably represents volcanic detritus either deposited about beds when land partly submerged, or were probably washed down when in incoherent & fresh state, from higher parts of slopes. Rather

remarkable to find so considerable an accumulation of incoherent material on these islands. No sign of floeberg or glacial origin of deposits.

Seen the slopes & hills about Nazan Bay for terraces, but cannot make out any distinct beach lines. Round base of mountain jutting point to west of entrance of bay, however, think I make out seven — three or more — indistinctly preserved terrace levels, as though formed in soft materials like those above described & subsequently much obliterated by denudation which would very quickly act on such softly matter. These traces reach to a height of perhaps about 1000 feet above present sea level, but being so indistinct & so much blurred do not feel any certainty in accounting for them by change of level in land.

Rocks at village show small veins of dirty quartz, rather abundant & some large loose masses of quartz lying on beach, which have evidently not travelled far.

Aug. 27. Steaming westward all day a West by time in fog. Cleared in the afternoon partially, but by the various islands passed saw only Semisopochnoi & Island of Seven ~~Sub~~ Mountains & that imperfectly. Rather cold, with some head wind all day. Crossed the 180° the meridian this evening & should therefore by rights move on tomorrow to Aug. 29. Shall however keep seven dates till we cross meridian on return, to avoid confusion.

Aug. 28. On westward. Had a good view of Bouldyr Island this morning. Leaving Bouldyr Island course shaped to south of Segenstern Rocks & then northward round East end of Semitchi Islands, apparently through some mistake. Clear evening & had good distant views of Agalon & Atton, but darkness set in before we could approach harbour in Atton. Had to slow down & stand off land to northward, waiting daylight.

Boulder Island is high at the Eastern end, which has apparently been the centre of volcanic eruption. Sheets of some kind — probably superposed flows, dip westward from this high part of island, at first at rather high angles but gradually flattening out to horizontal about west end of Island. Island now of course only a remnant of a formerly symmetrical volcanic accumulation. High reddish scarps & cliffs near East end on N. Side. Lower to westward. A couple of large & some small high rocks off the west extreme of island.

Semitchi Islands are low, & nearly connected by rocks & reefs. Highest hills about W. end of western Island. Low cliffs along north shores of islands, with green grassy surface sloping gradually down to southward. Cannot form any distinct opinion as to geological conditions, but very probably volcanic flows or part of a plateau of such composition.

Aug. 29. Got into Chichagoff Harbour, Atka Island & anchored about 8 a.m. Landed & interviewed native agent of Alaska Commercial Co & other natives here. Took a couple of photos. While Sir George & others went for stroll I went out in boat to outer island off harbour & had a look at the rocks there. 'Porpoise' came in about this time, but anchored in entrance of harbour. After lunch again ashore. Evening, dined on board Porpoise with Capt. Burr & some of his officers. Had arranged to leave at midnight in company with 'Porpoise' for Commander Islands, but really 1 a.m. before we got off. Some little trouble with Capt Myers who at first declined to put off. Sir George having an explanation with him. Generally very unsatisfactory arrangements on this ship in consequence of short handedness & the want of a separate boats crew which could be called for at any time without keeping the bosuns etc always at work.

discipline & [illegible]
[illegible]

This village on Atka is the westernmost in any way attaching to the American Continent & certainly the furthest west place running any jurisdiction of the United States. A half dozen little frame houses painted red, & similar to those at Atka constitute the village, store & all. These houses have replaced the old Barabaras. The Church is here a humble straw-thatched affair & very small, but clean & creditable to the people. We had it opened & looked at the pictures & ornaments which were less interesting & under those at Atka. Two very good little bells, brown, outside the church, under a shed. These evidently made of different metals from those seen at Atka. Were mostly lost, & with an illegible Russian name on each. There are now about forty people in all in this Aleutian Aleut. The Aleuts are dying out & the sea-otter — their great source of wealth has likewise almost vanished. The A.C.Co say that the trade here now

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longer days. The natives say, however, that there is plenty of fish & food of one kind or another to be had. They look remarkably clean & well off so far as clothing does goes.

Geology. Bottom of Chichagoff Harbour, at East end of Sand beach. Hard grey rocks, apparently altered volcanic, but with some layers well bedded. D. N 65° W ∠ 45°. At W. end of Sand beach, on opposite side of harbour similar with similar dips. At other island at mouth of harbour, rocks very distinctly & regularly stratified as seen from a distance. Prove to consist of similar altered volcanic materials, greenish & purplish & grey. Thus held fine & regularly strat. beds of pebbles & blackish probably hard argillite. Could see no traces of fossils. D. N 30° E ∠ 40°. These rocks as a whole remind those closely of Triassic on coast of B.C. Now then anything else. Cannot of course be sure that Modern or Tertiary volcanic

Smeltzer
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materials might not present some altered appearance. Resemble the rock found on landing at Attka & also some of those of St. Matthew, but bear no likeness to unaltered volcanic materials. Seems probable that some older rocks go toward the composition of these Aleutian Islands.

About harbour, pretty well worked old sea cliffs behind gravelly flats, such as to indicate a rise of 20 to 30 feet since their formation. Also esto on slope of hill to west side of harbour several faintly impressed lines which appear to be of nature of incipient terraces. These run up to a height of about 300 feet above present sea level. Appear to indicate a rather rapid rise, with occasional brief stages of rest.

This relation of the Aleutian Islands though separated by wide enough straits from the limits of the Eastward, must be regarded as forming a spur or projection of the North American Continental

Plateau, separated from Asia by the deep-water basin of the North Pacific. The submerged plateau of Eastern portion Behring sea, forms a web between this spur & the continent, on which the Pribylov, St Matthew & other islands stand. This web, known, recedes to & coincides with the arctic continental plateau of the north by Behring Strait.

On Beaches about this harbour, the gravel consists of grey & purplish grey altered volcanic rocks (porphyrites?) like those collected from exposures. See no modern looking volcanic material. Considerable number of grey granitoid fragments resembling rocks seen at Cape Upright, St Matthew I., & probably occurring near here.

Aug. 30. Steaming westward, bound for Behring Island, all day. Head wind, but not very strong. 'Porpoise' in sight, following parallel a few miles to the northward & apparently gradually

diverging in that direction. She signalled lat. 54 long. 167 W. A schooner sighted at about 5 a.m. which immediately clapped on all sail & disappeared, evidently a sealer & afraid of seizure.

Aug. 31. Lost sight of 'Porpoise' during the night, & on sighting South point of Behring Island, found ourselves considerably to the southward of course. Rather strong S.W. wind this morning with heavy sea, rendering it evident that the Nikolski anchorage on west side of island would not serve. Thus according to arrangement with 'Porpoise' steamed up along East Coast of Island & anchored about 4 P.m. in Starey a anchorage, with an off shore wind, which is changing to the southward. Landed in the evening in a boat from 'Porpoise' with Capt. Burr & looked round. A few small log & drift-wood houses or Barrabaras of the usual construction, completely covered & surrounded with long grass & weeds. They have evidently been occupied

scarcely if at all this season. Capt. Burr came back on board with us & took dinner. Evening changed slides in Camera.

Island partially obscured by fog as we steamed along it, but evidently high rounded hills in interior which held white a few patches of snow. Shore generally bordered by cliffs or steep scarped banks, between which rather steep sided valleys each with a little cove & beach at its mouth.

On East side of Cape Nunaati (southern pt. of island) & for some miles northward. Regularly stratified rocks in rather thin layers dipping uniformly northward at ∠ 150 or thereabout. Pale brownish colours.

At Solitai Point & for some miles to north poles cream-coloured or fawn-coloured rocks, dipping inland at low angles. Rocks evidently crumbling & incoherent in character & long talus slopes of fawn-coloured debris reaching down from bluffs toward shore.

Continuing northward to Starey a anchorage

Rocks similar so far as could be seen from a distance, but cliffs not so bold & banks facing sea though often scarped not so steep.
On landing find slopes of hills covered with angular fragments of rocks hard & often quite fine-grained white, yellowish & grey argillites of tertiary appearance, with sandstone & impure fine-grained grey limestone - apparently argillaceous.
Rocks well bedded but breaking easily across the bedding. Small carbonaceous & plant fragments on some surfaces, but found none determinable or recognisable.
No solid outcrops about landing place.
Higher parts of banks & hills resemble sand from a distance & are only partially covered with vegetation, but prove to be composed of angular rock fragments of kind above noted. Stones on beach rocks of same kind almost entirely.
The appearance is that all this side of the island thus far at least is composed

of moderately indurated Tertiary sedimentary materials – well bedded & regular, & in very considerable or great thickness. While probable that some basaltic or volcanic rocks occur with these such not distinctly recognised in place.
Saw no transported boulders. The soil on lower slopes of hills & plateau about distance above sea-level probably fine earthy material.

September 1. Got under way about 5 a.m. with Porpoise, & cruised round north end of island. Then down along west coast. Very foggy most of time. Made Sea-lion island off Nikolski anchorage & crept into anchorage about 11 a.m. Found a vessel belonging to fur company named "Alexander" & flying Russian colours in anchorage. Caught sight of degrees of houses, church etc & found ourselves, when the fog lifted a little, opposite a rather neat looking little village

of fawn bones. Just long after landing, a boat came up to 'Porpoise' then to 'Daunt' with Captain of 'Porpoise' following. Boat contained Governor or agent in charge Guilands

Nicolai Erebnitzky

Thos. Morgan. Agent Russian Fur Seal Co.

John Malonwansky. Agent Hutchinson Kohl & Co. late lessees. (Branch of A.C.G).

Capt. Erember of steamer Alexander or Alexandrovski II.

Had some conversation with these gentlemen, who proved very affable & seemed willing to tell us anything or assist us in any way in their power. Kept them for lunch on board & then landed in company with Capt. Bare & in his boat. To Government office & spent some time there taking down information, particularly from Erebnitzky who is something of a naturalist & collector, very intelligent & observant. Is a tall well built man of middle age & very pleasing appearance & address, clad in an official uniform, with a sword & when in state attended by two or three men in uniform —

generally described as 'Cossacks'. Warfan & Velamowanski look & be in most respects Americans, though I believe both are supposed to be Russians of nationality. The former or administrator speaks English very fairly & both the others mentioned spoke both Russian & English well.
After obtaining what information we could by questions, adjourned to Company's Offices & had some tea in tumblers, in Russian style. Then looked into Church, where an Elaborate ceremony in progress – the benediction of this new church. The Arch Priest from Petropolovski has come down on the steamer Alexander for the purpose. Gregorian or similar singing by natives & chanting by the priests but badly executed. The new church very clean & neat, & a considerable attendance of natives of both sexes & all ages. Getting rather tired of the service, went out & looked through Company's store & examined skins in Govt. store which had been seized from U.S. schooner 'J.H. Lewis' Back on board about

7 Rm. Porfirio has been talking out in boat from 'Dante' all Rm. Captain of Dante rather tipsy & officially working all the officials he can about the landing so at least giving us little assistance as possible.
The 'natives' here, flaxen aliens, seem comfortable & wonderfully well off. Possess no less than about 800 or 900 dogs, large rough wooden cars went by them. These they use for hauling sledges which constitute the only means of locomotion between one part & another of the islands, except walking. The sledges, running through, are not only used in winter but at all seasons. Saw one such sledge coming in from Northern Yorkery with woman, man & couple of children on it, on way to attend the consecration service. Thirteen dogs harnessed, one in front as leader & a dozen in pairs behind. Well trained & answering quickly to word of command, turning to right or left. The sledge drawn along a narrow track or trail of earth, worn hard of

grass by wear. Also with facility can the sled in any direction. Friction must be very great, however, in such a mode of locomotion which is scarcely mode.
The dogs when not in service are picketed out in lines behind the village at such distances apart that they cannot reach each other. When some occasion arises they unite in setting up a shocking yelping & barking. They are fed for the most part on seal meat salted fish, at killing season or at other times Salted.

Sept. 2. In some doubt what to do this morning, whether to go round to North Rookery of Behring Island in steamer & afterwards set out for Copper Island, or go overland to Rookery on sledges. Day overcast dark & foggy. Decided that to carry out first plan would ~~take~~ necessitate start at noon. Went on board 'Porpoise' & talked matters over with Capt Barr, then ashore. Found there that many facts useful in evidence still to be obtained & owing to church ceremonies difficulty in getting this done.

Decided eventually to devote balance of day to getting whatever fossils there & leave at 5 Am in company with 'Porpoise' for Copper Island. Had further interviews with the gentlemen seen yesterday, particularly with Grebnitzky, also with the chief of the aleut people here. Mr Grebnitzky provided us with an extemporaneous lunch in his office with native & Russian preparations of various kinds salt & smoked salmon in thin slices. Rye bread, or biscuits, Californian wine. A very well flavored & rather tart wool blue-berry brought by steamers from Kamtschatka & many other things, going to the product & quite an unnecessary degree of trouble in entertaining us. Answers topics as anything he has, including a collection of plants which has in process. The plants I did not particularly want to take, but could not refuse. Gave us also some Rhytina bones & a couple of fur-seal skeletons.
About 4 Am went on board 'Porpoise' with Mr Grebnitzky & others from the store, then on board 'Dawnle' & got under way

for Copper Island at 5 Pm – Sailing in company with 'Pafosie' & becoming thick weather close to her.

Barometer falling ever since we reached Nikolski & weather continuing foggy & drizzly. Rather strong southerly gale last night, for which, however, the anchorage afforded shelter. Wind more moderate today but still southerly & conditions dubious or unfavourable.

Geol. The point south of anchorage at Nikolski is composed of dark grey basaltic (?) rocks. Homogeneous in texture & not apparently columnar. Curiously blebbed with red chalcedony, which fills cavities. Form low reefs off the shore & low cliffs behind the flat ground above the beach. Connection of these rocks (i.e. whether below, above, or intrusive in the Tertiary rocks previously noted, not apparent, but evidently much basaltic material on the island from composition of stony beaches.

Mr Grabowitsky says that Tertiary fossil shells occur in places on the island. Has sent some of these to the

20' were as before.

Russian Academy of Sciences at St Petersburgh in whose publications they have been described by Schmidt as Miocene (?). Some coal or lignite, but inconsiderable quantity, found both on Behring & Copper Islands. A few fossil leaves sent as above by Erebustzky but not described so far as he knows. Equisetum the most abundant form. (See note in Elliott. foot note p. 112)

Have seen so far no distinct terracing on Behring Island, except a low flat 20 or 30 feet above high water, which evidently indicates a rise of about that amount, as there is still a lower flat just above the beach which may be accounted for by accumulation of storm wash under present conditions or nearly so.

Sept. 3. Made Copper Island about daylight & steamed down along West Shore. Bold & mountainous with high sea-cliffs at points, but inaccessibly seen, with great masses of fog or mist banked on the

highlands & pouring down to seaward on this lee side. Came to anchor at Glynka, as known here, Petchauni on Chart, the southern of the three settlements. Went ashore & found one Cossack with a couple of dirty-uniformed native watchmen & a gang of non-uniformed men & boys. Expected from what we had been told at Nikolski to find Tillman, the post. agent or deputy here, but informed that he & the agent of the Fur Company were at the northern settlement, Preobajenski. Asked if we might walk across island & inspect working, but Cossack said his orders did not allow him to give us this permission.. He was of course perfectly right, but all the same the matter rather provoking. Remonstrated & explained matters to Capt. Burr. Then in company with "Porpoise" steamed back to northern settlement, 17 miles, Island still hidden in mist about higher lands everywhere & strong south westerly or off-shore wind blowing. Reached our anchorage at northern settlement

about 3 P.m. Had a visit from Mr Zillwanow, in uniform, as Mr Erebnitzky's deputy, & from Mr. Kluge representing the fur company. Had a talk with them on board, selling some factory interest. Went ashore & returned their call & had more further conversation in evening.

There is here a little inner harbour on the shore upon which the houses of the settlement are built, but has shallow & contracted for a vessel of any size. Anchored just outside this inner harbour to the north & below a bold broken cliff tenanted by thousands of sea birds. The village composed of the ordinary sea-faring frame houses & a more fancy painted Church. Neat enough, but at present almost deserted, this being the permanent or winter village. During the summer season all the people are at Ekpuka or the middle settlement engaged in sealing. They are now about to return to this winter village.

This evening strong wind still blowing off

shore, but going round more to the westward. Anchorage is very rough as long as wind holds in this direction. Appears to be clearing now, though barometer has been falling for three days & is now very low.

Copper, from which this island takes its name, is found at the north-west point. Mr Tillmann gave me a number of specimens of the copper, evidently picked up on the beach. Some well rounded small nuggets, others rough & common or in thin rough plates. All evidently derived from the wreck of some of the volcanic rocks about here.

September 4. Capt Burr came on board last night, according to arrangement, & two of his officers, also Mr Tillmann agent of Russian Fort & Mr Clugg agent of Fur Company between 4 & 5 this morning. Got off at 5 am, having Profris at anchor, & steamed down to Glynka Settlement, at Southern anchorage, where we had been yesterday, — 17 miles —. Landed at about 8 am. & with a little crowd of natives accompanying

carrying cameras etc etc, proceeded to cross the island to visit the rookeries on S.W. coast. The settlement lies in a little corner between steep grassy & rocky hills, which we immediately began to climb, following a sort of track, nearly coincident with the route followed in driving seals across island to killing pound at settlement. Ascended about 1000 feet, or possibly not more than 800 feet, getting up into fog which hung permanently over the higher parts of the island. Then descended several hundred feet to South-westward, reaching a point on edge of cliffs from which fine view along the coast in both directions. I remained on this point for some time endeavouring to get photographs showing position & character of rookery found here. Sir Ernest & others descended to the beach itself. Atmospheric conditions for photography very poor. On return of party from beach, took lunch, & afterwards distributed what was left among natives. Returned to settlement & got on board again, having a pretty heavy surf to launch out through. Got under way &

back to earlier anchorages on Pribylovsky. Packed from agents & about 6 Pm set off with Porpoise to westward, intending to steam slowly on through night & visit northern rookery on Behring Island in early morning. Rather strong south-westerly or westerly wind all day, which fortunately eff shore. Fog hung heavily on hills & in evening, when clear to seaward, very remarkable effects of fog hanging on the hills & falling over them like water, but disappearing when it got down a certain distance. Evidently due to the lifting up of the high land of a superstratified layer of air which elsewhere rests on the surface of the sea. assured that this condition usual here when south-westerly wind blows. On getting out from behind lee of island begins the old rolling game, though at this time in a very aggravated form. The Aleuts or natives in these islands were chiefly brought by the Russians from Atton Attka & other western islands, & Geler says that the dialect they speak resembles that of Atton & differs like it slightly from that spoken at Unalaska.

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Disposition & character of those inhabiting Behring & Copper Islands have already differentiated somewhat. Assumed that both are lazy & have 'very little ambition'. Not perturbed by ordinary circumstances nor even by the scarcity or abundance of seals, the killing of which affords their livelihood. The Copper Island people, however, if possible still more lazy than those of Behring Island, but at the same time more honest. All pleasant, peaceable biddable people & much more polite than those of Pribylov Islands & under better control. Even the little children take off their caps & look a bashful salute to one passing. Heard today, that after our landing yesterday at Glynka a messenger came all the way overland to the Bastkin anchorage to report the facts, arriving there the same evening. Also that the unexampled circumstances of what the people took for two men-of-war coming in, led them to believe that war must have broken out between Russia & some foreign power - they could not exactly make out what power! The system of reporting vessels etc seen seems

strict & efficient so far as means of communication exists, for it also appears that we were sighted when rounding the North head of Behring Island in the first instance & had been reported by messages from Petropavlovsk, at Nikolski, before we got in there; the messages coming on a dog sledge.

Geol. Copper Island appears to be almost entirely composed of volcanic rocks. Imperfect views of shapes of crests & summits owing to continued fog on shore, but no reason to suppose that any preserved craters. Hills & valleys have been impressed by denudation. Slopes generally steep & sometimes rocky crested but usually more or less grass covered. The coast on both sides characterized by sea cliffs. General resemblance in appearance to St Matthew's, but higher, & often bolder cliffs & no flat stretches of low land. No appearance of recent volcanic action or products.

Rocks about Ekopuka appear to have south-westerly dip, & here & in crossing island to South West side appear to be chiefly porphyrites (?) grey & brownish. Some warmer

beds of coarse agglomerate, but much trappean ~~[illegible]~~ material of same porphyritic appearance. When we first reached the steeper slopes of S.W. side of island on both occasions, found a bed of 10 or 20 feet in thickness of rather soft felspathic sandstone, or ash, yellowish grey, holding silicified & lignitized fragments & trunks of trees, which had been referred to by Tillmann as Coal. The felspathic material has in some instances filled hollows in the rotten wood. Below this is a bed 10 or more feet in thickness of coarse agglomerate with well rounded stones. These broken appeared like of similar grey porphyrite to that overlying the sedimentary intercalation. Appearance that the whole intercalation due to temporary beach conditions during a period of volcanic activity. Similar lignitized trunks in agglomerate. Dips here South Southward 215°?

In valley behind Elgutka village, on N.E. slope of island pretty definite appearance of terracing at several levels, but faintly impressed & apparently somewhat blurred by

denudation since. The highest eminences at 600 to 700 feet above present sea level. Could trace no repetition of this on opposite side of island.

At Preobrajenskiy Anchorage the rocks are again of porphyritic appearance & generally greenish & purplish colours. Had little time to look about here & got no specimens. Rocks in cliffs to N. of Village not examined, but are regularly stratified & dips in a south-westerly direction at ∠ about 40°. Are probably strat. Volcanic materials.

Sept. 5. Anchored opposite Salt-house & village at North Rookery, Behring Island between 8 & 9 a.m. Went ashore in boat from 'Porpoise' at 9 a.m. Wind off shore, pretty strong. No heavy surf running. Cossack & Natives came down on the rocks & by waving us directed us into a narrow sheltered boat landing among the reefs. Inspected the North Rookery, which is extensive & well covered with seals, from the low bluffs along shore, & took a couple of photos, under neither

unfavourable conditions of weather. Towards an one Sunday pursuit Sir George with a letter from his Excellency to say that he had authorized the killing of an old bull, a female & a pup for the British Museum. Natives dug up a dozen or more seals & proceeded to kill them immediately. The old bull barbarously slain with a bayonet tied on the end of a pole in order not to damage the skull. Stayed by while the seals skinned & salted. Two females actually killed instead of one, by accident. Got under way at noon, proceeding to the westward, 'Porpoise' steering for Cape Ishifunski, 'Daunte' for Cape Kronotski, with arrangement that we should meet former place tomorrow evening, before going on to Petropolovski. A swell from the South-westward, but wind light. 'Daunte' wallowing along in rather uncomfortable fashion.

Geol. The northern half of Behring island is low & much of it is described as being tundra country. The southern part, as already

Ustud, is rather high & hilly. Rocks forming side low cliffs about harsh Rocky consist largely of reddish & black coarse glassy stones but also some massive looking rocks which probably represent molten material which has not been broken up. Porphyrites?. Dips observed in one place S 10° W ∠ 70°, but seems rather irregular. Uncertain in fact whether above dips not the inclination of some dyke material. No trace observed of ordinary sedimentary material like that composing country about Skareya anchorage.

Sept. 6. A bright beautiful morning & coming on deck found ourselves, through pass off Kamchatka land, in full view of Ucinsk Kronotski, Jeporunski & other lofty volcanic peaks, with rugged mountainous land connecting them. Some of the higher mountains are very symmetrically conical, regularly striped with snow for a large part of their height, standing or rising in blue grey against a clear & beautiful sky, altogether different from anything

Prof. etc.

be less experienced lately. No signs of activity about any of the mountain peaks. Steamed southward along the coast, but at a considerable distance till we rounded Cape Japanski or Istipanski & sighted the porpoise at anchor in the mouth of Petchiburska Bay. Heavy calm, but a very small sailing in from the South-eastward. Found that Capt Nurs had gone ashore. Party from Dawn pulled in boat, but I stayed on board, having a lot of writing to do. Call from Capt Nurs in the evening. Changed Kodak roll & plates in Carp Camera ready for Petrofpaulovski &c. A perfect day as to weather. Beautiful lurid sunset without clouds enough to make much colour besides the purples of the distant mountains. Crescent moon following the sun down & dull roar of the heavy surf on the shore in the distance. Saw a grey sea-lion in water near vessel this evening.

Sept. 7, Another magnificent day. Got under way about 4 a.m. & followed by Porpoise steamed off for Avacha Bay. Splendid views of the entrance to this most picturesque bay & the high volcanic peaks in its vicinity. Slowed down off the harbour of Petropaulowski to allow 'Porpoise' to get ahead, which she did & anchored off entrance to harbour. Russian gunboat 'Alert' lying at Cooling wharf cut off boat & boat from town on shore. Explanations & Cooler explanations. 'Dawk' steamer in to inner harbour. 'Porpoise' saluted Russian flag with 21 guns & later the salute returned. Calls from the "Governor" a.d.c. Mr Sindquist in charge for trading Co & to whom we had letters. Eventually got ashore & paid a visit to the "Governor" or 'Isprawnik' Mr Peter Prokopetch Kornickoff, who received us in state & at last in full uniform & conversed for some time by aid of Sindquist as interpreter. He seemed rather suspicious of us at first, but we

apparently managed in the end to explain matters to his satisfaction. His official assistance was barely sufficient to look in twice. The official himself was in Petropavlovsk & rather rough diamond, though with a veneer of French manners, a very wealthy fellow & fond of French boots & spurs. He introduced us to a rough looking uniformed 'Cossack' who was in command of the Cossacks during the bombardment at Petro. in 1854. Got down a little information of various kinds bearing on local question from the Governor & from his Aide-de-Camp who was in despatch-mode in helping us in every way in his power. Much time today & yesterday spent in waiting for one thing or another & selling through the official calls. The 'Porpoise' fired a salute for us when we first started for the shore & the Admiral followed suit. Dined at 7 P.M. with Capt. Burn on the 'Porpoise' & then attended a dramatic entertainment

by the crew of the 'Pearl' which very creditable indeed. Got back on board 'Danube' late & tired.

Petropaulowski is remarkably pretty in situation & looks well from a distance, but on closer inspection found to be ruinous & run down. All the old earthworks have been destroyed & are represented only by heaps & mounds. The hills are partially tree clad, chiefly with birches & very pleasing after the monotonous treeless hills of the Aleutian & other islands. Potatoes & other vegetables grow, but are little cultivated. Cattle are kept in some numbers & also small rough horses which are used for packing & riding. Dogs are chiefly employed in winter & are now to be found everywhere, picketed out in gangs. Rough prick-eared curs not unlike Esquimo dogs but of varied colours. Petro. is not a port of entry. Customs duties are collected on a few articles, such as tobacco, spirits &c.

Such articles are accordingly bought from Russia, while many others come from San Francisco. Searching my way in and out Russian & between the U.S. money, Mexican dollars & occasional Japanese coins, with the difference between paper roubles & roubles gold, the reckoning is sufficiently complicated.