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Notebook No. 1.

1880.

W. H. Dall, Actg. Asst. U.S. C. & G. Survey  
In charge Sch. Yukon.

Thursday May 13, 1880

San Francisco, Cal. Weigh anchor at 2 P.M. of this day and at 2.30 begin the voyage to Sitka Alaska Terr., beating down the Bay and out to sea. Weather fine and a fresh N.W. breeze. At 5.30 P.M. cross the bar and at 8 P.M. Farallone Light bears W.N.W. 8 miles from which departure is taken and meteorological observations begun.

Time	Bar.	Ther.	Water	Wind
9 P.M.	30.08	56°	51°	NW.
12 "	30.08	57	50	NW.

Friday May 14th

4 A.M.	30.10	50	54	NW
8 "	.15	53	54	"
12 M	.15	53	54	"
4 P.M.	.09	53	55	"
8 "	.09	57	53	"
12 "	.10	57	53	W.N.W.

A.M. Wind moderating, some sea on, cloudy. P.M. nearly clear. all sail set, Later Wind died out.

## Saturday, May 15th/80

Time	Bar	air	water	Wind
4 A.M.	30.11	52°	53°	NW by W
8 "	.09	50	54	NW
12 M	.08	55	56	Calm
4 P.M.	.09	53	57	"
8 "	.09	57	54	NW
12 "	.09	50	53	NW by N.

Nearly clear all day with baffling airs or calms.

## Sunday May 16th

Time	Bar	air	water	Wind
4 A.M.	30.09	57°	54°	NW by W.
8 "	.11	53	55	NW.
12 M	.19	56	56	"
4 P.M.	.19	64	62	WNW.
8 "	.20	56	57	N
12 "	.24	52	55	"

This day nearly all clear & calm making but little headway.

## Monday May 17th

Time	Bar	air	water	Wind
4 A.M.	30.24	53	56	N.
8 "	.30	60	56	NNE.
12 M	.30	60	57	SE
4 P.M.	.28	60	62	"
8 "	.28	57	55	S
12 "	.25	57	56	SSW

Nearly calm overcast & mild. P.M. breeze up from S.E. Even moonlight. Saw large 4 masted steamer 4 miles S. Probably China str. bound for San Francisco.

## Tuesday May 18th 1880

Time	Bar.	air	water	Wind.
4 A.M.	30.20	56	56	SSW
8 "	.23	55	59	SW
12 M	.23	54	56	"
4 P.M.	.20	66	55	"
8 "	.20	58	56	"
12 "	.20	53	53	W. SW.

Early A.M. drizzling rain, remainder of day cloudy & thick with fresh breeze making about 7 knots. Have made about 6° westing and no northing.

## Wednesday May 19th

Time	Bar.	air	water	Wind.
4 A.M.	30.20	53	54	SW
8 "	.14	61	54	S
12 M.	.10	60	53	"
4 P.M.	30.00	57	53	"
8 "	.02	57	51	W
12 "	.11	49	50	"

A.M. Thick fog, barometer falling. P.M. Breezing up, took in light sail and reefed mainsail. A sail seen to eastward, a dozen gories, (Diomedea nigripes) follow us or settle under the stern in calm weather. Several hauled on board with baited hook and line. One skin preserved. One nearly white gory seen in the distance. Common petrel numerous.



Thursday, May 20, 1880

Time	Bar.	Air	Water	Wind
4 A.M.	30.14	49°	50°	W
8 "	.20	50	52	WSW
12 M.	.26	56	57	"
4 P.M.	.20	57	57	SW.
8 "	.24	50	50	"
12 "	.28	49	49	"

Day clear, all sail set, good breeze but some sea.

Friday May 21st

Time	Bar.	Air	Water	Wind
4 A.M.	30.19	49	50	S
8 "	.15	49	49	"
12 M.	.02	49	49	"
4 P.M.	29.76	50	48	"
8 "	.62	49	47	"
12 "	.60	46	46	"

Cloudy, turning into smart rain. Noon, all light sails in & mainsail reefed. Strong S. gale & heavy sea. P.M. under double reefs, vessel pitching considerably and taking much water aboard.

Saturday May 22nd

Time	Bar.	Air	Water	Wind
4 A.M.	29.52	46	47	S.
8 "	.61	44	47	W.
12 M.	.74	49	46	W. by S.
4 P.M.	.86	44	46	W. by N.
8 "	.90	44	45	"
12 "	30.00	43	44	"

At 4 A.M. wind hauling to W. and gale increasing lay to under reefed foresail. Later set double reefed mainsail and jib. P.M. partly clear weather cold. Gale continues the scho. laboring in a heavy sea, washing the decks, makes 3 kn.

Sunday May 23/80

Time	Barom.	Air	Water	Wind
4 A.M.	30.10	43	44	W by N
8 "	.18	46	46	"
12 M.	.24	49	46	"
4 P.M.	.28	49	46	W
8 "	.28	45	46	"
12 "	.28	44	45	"

Dry, half clear, and cold, with heavy swell from the westward & strong gale blowing. Evening cloudy & damp, wind & sea moderating.

Monday May 24th

Time	Bar.	Air	Water	Wind
4 A.M.	30.29	44	45	SW.
8 "	.30	44	46	SE.
12 M.	.34	47	46	"
4 P.M.	.30	44	46	ESE.
8 "	.30	46	46	"
12 "	.26	46	46	"

Overcast ending in cold drizzly rain. Heavy swell on. P.M. reduced sail and ran under foresail.

Tuesday, May 25th 1880

Time.	Barom.	air.	water.	Wind.
4 A.M.	30.25	46°	46°	S
8 "	.32	47	45	"
12 M.	.38	50	45	W.S.W.
4 P.M.	.34	49	47	S.E.
8 "	.40	48	47	"
12 "	.39	48	48	"

A.M. Thick and moderating, all sail set, P.M. all calm with heavy S.W. swell. Vessel rolling badly and slatting, took in all sail. Many fur seal seen around the vessel. Very few floating invertebrates noticed on this voyage which on former occasions we found abundant.

Wednesday May 26th

Time.	Barom.	air.	water.	Wind.
4 A.M.	30.80	46	45	NE
8 "	.20	45	45	SE
12 M.	.12	48	46	S
4 P.M.	29.86	43	46	S.S.W.
8 "	30.08	43	43	"
12 "	.08	43	43	W.

A.M. Breezing with rain squalls. P.M. Wind increasing, reduced sail. Heavy sea on but making good time.

Thursday May 27, 1880

Time.	Barom.	air.	water.	Wind.
4 A.M.	30.25	43	44	W. by S.
8 "	.23	43	45	"
12 M.	.23	46	45	"
4 P.M.	.26	46	44	W.
8 "	.28	43	44	"
12 "	.30	42	44	"

Nearly clear all day. Strong gales and heavy sea from W. moderating in P.M. Rain squalls at night.

Friday May 28th

Time.	Barom.	air.	water.	Wind.
4 A.M.	30.30	42	44	N.W. by N.
8 "	.35	43	44	"
12 M.	.38	48	46	N.N.W.
6 P.M.	.38	47	47	"

At sunrise clearing up a little, land discovered to the NE. supposed to be Baranoff Id. from C. Ommaney. Thickened up again. Steady breeze from NW. with some sea on. All sail set. At 2.15 P.M. Cape Edgcumbe bore NW. by N. about 7 miles. Cape Otmeloi N 1/2 E. 7 miles W. end St. Lazarica Id. N by W 1/2 W. 4 miles. Mt. Edgcumbe obscured to its base by clouds. Passed 2 miles S.E. from Vitskari Rocks through middle channel of Sitka Bay west of Polwnoi and anchored in the eastern anchorage of Sitka harbor at 4.45 P.M. having been fifteen days on



the voyage from San Francisco. Found the U.S.S. Jamestown stationed in the western anchorage.

The past season is reported to have been very severe throughout this Territory and much snow still remains on the tops and sides of mountains. Commander Beardslee of the Jamestown and several residents of Sitka came onboard. Evening calm with light rain.

Saturday, May 29/80

Time	Barom.	Therm.	Water	Wind
6 A.M.	30.32	43	44	S.
12 M.	30.39	57	48	SW.
6 P.M.	30.30	57	48	S.

Light wind and delightful weather, warm during day and cool at night. Similar weather is said to have been experienced during the last two months, but last winter is reported to have been unprecedented here in severity. The thermometer (rarely falling below zero) on several occasions reached  $10^{\circ}$  below; snow (seldom exceeding three to six inches in depth at one time and soon disappearing) covered the Parade Ground three feet deep.

Mr. Wm. H. Dall not having arrived from San Francisco by steamer via Portland Oregon, & the inland passages and Mr. Marcus Baker being absent, field work at this place is interrupted.

Mr. Baker having preceded the party, coming by the above mentioned route, arrived at Sitka on the 11<sup>th</sup> inst. and carried on field work until the 20<sup>th</sup> when he availed himself of a fortunate opportunity to visit the Chilkat country in the interest of the Coast Survey, taking instruments &c with him. By request of miners, sojourning at this place during the winter, Commander Beardslee of the U.S.S. Jamestown dispatched a launch with four officers and seventeen men to the Chilkat River via Lynn Canal for the purpose of conciliating the Indians of that region. More than 20 miners accompanied the launch party intending to prospect the country, a portion to go as far as the headwaters of the river Yukon and others to Copper River. Sitka shows evidences of increasing prosperity owing in part to the miners who make this a wintering place. Several

~~Stores~~ small restaurants etc, have been added since our visit in 1874. A mission church & school ~~have been~~ <sup>are</sup> flourishing while the attendance at the Russian Greek church is small. Much attention is now paid to vegetable gardening and with great success. Potatoes, cabbages, cauliflowers turnips & radishes are confidently asserted to attain a size and quality equal to any imported by steamer. Peas, lettuce, pie plant &c are also raised. The Indians plant patches of ground with seed potatoes <sup>on</sup> and the adjacent islands, and leaving them to nature in due time reap an abundant harvest. This subject, the products resources and advantages of this territory of Alaska <sup>enlarged upon</sup> might be presented in a manner convincing to all except those who "convinced against their will" remain of the same opinion still. The population of Sitka as appears by the census taken in April of this year by order of Commander Beardslee was

Indians, of whom two hundred were men and comprised within two principle families or tribes with some scattering

500

Whites, of whom nearly one quarter were United States citizens, over one quarter naturalized and the remainder citizens under the treaty

453

The above figures are considerably reduced by the summer exodus of the mining element and of the Indians to pursue their annual hunting and fishing along the coast.

In the morning Col. M. D. Ball Collector of Customs came on board.

Sunday May 30th/80

Time.	Barom.	Air	Water	Wind
6 A.M.	30.20	45	47	Calm
12 M.	.14	48	48	NE
6 P.M.	.10	57	49	"

A.M. overcast, P.M. some rain. The commander and other officers of the Jamestown come on board.

Monday May 31st

Time.	Barom.	Air	Water	Wind
6 A.M.	30.08	48	48	Calm
12 M.	29.86	50	49	E
6 P.M.	.64	49	48	"

A.M. cloudy & cool. P.M. rain at times. The boats are put in order for their respective uses. The small trading steamer



Favorite, Capt. Keen, of Portland, arrived and anchored in the Western anchorage. Reported the Jamestown launch as forty miles this side of Chilkah River a week ago, bound up and all well. Drow large seine in the lake for trout with poor success being just the commencement of the season. Small messes are caught with a hook.

Tuesday, June 1st/80

Time	Barom.	Air.	Water.	Wind.
6 A.M.	29.64	46	47	Variable
12 M.	.69	50	48	"
6 P.M.	.70	50	48	"

Cloudy with light rain at times sunset nearly clear

Wednesday June 2nd

Time	Barom.	Air.	Water.	Wind.
6 A.M.	29.96	56	48	SW
12 M.	30.06	61	50	"
6 P.M.	30.12	53	49	"

Clear + warm clouding up toward evening. Took the cutter and went to Hunter's Point 6 miles northerly where is situated the salmon cannery of the Cutting Packing Co. of San Francisco. Indians principally are employed. This is the site of Old Sitka where, seventy eight years ago the Russian settlers to the number of about forty were massacred by Indians, only three or four escaping in boats to Kodiak. About fifty natives and settled here when not off hunting etc

Thursday June 3rd, 1880.

Time	Barom.	Air.	Water.	Wind.
6 A.M.	30.12	47	47	NW
12 M.	.09	50	49	"
6 P.M.	.06	52	50	S

A.M. cloudy nearly calm. Remainder clear + pleasant. Filled water from Indian River.

Friday June 4th

Time	Barom.	Air.	Water.	Wind.
6 A.M.	29.94	47	48	SE.
12 M.	.92	50	50	E.
6 P.M.	.92	48	50	SE.

All day cloudy with frequent rainfalls. Went to Japonski Island opposite the Indian Village and near the old Russian Observatory and set posts solid in the ground to be used as bases for tripod + basin of mercury for astronomical station.

Saturday June 5

Time	Barom.	Air.	Water.	Wind.
6 A.M.	30.06	44	48	SE.
12 M.	.16	47	49	N.
6 P.M.	.14	51	49	SW.

Early A.M. cloudy. Remainder of day partly clear + mild. In company with officers of U.S.S. Jamestown, in a steam launch, went to the Hot Springs, 18 miles distant in a SE direction on Baranoff Id. Within 100 ft more or less, of one another and

flowing from the same side-hill are hot springs, one each of magnesia <sup>136°</sup> sulphur <sup>149°</sup> and iron, those properties predominating, of about the same temperature at their mouths being too hot to bear the hand in.

These are said to be very efficacious in the cure of certain diseases and have been resorted to by Russians & Indians for many years. Obtained samples of water and deposits. A small settlement of Russians was destroyed many years ago and the people massacred by Indians.

Returning, visited the Redoubt, eleven miles S.E. from Sitka on the same island. There are fifteen large log houses and a small Russo-Greek Church. Formerly occupied by Russians and quite a flourishing place. There are extensive dams and traps for catching salmon which are found in great abundance and of large size.

Though dilapidated the traps are still used. The Bay at the head of which the Redoubt is situated, is long and narrow and, on one side, the mountains are nearly perpendicular from the water's edge, making it very picturesque; a lake extending back

from the dam about 13 miles long, adds to the beauties of the place. At 8 P.M. Mr. Marcus Baker arrived from the Chilkhat country and took charge of the party.

Sunday June 6/80

Time	Barom	Air	Water	Wind.
6 A.M.	29.92	44	46	Calm
12 M.	.90	54	50	SW.
6 P.M.	.84	49	50	N.

Overcast & mild nearly all day.

Monday June 7th

6 A.M.	29.76	45	47	N
12 M.	.76	48	49	"
6 P.M.	.80	47	48	W.

This day heavily clouded & cool.

At 11 A.M. the steamer California arrived from Portland, Oregon, and way ports & Mr. Wm. H. Dall came on board and took charge of the party.

The notebook up to this point was kept by Mr. Wm. M. Noyes. Mr. Baker's notes are in a separate notebook. Mr. Dall's follow, copied from his rough note book.



Hydrographic Notes taken by  
W. H. Dall on the voyage from Victoria to  
Sitka by the inland passage.

Friday, June 4th 1880

At 4.15 A.M. reached Seymour Narrows. The extreme end of Race Pt. is rocky flattish and bare of trees. Between the eastern end of Maude Id. and the adjacent shore is an appearance of a passage known as False Passage.

In the narrows the ridge on the Vancouver side seemed decidedly the higher; both were rather sparsely wooded, the rocks showing through in several places.

There are two inlets northward from Deepwater Bay on Valdes Island not examined to their terminations but which are reported to extend much further than indicated by Br. Adm. Ch. 530. Granite Point between them is rather low, wooded on top, bare at the end; the highest side is toward the northern inlet.

The Point opposite Chatham Pt. has a nearly bare steep rocky face not much higher than Chatham Pt. The north shore hereabouts is largely rocky for some little way back.

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

Mt Eldon near Pender Id. is a peculiar wooded square topped hill abrupt to the N.W. and quite isolated. The Vancouver shore is hereabouts the steeper, higher and most densely wooded. The bluff ENE. of Knox Bay is nearly bald on its SE. slope.

On the line from Thurlow Island at Pt. Eldon<sup>Eder</sup> and Camp Pt. Peak, close to the <sup>Vancouver</sup> shore is a rock close in, covered at h.w., not on Br. Adm. Ch. 581. It was discovered by Capt. Carroll on the last voyage of the str. California to Sitka.

All the timber on Blinkhorn Island has been prostrated by a wind fall or some similar cause.

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

There is a N.E. current in Decate Strait

from Queen Charlotte Sound running 1 to 2 knots per hour.

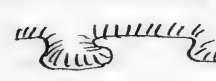
Fisherman's Cove near Grenville Channel has no room except for a small boat. A 70 ton schooner anchored in 20 fms tails on to the beach according to Capt. George.

----- Saturday June 5/80 -----

Most of the morning rather foggy. The tides today appeared to meet in Grenville Channel about where 126 fathoms is marked on the Br. Adm. chart near Bare Hill.

Subtle Pt. Gil Id. has no very marked hill on it. A good deal of dead timber and more low and level land than noticed heretofore was seen near the entrance from Wright Sound, especially on the south side. Bare Hill is merely the long spur of a higher one W. from it which is wooded. There are several good beaches and camping places between here and Wright Sound on the southern side. The mountains back from the shore, inside of the first range are often perfectly bare rock. The rock appears to be the same from Cape Calvert up to this vicinity as far as could be seen.

Near Nabannah Bay on the southern shore

(nearly opposite "58 fathoms") is a fine waterfall and an eighth of a mile westward from it, a small knob  puts out, not marked on the charts. Shortly after passing this point the rocks appear to change and resemble clay porphyry in appearance.

Beyond Kluwuggit the northern shores (especially) become lower.

A rocky mountain goat was seen on the face of a precipitous cliff.

There is a breaker one mile south of "1" in "plan" (see title on Brown Passage Br. Adm. Ch. 1923 A).

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

Capt. George in a heavy S.E. gale saw a breaker  $\frac{3}{4}$  of a mile broad off Cape Elisabeth. (See Rough notebook for view of Safety Cove and Cape Calvert).

----- Sunday June 6/80 -----

Coming from Hecate Strait for Clarence St. Tongass Mountain at the S. end of Gravina Island is very prominent and a good mark.

The land of the Gravina Group is very high (3000-4000 ft) to the westward.



— Sunday June 6, continued —

There are several very sharp or bold peaks but toward the Narrows the land is low.

The shore of Revilla Gizedo Inlet opposite is fringed with islands, much broken

There is one large ramifying inlet. The land rises 2-3000 ft inland but is low toward the narrows. The shores are rocky mostly bold-to and there are few beaches. It is all wooded, more sparsely on the summits.

Two waterfalls on the western shore, here is anchorage in 19 fms pretty close in, on muddy bottom.

Ward Cove, of small extent, is just N. of Peninsula Pt. Fongass Narrows, Steer in until you get fourteen fathoms in mid channel then anchor in muddy bottom, good holding ground and perfect shelter, no dangers.

Fresh water can be had here.

Point Vallenar is low, narrow and wooded. There is a small island with low trees barely detached from the NW. end of the point and this is surrounded with low flat bare rocks probably partly covered at high water.

Half a mile northward from Pt. Vallenar is Guard Island, two cables in extent, nearly

base; low and rocky. The passage between this and the point is obstructed by rocks. Pt. Higgins is also low and wooded, both for a long way back.

Betton Id. is some 1500 ft high and bluff. From Ship Island to Pt. Stanhope the patent log registered 32 miles.

Folstoi Pt. is low and wooded, rising slowly toward the SW. to a ridge of 2-3000 ft. The southern third of Etolin Id is extremely low and flat; wooded, the shores much broken. The northern part is higher and much more abrupt.

The east point of small high Island (Vauke) in one with the Stikine mouth cañon bears N  $\frac{1}{2}$  E.

At Wrangell the low (150 ft.?) hill behind the town is covered with a very wet boggy soil of a black color and with quantities of (mostly syenitic) boulders scattered through it, apparently of glacial origin.

On the rock behind the site of the old Kaloshian church at Sitka about 50 ft above high water are what appear to be glacial scratches and deep groovings in a north easterly & southwesterly direction.

Pilot George Cozain says that Hewitt Rock in the  
Hish Narrows is on a patch of shoal water  
extending one third of the width of the pas-  
sage from the western shore and the rock  
has eight feet on it at low water. It is off, or  
opposite a sort of little rounded hill on the  
west shore of the narrows.

Mt. Calder, from Sumner Strait is inconspicuous.

Tuesday June 8, 1880

Time.	Barom.	Air.	Water	Wind.
6 A.M.	29.94	45	48	W
12 M.	30.04	49	49	"
6 P.M.	30.14	50	49	"

Weather overcast, foggy and light rains by turns.  
Working over vouchers, reports and records  
to be sent back by the steamer of the 10th.

Wednesday June 9th

6 A.M.	30.30	46	48	W
12 M.	30.32	57	50	SSE
6 P.M.	30.32	54	52	"

Weather calm, overcast, later somewhat windy

Visit the southeastern shore of Sitka Sound  
by courtesy of Commander L. A. Beardslee, on the  
steam launch belonging to the U.S.S. James-  
town. First touch at the Hot Springs on

the mainland of Baranoff Island near  
Siorka Island. These springs issue from  
fissures in the syenitic rock, on the side  
of a moderate hill fronting on a small  
bay landlocked by islands and with  
a small boulder covered beach.

The most southwesterly spring, known as  
the "Magnesia Spring" had at its source a  
temperature of 136°.0 F. The next northeast-  
erly or "Sulphur Spring", deposits a coating of  
sulphur, (1/16 inch in the course of a week) over  
the trough through which its waters are con-  
veyed to the bath and had an initial tem-  
perature of 149°.0. The next or "iron" spring  
(exhibiting to the eye however, no traces of iron  
in its deposit) had the same temperature;  
the most eastern or "Cold" spring had a  
temperature of 48°.0 F.

The Indians here had very large potato  
patches, irregularly distributed and appar-  
ently covering several acres. From 72  
pounds of seed one of these Indians grew  
and furnished to the person who sold  
him the seed, 15 sacks, averaging over one  
hundred pounds each of large fine pota-  
toes with no small ones at all among  
them.



They cut out each eye from the tubers & sow the eyes close together in holes punched in the bed with a stick. The remainder of the tuber is eaten.

The Indians at Bucareli Bay sell large quantities of a fine kind of white potato, to traders and passing vessels, raising their own seed from year to year. Many of the Baranoff Id. Indians depend largely on their potato crop for subsistence. The Indians at Khutsnu grow a good many potatoes but from their inferior mode of culture they do not grow as large as those raised by the whites at Sitka and the Indians who have been shown how to raise them. They know the value of changing the seed and buy potatoes for that purpose from the traders.

The second point visited was the Redoubt, so-called, a fishing station at a point where the waters of Deep Lake empty themselves by a sort of rapid, between large rocks, into and inlet of the sound. Weirs have been constructed here by the Russians, now very old but still in use, which are so arranged as to catch nearly every fish which may

ascend the rapids to spawn. The salmon were formerly very numerous, but the destruction has been so great and the obstacles to their reaching the lake have been so effectual that the yield of late years has been much smaller and is now in use only for local purposes. The scenery in the vicinity is very fine, the Dranishnikoff mountain reaching a height of several thousand feet, a great part of which fronts the inlet as a nearly perpendicular bluff.

Mail for the office and elsewhere was posted today to leave by tomorrow's steamer via Portland Oregon.

Thursday June 10. 1880

Time.	Barom	Air.	Water.	Wind.
6 A.M.	30.28	46	48	SW.
12 M.	30.20	54	57	"
6 P.M.	29.94	44	50	SE.

Weather overcast in the morning, in afternoon rainy and unpleasant. At 1 P.M. the Str. California leaves with the mail. On board the Yukon busy preparing for sea and over records and computations.

Friday June 11th 1880

Time	Barom.	Air	Water	Wind	Heggs
6 A.M.	29.90	44	49	SE	50 1/2 W.
12 M.	.86	45	49	"	49 1/2 49
6 P.M.	.82	44	47	W	45 1/2 45

Weather showery, evening clearing with promise of fair weather tomorrow.

Obtain for the Survey a number of maps charts belonging to Uzhin, an old pilot here several of which are unpublished and all valuable. Also some duplicate Febenkoff charts from a store he has for sale. Mr. Splahn of the Northwestern Trading Co. dines on board.

Saturday June 12th

6 A.M.	29.96	42	44	W	41 1/2 42
12 M.	.96	48	49	"	50 1/2 50
6 P.M.	.92	47 1/2	48	"	50 49 1/2

Morning early, fine; later clouds over.

Accept Capt. Beardslee's invitation to visit Noquashinski Inlet in the steam launch starting at 10 A.M.

Stopped first at Hunter's Point near old Stka where Cutting & Co had a cannery (not now in operation which put up 7000 cases salmon last year. Went ashore and exam-

ined the establishment and then proceeded on our way.

Anchored in a small bight just within the entrance of Big Noquashinski Bay. Bearings with pocket compass from stern of steam launch as follows:

NE. pt. of Id. across entrance N. 40° W.

SE .. .. about W.

NE .. .. cove where we are N 34 W

SW .. .. " " " " S 24 W,

S .. .. Hallelck Id. about W,

Mouth of stream " E,

Top Beehive Id. N 70° W

SE. pt Krestoff Id S 50 E.

Further end large island in entrance N. 60 W.

Nearer " " " " " N 40 W.

From the last point to NE. pt. of cove where we are anchored, by estimate of all present is not less than half a mile showing that this entrance is nearly as wide as the length of the two channel Ids. and hence must be considerably wider than is shown in the old Russian chart of this vicinity.

The scenery here is remarkably fine.

Off the bight leading toward Kallean Bay are two wooded islets and some bar rocks



There is a passage at high water over a sandbar connecting Beehive and Halleck islands. A short distance beyond the SW. point of the latter in Olga Strait, ~~is~~ a fine cascade pours over a high bluff apparently from a basin in the hills. This is permanent throughout the year.

The marble ledge in Little Noquashinski Bay is on the Baranoff shore. On the west it adjoins a mass of the greenish (diortitic) rock common about Sitka and the dip seemed nearly perpendicular. The ledge was visible for about 100 ft and after that was covered with dead trees and living vegetation for an unknown distance. It was of fine grain, rather soft, with little discoloration and with bold water close up to the beach.

Reach the Yukon on our return about 6 P.M. Work over records in the evening.

### Sunday June 13th 1880

Time	Bar.	Det. Ther.	Dry b.	Wet b.	Water	Wind.
6 A.M.	29.76	45	46½	46	46½	Calm
12 M.	.70	52	56	56	49½	SW
6 P.M.	.60	49	49	48½	48½	"

Overcast and foggy, threatening rain.

### Monday June 14 / 80

Time	Bar.	Det. Ther.	Dry b.	Wet b.	Water	Wind.
6 A.M.	29.54	46	48½	48	48	E
12 M.	.64	48½	50	49½	48	W
6 P.M.	.68	48½	50½	51	48	W

Morning rainy, prepare for work but are stopped by rain. P.M. rain ceases, and we go ashore and complete a series of observations for transferring our astronomical and magnetic station from the parade ground in the town where it is inconveniently situated, to a spot near the old Russian observatory now the store house for the Government coal. Finish by 5 P.M. Father Metropolsky of the Greek Church and Capt. & Mrs. Beardslee call on board in the evening.

### Tuesday June 15th

6 A.M.	29.70	45	48	47½	47½	NE.
12 M.	.80	50	52½	52	49	SE.
6 P.M.	.84	51	57	52	51	NE.

Morning showery. Afternoon fine, clear. In the morning Mr. Baker goes ashore for time sights and after getting two, returns with a wetting. At work trying to improve theodolite which is in some respects defective and over accounts. After midday weather clears. Obs.

for astronomical and magnetic azimuth and time. In the evening Rev. Mr. Brady dines with us and we pay parting calls on the commander and officers of the *Jamesbown*.

Wednesday June 16/80

Time	Bar.	Det. Ther.	Dry b.	wet b.	Water	Wind.
6 A.M.	29.80	47	48	47½	47	Calm
12 M.	.81	59	64½	62	52	"
4 P.M.	.85	56	59½	57½	52	S
8 "	.86	55	56	55	55	Calm
12 "	.84	50	54	53	49	"

Morning fine but calm. P.M. light air. In the morning get corresponding altitudes for time to those taken yesterday P.M. Our mail, vouchers and last reports & letters, to go down by July steamer and take aboard mails for western Alaska. At 3.10 P.M. a little air springs up and we work our way out of the harbor, but do not get any breeze until 10 P.M. Midchannel between Vitskari and Kulickoff reefs sound in 66 fms.

Rock off Biorka bearing S. by E. ¼ E.  
 Verstovica Pk " N.E. by N.  
 Vitskari Beacon " W. by S. ½ S.  
 The summit of Mt. Edycumbe being dis-

tant 7 ⅞ Miles (= 47850 ft.  $47850 \tan 3^{\circ} 22' 52'' = 2827$  ft altitude) the mean of five vertical  $\angle$ s was  $3^{\circ} 23' 23'' - 41''$  sextant error =  $3^{\circ} 22' 52''$ . The resulting height closely approximates to previous Coast Survey measurements by barometer etc.

Thursday June 17th 1880

Time	Bar.	Det. Ther.	dry b.	wet b.	Water	Wind.
4 A.M.	30.00	47	49	48½	47	NW.
8 "	.08	50	53	51	48	S.
12 M.	.12	55	54½	55	48	S.
4 P.M.	.01	55	56	55	49	SE.
8 "	.01	56	52	51½	48	SE.
12 "	.09	46	48½	48	47½	W.

Wind very light and baffling; sky mostly overcast all day. About noon off Salisbury Sound, Fagø Bay in the land north of it and the small islands, very visible. Fortuna or Vincent Island is high, especially to the N.E. falling toward the west. White streaks or landslides on the bold shore showing clearly, to eastward from it when abeam. The coast largely very bluff & high especially Pt. Amelia and the shores N. of Fagø Bay, but guarded by a throng of islets. No snow visible except on the inland hilltops.



Friday June 18, 1880

Time.	Barom.	Det. Ther.	dry b.	wet b.	Water	Wind.
4 A.M.	30.03	50	48	47½	48	West
8 "	.02	46½	48½	48	47	"
12 M.	.04	49	51½	51	48	"
4 P.M.	.04	56	56	54½	49½	"
8 "	29.96	52	57½	51	48	"

Morning partly clear wind light & baffling.

Afternoon fine and clear.

A.M. off Chichagoff Id. working up toward Cross Sound.

Pt. Theodore is low and rocky, with four or five rocks above water extending off half a mile in a southerly direction. Hence to a small bay (Takhani?) the shore is bold rocky, bare for a short distance, broken in to knobs & hillocks, back from the shore all is wooded. The S. and NW. parts of Jacobi Island are low, the middle high with some low saddles. The higher parts are not as high as the ~~middle~~ mainland of Chichagoff Id. Northwestward from the first bay the shore is less broken.

Cross Cape is low, wooded, with some large white rocks off from it. The outer largest one has a patch of grass, a few stubby trees

and one high solitary tree with an umbrella-like top and bare stem making an excellent mark. There are some low dry rocks outside of this. The water hereabouts is discolored on the surface probably from glacier water issuing from Cross Sound.

Off the entrance to Lisiansky Strait (see sketch book) sounded in 78 fms at 8.30 A.M.

At 10.15 A.M. sounded in thirty five fathoms Cross Cape rocks bearing N. 1½ miles.

At 11. A.M. sounded in twenty five fms. Cross Cape Rocks bearing NW. by N. and the peak of Fairweather NW ¾ W. Plenty of fine rock cod caught here.

At noon, Peak of Fairweather bore NW ¾ W Cross Cape Rocks N by W. ¼ W. From a meridian altitude (mean of 5 observations) the latitude appeared to be 57° 50.8 N.

At 1 P.M. N edge Jacobi Id.	N ¼ W.
N. islet Pt. Bingham	N by W. ½ W.
Cross Cape Rock	E by N ½ N
Pk. Mt Fairweather	NW. ¾ W.

Later, the outermost rocks at Pt. Bingham in one with outermost land southward, ESE.

Later, Rocks off SW. edge of Pt. Bingham in one with Cross Cape Rock S E by S. the nearest shore now bearing east, one mile.

Friday June 18th continued.

Low edge of Cape Spencer NW. by N.  $\frac{1}{2}$  N.  
 1st point off " " NW.  $\frac{1}{2}$  W  
 next " " " " NW by W  
 Pt. islet or knob beyond NW by W  $\frac{3}{4}$  W

a point or islet lies midway between the two last mentioned.

Later; the low eastern edge of Spencer in one with E. edge of Taylor glacier NW  $\frac{1}{4}$  W.

Elevation of top of east ridge of glacier  $0^{\circ} 37' 10''$  from mean of three sextant angles.

the top of Three Hill Id. bearing NNE,

Cape Spencer W  $\frac{1}{2}$  N.

Glacier NW.

Get into Cross Sound about 3 P.M. anchor in 15 fms mud in Granite Cove Port atthrop about 4.45 P.M. Go ashore and observe for station with telemeter & theodolite, also for declination & time. Draw seine but get only one trout, though herring are jumping in the Cove. High water about 8 P.M. Sundogs in the evening

Saturday June 19th 1880

Time	Barom.	Det.	ther.	dry b.	wet b.	Water.	Wind
6 A.M.	29.90	47	49	48 $\frac{1}{2}$	47	W	
12 M.	.86	49	49 $\frac{1}{2}$	49	47	"	
6 P.M.	.82	50	49	48 $\frac{1}{2}$	47 $\frac{1}{2}$	S	

Morning foggy; later, rains. P.M. Rains hard with fog, heavy swell heaving in.

Observations for dip and intensity in A.M. before breakfast; after breakfast, telemeter obs. and notes for a chart of the anchorage interrupted by heavy rain. Remainder of day foggy and stormy with falling barometer and heavy swell heaving in showing probably a S.W. gale outside.

Sunday June 20/80

Time	Barom.	Det.	ther.	dry b.	wet b.	Water	Wind
6 A.M.	29.90	46	47	46 $\frac{1}{2}$	46	S	
12 M.	.98	48 $\frac{1}{2}$	49 $\frac{1}{2}$	49	46 $\frac{1}{2}$	Calu	
6 P.M.	.96	47.	48	48	46	"	

Morning overcast until nearly noon when rain begins again and lasts until night, then thick rainy and disagreeable. In the morning continue telemeter work and complete sketch of Cove just as rain comes on. Finish seven ranges of soundings it being low water about 8 A.M. this day but not much rise or fall. Afternoon plat telemeter observations and obtain a few vertical angles on Three Hill Id. etc. Evening thick & raining hard.



## Monday June 21/80

Time	Bar.	Det.	Ther.	dry b.	wet b.	Water	Wind
6 A.M.	29.80	46	47½	47½	45½		N
12 M.	.80	49	50	50½	46½		"
4 P.M.	.72	46½	48	48½	44½		Calm
8 "	.68	48	48½	49	47½		SEW
12 "	.80	45	49	49½	48		Calm

Morning rainy wind light in the anchorage. Make ready for sea. Work over records. About noon a little breeze springs up & we stand out of the anchorage, meeting a very heavy SW swell and thick foggy and rainy weather, with very little wind until we reach out of the Sound when it blows strong from southward & westward.

## Tuesday June 22

4 A.M.	29.82	44½	45½	46	46		Calm
8 "	.84	47	50	51	47		S.
12 M.	.84	51½	52	54	48½		"
4 P.M.	.85	47	50½	49	46		"
8 "	.89	47	47	46½	46		SE
12 "	.90	45	47	46½	46		"

Wind very light with rain and fog and a very heavy swell. The vessel slatting until nearly every body is more or less unwell from

the stirring up. Had to take in sails at night to avoid slatting them to pieces.

## Wednesday June 23/80

Time	Bar.	Det.	Ther.	dry b.	wet b.	Water	Wind
4 A.M.	29.98	44	48	47	46		SE
8 "	.96	43	44½	44	46		E
12 M.	.96	44	46	47	46		"
4 P.M.	.98	44	46	46	47		"
8 "	.96	44	46½	45½	47		"

Weather overcast foggy and showery at intervals. Sea smoothing down a little but wind still very light. Sight the low land between Dry Bay & Yakutat. The wind finally dies away so, that, in working into Port Mulgrave, we have at last to tow the vessel round the point with the boat, anchor in Pt. Mulgrave about 10.30 P.M.

## Thursday June 24

6 A.M.	30.06	44	45½	45	48		W
12 M.	.12	54	53	52½	49		"
6 P.M.	.28	51	52	51½	49		"

Morning drizzling rain with some signs of lighting up later. Low water large about 8 A.M. Set up tent and work over dip & intensity at or near old magnetic S of 1874, on Point Turner. P.M. Rainy & foggy, later clears

a little and we get time and astronomical azimuth. Evening, clears considerably, Mt. St. Elias etc. in full sight.

Friday June 25/80

Time	Bar.	Det.	Ther.	dry b.	wet b.	Water	Wind
6 A.M.	30.34	46	48	47 1/2	47 1/2		Calm
12 M.	.38	57	52	57 1/2	49 1/2		W
4 P.M.	.38	53	57	50 1/2	57		SE
8 "	.34	48	47	47	49 1/2		NW
12 "	.35	47	47	48	49		"

Morning, wind light, sky half clear. Get out of Port Mulgrave. Prepare to take notes on coast between Yakutat and Kayak Id. The sky being clear the following angles were obtained on a prominent peak in the chain between Mt. St. Elias and Mt Cook which we decide to name after Malaspina. Corrected mean of four vertical sextant angles 2° 27' 50".

Sounded here in sixty fathoms and found

Ocean Cape bearing	E by S 1/4 S.
Krugloï Id.	NE by E
Pk St Elias (approx)	NW by W 1/2 W
E. head Disenchantment Bay	N 3/8 E.
Point Manby.	W. 1/2 S.

The breakers off Pt. Phipps in one with outermost land opp. shore W. by S.

the following bearings

pe.	E 1/4 N.
Id.	NE
Krugloï Id.	NE 1/2 N
Disenchantment Bay.	N 1/2 E
by.	W
of trees on that shore	NW 1/2 N
most edge of land	W by S 3/4 S.
each 2 1/2 miles off	WNW.
sounded in 21 fms mud	
Manby	WNW
pe	E 1/2 S
Disenchantment Bay	NE by N 3/4 N
island later, sounded in 10 fms	
at Point Manby being perhaps a	
than a mile and a half off, bottom	
to a good deal of growing kelp	

about.

Pt Manby bore	NW
Ocean Cape	E 1/2 S
Disenchantment Bay	NE by N 3/4 N.
Outermost land	W by S.

In working slowly across the bay with very light wind and more or less swayed about by the tide two facts were developed. First that Disenchantment Bay is con-



a little and we get time and astronomical azimuth. Evening, clears considerably, Mt. St. Elias etc. in full sight.

Friday June 25/80

Time	Bar.	Det.	Ther.	dry b.	wet b.	Water	Wind
6 A.M.	30.34	46	48	47 1/2	47 1/2		Calm
12 M.	.38	51	52	51 1/2	49 1/2		W
4 P.M.	.38	53	57	50 1/2	51		SE
8 "	.34	48	47	47	49 1/2		NW
12 "	.35	47	47	48	49		"

Morning, wind light, sky half clear. Get out of Port Mulgrave. Prepare to take notes on coast between Yakutat and Kayak Id. The sky being clear the following angles were obtained on a prominent peak in the chain between Mt. St. Elias and Mt. Cook which we decide to name after Malaspina. Corrected mean of four vertical sextant angles 2° 27' 50".

Sounded here in sixty fathoms and found

Ocean Cape bearing	E by S 1/4 S.
Krugloï Id.	NE by E
Pk St. Elias (approx)	NW by W 1/2 W
E. head Disenchantment Bay	N 3/8 E.
Point Manby.	W. 1/2 S.

The breakers off Pt. Phipps in one with outermost land opp. shore W. by S.

Later, took the following bearings

Ocean Cape.	E 1/4 N.
Krugloï Id.	NE
S end Dalnoi Id.	NE 1/2 N
Centre Disenchantment Bay.	N 1/2 E
Pt. Manby.	W
N. end of trees on that shore	NW 1/2 N
Southernmost edge of land	W by S. 3/4 S.
Nearest beach 2 1/2 miles off	WNW.

Later sounded in 21 fms mud

Point Manby	WNW
Ocean Cape	E 1/2 S
Disenchantment Bay	NE by N 3/4 N

~~Outermost land~~ Later, sounded in 10 fms. The shore at Point Manby being perhaps a little less than a mile and a half off, bottom hard with a good deal of growing kelp about.

Pt Manby bore	NW
Ocean Cape	E 1/2 S
Disenchantment Bay	NE by N 3/4 N.
Outermost land	W by S.

In working slowly across the bay with very light wind and more or less swayed about by the tide two facts were developed. First that Disenchantment Bay is con-

Friday June 25th cont.

siderably further to the northward than indicated by Lebenkoff and the north shore of the Yakutat Bay is considerably nearer the foot of the mountains than there indicated. For further notes on this point and on a peak of considerable height not before seen, behind the main chain, see notes on Lebenkoff and our own chart of this region. Mt Fairweather showed up at sunset, or a little before in one with Ocean Cape bearing East.

The second point developed and which seemed at first incredible was the character of the great plateau in front of the St. Elias Alps on the north side of Yakutat. This appeared to be as follows. At the shore at Pt. Manby, the beach was bordered by trees and a band of trees with high land or a low bluff (to all appearance) behind them extended eastward some miles as indicated by the preceding bearings. Near the point (northeastward) where the trees ended is a slight or slight incurvature of the shore, beyond which it rounds out again forming another apparent point, with apparently an island off it. This, however from aloft proved to be connected with the main shore. In the

vicinity of this island-like point trees again border the beach. Within the beach for an unknown distance <sup>back</sup> in a NW. direction the plateau is one great field of ice covered for the most part with dirt, but in the light before indicated, there is a space for some miles where the surface is wholly composed of broken pinnacles of ice each crowned with a patch of dirt and standing up like prisms close to one another, decreasing in height from the summit of the plateau gradually in a sort of semicircular sweep toward the beach, near which however the dirt again predominates and forms the terminal moraine of this immense glacier for it is nothing else. Trains of large boulders were visible in several places, and the general course of the glacier was NW. and S.E.

Between Disenchantment Bay and the foot of St. Elias, seventeen glaciers were counted, none of extraordinary size and the total of whose supply seemed far too little to supply the waste of the plateau glacier, to which those (which do



not reach the shore eastward of it, or cease before reaching it, as we could not see the joining of them anywhere) come in, in general, nearly at right angles.

There was no névé to the plateau glacier and no high land back in the direction of its axis as far as we could see.

Its surface was very dirty everywhere in fact mostly so covered with gravel stones &c, that only by a close view (several miles) could the icy substratum be determined, except at the part where the pinnacles were. Westward from Pt. Manby, if the ice existed (and it probably does exist under the soil) it was covered with a stratum of gravel or dirt, upon the seaward face of, which were large patches of vegetation, and which formed bluffs perhaps 200 ft high as described by Belcher and seen by us in 1874. Off this bluff the soundings shoal off gradually with stony & sandy bottom with kelp growing on the stones. Ten fathoms are reached only a mile and a half from the shore. Evening comes on rather thick, light wind and drizzling rain toward midnight.

Saturday June 26/80

Time	Bar.	Set. ther.	dry b.	wet b.	Water	Wind
4 A.M.	30.30	45½	47½	47½	48	NE
8 "	.32	43	47½	48	46	"
12 M.	.29	49	49	49½	47½	E.
4 P.M.	.23	47	49	50	46	"
8 "	.20	48	50	49	47	ESE.
12 "	.18	47½	49	48½	46½	"

Morning thick, heavy swell, light wind & rain about 4 A.M. near Pt. Sitkafi of Levenkoff Low Pt. of same authority dimly visible, low with trees. Beyond, the West shore of Jay Bay just perceptible; when first seen and a little clearer had the appearance of a glacier coming to the water. Shore near us, bluff, gravel or sand with some vegetation, and a sand beach extending along its front with low bright green willows on it. Soundings a mile off shore, pretty regular in ten fathoms with kelp growing on boulders in the bottom. As the weather offers no prospect consistent with prudence of doing more work along shore, put out from the land for Chugachik Bay Cook's Inlet. Sea rather rough, wind favorable, a little smoother toward evening.

- Sunday -

June 27th 1880

Time	Bar.	Det. ther.	Dry b.	Wet b.	Water	Wind
4 A.M.	30.14	47	47½	48½	46	E.S.E.
8 "	12	48½	49	49	47	"
12 M.	.03	50	51	57	47	"
4 P.M.	.02	50	50	50	46	"
8 "	.00	47	48	48½	46	S.E.
12 "	.00	46	47	47½	47	"

Morning, fresh southerly wind with some sea on. Weather overcast and more or less foggy. P.M. Wind lighter.

Monday June 28/80

4 A.M.	30.08	44	45½	45½	46	S.E.
8 "	.09	46	48	49	45½	S.E.
12 M.	.12	50	52	51½	45½	"
4 P.M.	.10	50	50	50	45	"
8 "	.09	46	47½	48	44	E.S.E.
12 "	.08	44	45	45½	43	"

Morning overcast with occasional light showers. P.M. overcast, fair. Wind steady & favorable, moderate

Tuesday June 29th

4 A.M.	30.04	46	44	45	43	E.S.E.
8 "	.08	51	53½	53	44	E
12 M.	.08	48	50	49½	44	"
4 P.M.	.14	47½	48	47½	43	Calin
8 "	.02	46	48	47½	44	"
12 "	.03	46	47½	48	46	"

Morning, overcast with some fog, wind light all day. Later, sun breaks out at frequent intervals alternating with showers.

Turn out early to examine the Barren Islands to which we pass quite near. Make several views of them. Cannot make the bearings come right with the chart. They are as follows. From a point near Port Chatham the eastern edge of the Barren Ids. bears S.E. by S. ½ S. Western edge of eastern group S. ¼ E. Cape Elisabeth S.E. ¾ E. Point Bede N. ¾ E.

The Barren Ids, as a group, seem well delineated, but the group seems badly placed on Lebenkoff's chart. In the afternoon pass Port Alexander and a fishing station. Send the boat in for some salmon, but the fishing party (of natives) retreat to the hill being probably all women, and there seems to be only one fish in the camp. Evening, pretty well up in Chugachik Bay, but the wind gives out and the weather is very moderate.



Wednesday June 30/80

Time	Bar.	Det.	Ther.	Dry b.	Wet b.	Water	Wind
4 A.M.	30.04	44½	47	46	45½	Calm	
8 ..	.06	45	47	47	46½	..	
12 M.	.10	51	51	50½	49	SW	
6 P.M.	12	52	54	53½	48	SE	

Weather half cloudy, with occasional light showers nearly all day. A.M. calm or nearly. P.M. quite a squall for a short time, then light again, and clears about sunset. Coal Pt.

Anchor near Chugachik Bay about 5 A.M. in six fms mud. Go ashore and select a station. Observations for azimuth dip, time & intensity latitude & magnetic azimuth.

Meet an old native here who informs me that the bay was completely frozen over last winter which was the coldest in his recollection. They have the ordinary salmon here usually by this time (but this is a late season in all things) but the king salmon only further up Cook's Inlet. There are reindeer here but not easily accessible at this season. There are large crabs (Maia) and halibut, but no cod-

fish except sick ones. Herring in windrows were thrown up on the beach or marshes by a very high tide four days ago. There are four glaciers in sight on the SE side of the Bay, which is of high rugged and broken topography and composed chiefly of metamorphic rocks. The NW side is very uniform, high bluffs forming the edge of a table-land, with talus or low land extending a little toward the bay in front. The shore on this side is very uniform and rather shoal. The coal strata dip to the northward slightly and are intercalated with sandstones shales etc. bearing the impressions of fossil wood & leaves. The largest seam is some seven feet thick with a few thin seams of shale in it. The character of the coal is in general like that at Unga but of a rather better quality and much larger quantity. The shores are well-wooded with spruce alder, birch, poplar etc. The beaches are mostly gravel and show few sea weeds but kelp and very few shells. There is no settlement at Coal Point.

Thursday July 1st/80

Time	Bar.	Det. Ther.	Dry b.	Wet b.	Water	Wind.
6 A.M.	30.18	48	49½	49	47	NE
12 M.	16	55½	61½	58	55	Calm
6 P.M.	10	50	52½	52	48½	SW.

Morning nearly clear. Later clears away  
Evening perfectly clear & calm.

Observations for time latitude and azi-  
muth (astr. & mag.) all very good.

Send the boat out fishing. Get several  
halibut and a good many of the large  
crabs, which are excellent eating.

Try the seine and get several barrels  
of small herring. Work over notebooks  
and records in P.M.

Friday July 2nd

6 A.M.	29.98	44½	46	45½	48	NE
12 M.	.92	50½	57½	57	48	Calm
6 P.M.	.88	50	52½	53½	48½	Baffling

Morning overcast, calm; P.M. overcast  
wind very light, and about 5 o'clock begins  
to rain but this ceases later in the evening.

Take the large cutter and proceed to the  
spit in front of the largest glacier visible;  
in the morning. Walk about three  
miles over a gravel flat or plain which

descends in a gentle slope from the foot  
of the ice to the sea and is cut up with  
water courses of which all but one or  
two are dry. Ascend the glacier for a  
short distance and return to the boat  
saw many bear tracks. One of the party  
killed a porcupine. From the spit take  
a number of angles and bearings to  
correct the chart of the bay. The height  
of the station is 24 ft. 6 in. above the  
water. Instrument U.S.C.S. Theodolite  
No. 122. We call the station Glacier  
Spit.

General direction of the beach  $S 60\frac{1}{2}^{\circ} E$   
Point in small light to eastward  $S 43^{\circ} E$   
Hor. angle  $0^{\circ} 0' 0''$

Point on opposite shore of light  $S 41^{\circ} E$   
further in  $2^{\circ} 02'$

Opposite Head of light, South,  $44^{\circ} 47'$

Pt. same shore further on  $S 26\frac{3}{4}^{\circ} W$   $72^{\circ} 13'$

Inner edge islet beyond  $S. 30^{\circ} W$   $75.53$

Outer " " "  $S. 31^{\circ} W$   $76.49$

Main shore beyond is nearly in one with this islet.

Rock beyond  $S 33\frac{1}{2}^{\circ} W$   $78^{\circ} 13'$

End of Coal Pt at water's edge  $S 49\frac{1}{2}^{\circ} W$   $94 14$

1st of the seven trees on the Pt.  $S 37^{\circ} W$   $96 33$

7th tree  $S 57\frac{1}{2}^{\circ} W$   $97 01$



Anchorage Coal Pt.	S 54 W	99° 01' 30"
Shoaner vert. < water's edge	359° 55'	179. 54 <sup>B</sup>
" " " top mainmast	0.01 1/2	180. 07 1/2
Rev. " " water's edge	179. 57	359. 58
" " " top mainmast	180. 11	0 08 1/2
Di. " " water's edge	180. 07	0 00
" " " top mainmast	180. 09 1/2	0 09 1/2
Rev. " " water's edge	0. 06	180 06
" " " top mainmast	359 57	179 58
Height of mainmast above water line		99 f. 6 in
Low neck, West Coal Pt.	S 66 1/2 W.	109. 45
Watering place, approx	S 80 W	123. 18
General trend of beach (spit)	N. 57 W.	172 18
" direction head of bay	N 14 W.	209 18
Foot of hill opp. side G. spit.	N 9 W.	214 18
Edge of trees this side do	N 31 E.	252 18
Mountain N. of Glacier	N 69 E.	242 18 approx
" " " " "	N 88 E	311 " 18
Point of starting	S 42 3/4 E	0° 0'

Observations ended we return to the vessel  
 It begins to rain and the wind dies away  
 Caught a halibut near the spit, which  
 weighed 132 pounds, several smaller  
 halibut and a large number of the  
 large edible crabs.

Saturday July 3rd/80

Time	Bar.	Det. Ther.	Amb.	Wet. B.	Water.	Wind.
6 A.M.	29.84	48 1/2	49 1/2	49	48	Baffling
12 M.	.82	52 1/2	56 1/2	55 1/2	47 1/2	SW
4 P.M.	.77	46	57	52	47	"
8 "	.78	47	49	49 1/2	46	Calm
12 "	.68	46	47 1/2	47 1/2	43	"

Weather overcast, fair. Begins calm, afterward  
 a light breeze, later calm again. Flood tide in  
 P.M. about 5.30

Go ashore on Coal Pt. and take a series of  
 angles bearings and measurements to cor-  
 rect sketch of the Bay, with Theod. 123 & tel.  
 Return on board at 12.30. At 1.15 P.M. weigh  
 anchor and stand off and on down the  
 bay toward Graham Harbor.

Sunday July 4th

4 A.M.	29.64	46	47	47 1/2	44	N
8 "	.54	49	57	50 1/2	44	"
12 M	.50	56	59 1/2	57 1/2	46	ESE
4 P.M	.60	45	58	56	45	SW
8 "	.64	52 1/2	55	54 1/2	46	"

Anchor under Dangerous Cape, opposite the ru-  
 ins of the old Russian establishment, about 6  
 A.M. in 9 fms. black sand, Graham Harbor.  
 Weather half cloudy, the sun out at times

at other times light showers. P.M. Heavy rainsqualls from the head of the bay; later rain ceases and wind becomes lighter and less squally.

Morning, get true azimuth and bearings on points of land in sight. P.M. some altitudes for time before squalls commence. In the morning after observations terminate visit the remains of the Russian post which contained a steam sawmill coal mine, shops for iron working & repairs barracks, church and numerous houses all of which were very substantially built and have suffered, not from decay but from being looted by the natives since the Russians left. Evening, take the cutter and visit the trading post and village on the other side of the entrance to Graham Harbor. Saw the agent, a Mr. Cohen who has been here eleven years. The Lancashire Witch was here May 5th and left for Kat'chig-mak Gulf May 8th. Last winter was the coldest ever known here. 100 otters were obtained here in trade. Cook's Inlet was completely frozen over but he had no thermometer to determine the range

of temperature. The natives here are Eskimo of the Chugachignut type; from Anchor Point northward the Kenai'ana' Indians inhabit the coast. Return to ship, 9 P.M.

Monday July 5th/80

Time	Bar.	Oct. Ther.	Dry b.	Wet. b.	Water.	Wind.
4 A.M.	29.60	47	48½	48½	44½	Calm
8 "	.55	49	53	52½	"	"
12 M.	.44	51½	54½	53½	"	N E
4 P.M.	.37	49	57	50½	"	Calm
8 "	.33	46½	48	47½	"	Baffling

Weather overcast. Wind at first light, later breezes up somewhat with heavy sea rolling in from S. & E. rain and fog. Morning four Kadiak who have been separated from their families since last September and have begged permission to work their passage to Kadiak, come aboard. Also Mr. Cohen with letters for Kadiak. About 9.30 A.M. stand out with a light breeze which dies away and leaves us at the mercy of a very heavy swell due to a gale somewhere outside, which is otherwise only reflected in the low barometer here. As the weather becomes very nasty with strong head tide and little wind I decide



to go into Port Chatham. The wind however does not hold out and we are obliged to anchor outside, under shelter of Cape Elisabeth in 9 fms hard bottom at 9 P.M. Get a number of angles and bearings on adjacent points of land showing it to be incorrectly laid down on the charts.

Tuesday July 6/80

Time	Bar.	Ther.	Dry b.	Wet b.	Water	Wind.
6 A.M.	29.42	45	46	46	46	Baffling
12 M.	.50	47	48½	48½	48½	Calm
6 P.M.	.57	46½	48	48	47	"

Weather rainy nearly calm. Barometer still very low. Try to get into Port Chatham but are prevented by the tide. Obtain numerous angles & bearings. Anchor again near the N.W. head of Port Chatham. Go into the port with the sternboat, in the P.M. and draw the seine getting some small salmon and a good many trout. Evening calm.

Wednesday July 7th

Time	Bar.	Ther.	Dry b.	Wet b.	Water	Wind.
6 A.M.	29.62	46½	48	48	44½	Calm
8 ..	.62	48½	50	50	45	"
12 M.	.65	50½	54	53½	44½	SE
4 P.M.	.68	48½	49½	49½	45	"
8 ..	.70	48	48	48	44½	"
12 ..	.78	45½	47	47½	45	"

Morning; baffling winds or calms. Occasional showers. P.M. wind fresher at times but mostly light overcast and showery.

About 9.30 A.M. stand out and vainly attempt with the light wind to beat through the passage eastward from the Barren Ids., finally sailing to the westward from them and taking a variety of angles and bearings to determine their position & height. Fine sunset.

Thursday July 8th/80

Time	Bar.	Ther.	Dry b.	Wet b.	Water	Wind.
4 A.M.	29.80	45	46	46	43½	SE.
8 ..	29.91	44½	46	46	43	"
12 M.	29.97	44½	46½	46½	42½	"
4 P.M.	30.03	45	46	46½	43	"
8 ..	30.08	46	46	46	44	"
12 ..	30.10	44½	46	46½	43½	"

Weather overcast & rainy all day. Wind moderate, toward evening nearly calm. Beating toward Radiak along the eastern shore of Afognak. Toward night catch a good many cod and halibut on the 30 fm bank off the Id.

Friday July 9th

Time	Bar.	Ther.	Dry b.	Wet b.	Water	Wind.
4 A.M.	30.11	46	46	46	44	SSE.
8 ..	.12	47	47½	49	45	"
12 M.	.10	49	52	50½	45	SE by E.
4 P.M.	30.00	53½	60½	59½	46	"
8 ..	29.95	50	52	51½	45	"

A.M. wind very light, later fresh but hardly blowing home. Weather fine, fogbank in the distance but day mostly clear. Beating toward St. Paul Harbor all the morning. Anchor in Chagafka Cove about 2 P.M. Go ashore immediately and re-occupy the old astronomical and magnetic stations, getting time, astronomical and magnetic azimuth. Mr. Baker in the evening goes to Woody Island, and obtains from Mr. Pavloff, assistant agent at the Ice Company's establishment, the copy of the records of meteorological observations for the last twelve years taken at that station by the different agents.

Saturday July 10/80

Time	Barom.	Ther.	Dry b.	Wet b.	Water	Wind
6 A.M.	29.84	46½	47½	47½	44½	NE.
12 M.	.78	48	49	49	44½	"
6 P.M.	.76	48½	49	49	44½	NNE.

Weather foggy and rainy all day. Wind light. Assist tidal observer in putting up his gauge & work over copying records. Get from Mr. Fisher record of meteorological observations for two winters, taken by Mr. Harry P. Cope at North Foreland Cook's Inlet.

Sunday July 11/80

6 A.M.	29.69	46½	47½	47½	44½	NW
12 M.	.68	50½	52½	52	45	N
6 P.M.	.68	48½	49½	49	45	"

Go over to Woody Id. and determine character and position of instruments which were used in making observations referred to as taken by the Ice Company agent. Wind fresh and squally. Weather overcast & foggy.

Monday July 12

6 A.M.	29.78	46	46½	46½	44	NE
12 M.	.92	47	48	48	44	"
6 P.M.	.94	46½	47½	48	44½	"

Morning rainy, foggy, with fresh gusts of wind. P.M. same with lighter winds. Set up a tent and get observations for dip and intensity. At work on tide gauge.

Tuesday July 13

6 A.M.	29.97	46	46½	47	47	NE.
12 M.	30.00	47	47	47	44½	"
6 P.M.	29.91	51½	-	-	44½	N.

Morning rainy & foggy, clears a little toward night. Wind moderate or light. Send the boat for fish and get a boatload of salmon & trout at one haul.

Time	Bar.	Ther.	Dry b.	Wet b.	Water	Wind
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## Wednesday July 14/80

Time	Barom.	Ther.	Dry b.	Wet b.	Water	Wind.
8 A.M.	29.82	46½	48	48	44	N
12 M.	.72	47	57½	50½	45	"
4 P.M.	.60	46	47½	47½	45½	NNW
8 "	.62	47	47½	47½	46½	NNE
12 "	.70	48	48	48	47	NE

Start out about 5 A.M. with a strong breeze & heavy sea abeam. Weather rainy & foggy, too rough to work on records but making good progress westward.

## Thursday July 15th

4 A.M.	29.75	46½	48½	48½	47½	NE.
8 "	.75	49	48	48	48	"
12 M.	.80	50	57½	53½	46½	"
4 P.M.	.85	49	50	49½	46	NNE.
8 "	.88	47	49	49½	46	NW.
12 "	.88	46	48	48½	47	"

Weather rainy & foggy clearing at night. Wind lighter & sea easier than yesterday.

## Friday July 16th

4 A.M.	29.87	46	48	48	47½	NW.
8 "	.82	49	48½	48½	48	WNW.
12 M.	.76	52	55½	54½	45	"
4 P.M.	.74	57	54½	53½	45½	SW
8 "	.70	48½	49	49	44½	"

Morning fine and clear becoming foggy in the evening. Wind squally all day.

Desiring to utilize the fine weather (& making the Shumagins at daybreak with a prospect of not reaching our station at Humboldt Harbor until the afternoon) put into Northwest Harbor anchoring about 1 P.M. and going ashore at once obtain observations for magnetic and astronomical azimuth dip, intensity and time. Cross over the divide and examine Sandy Bay which is not exactly accurate on the chart.

## Saturday July 17/80

Time	Bar.	Wet ther.	Dry b.	Wet b.	Water	Wind.
4 A.M.	29.54	47½	48½	48½	47	SW
8 "	.45	47½	48½	48½	48	"
12 M.	.35	47½	49	48½	46	"
6 P.M.	.33	46½	48	48	44	NE.

Morning overcast with showers. P.M. rainy & foggy. Wind fresh in A.M. Stronger, growing to a stiff gale in P.M.

Stand out of Northwest Harbor about 5.30 A.M. passing north of Big Koniuski and Nagai whose northern points in one bore W.¾S. Peninsula Island in one with Wedge Cape bore E. by S. ¾S. and Castle Rock in one with

Wedge Cape E. by N.  $\frac{1}{2}$  N. Pass two schooners and many dories fishing and get into Humboldt Harbor about 1.10 P.M. The Caecilia a small schooner from Coal Harbor for Pirates Cove puts in at the same time manned by three Portuguese. Afternoon working on records.

Sunday July 18/80

Time	Bar.	Ther.	Dry b.	Wet b.	Water	Wind
6 A.M.	29.26	47	47	47 $\frac{1}{2}$	44 $\frac{1}{2}$	NE
12 M.	.32	47 $\frac{1}{2}$	49 $\frac{1}{2}$	49 $\frac{1}{2}$	44	NNE
6 P.M.	.44	51	50 $\frac{1}{2}$	50	45	"

Weather rainy, cloudy in P.M. Wind light, evening calm. Search for rock reported by Caton without success. Sch. Unga from Pirates Cove for Delaroff passes through. The master had not heard of any such rock though he has navigated hereabouts for five years.

Monday July 19th

6 A.M.	29.59	45	46 $\frac{1}{2}$	46	44	Baffling
12 M.	.52	50 $\frac{1}{2}$	51	57	46	"
6 P.M.	.42	50	51	57	46	WNW.

Morning, very early, clear soon clouding over and becoming cold with several rainsqualls. Wind at first light or none, strong and squally in P.M. Observations for dip, intensity &

declination. Take our cutter and go round to Pirate's Cove, obtaining angles and bearings therefrom to fix position. Potatoes turnips and radishes have been tried here large crop of potatoes succeeded at Coal Harbor. About 15 white men at this place engaged in fishing. Reach vessel on our return at 7.15.

Tuesday July 20/80

Time	Barom.	Ther.	dry b.	wet b.	Water	Wind.
6 A.M.	29.45	44	46 $\frac{1}{2}$	46 $\frac{1}{2}$	45	WNW
12 M.	.48	48 $\frac{1}{2}$	47 $\frac{1}{2}$	46	45 $\frac{1}{2}$	"
6 P.M.	.48	49	52 $\frac{1}{2}$	52	46 $\frac{1}{2}$	"

Cloudy with showers most of the day clearing away toward night. Wind blowing very fresh all day. Search for Caton's rock but the wind is too high to do anything satisfactory. Work over records.

Wednesday July 21st

6 A.M.	29.55	46	48	48	45 $\frac{1}{2}$	NW
12 M.	.62	50	52 $\frac{1}{2}$	52 $\frac{1}{2}$	44 $\frac{1}{2}$	N
4 P.M.	.69	52	52 $\frac{1}{2}$	53	47	NW
8 "	.81	49	50	50 $\frac{1}{2}$	46 $\frac{1}{2}$	"
12 "	.78	46 $\frac{1}{2}$	48	48	45 $\frac{1}{2}$	Calm

Morning early, clear & calm, soon clouding over; later half cloudy. Wind moderate, strong in P.M.



Send the boat out early and succeed in finding the shoal patch in the strait. At low water, Capt. Herendeen finds 3 fms: end of spit in one with south end of Range Id. & NW point of Popoff Id N. by E.  $\frac{1}{2}$  E.; Sand point, SE. by S.  $\frac{1}{2}$  S. The least water on it is  $2\frac{3}{4}$  fms. with the west end Range Id & spit in one, NW. point Popoff N. by E.  $\frac{3}{4}$  E. Sand point SE. by S.  $\frac{1}{2}$  S. There were three sounds at that depth and the shoal is about seventy five feet long & quite narrow. The bottom was clearly visible, with out rocks and covered with clam shells and gravel. After breakfast stand out of Humboldt Harbor for Belkoffsky going to the southward of Unga. Take many bearings on the land as we progress, and, arriving in the rocky region decide to lie to off Dolgoi Id. during the night.

Thursday, July 22/80

Time.	Barom.	Ther.	dry b.	wet b.	Water.	Wind.
4 A.M.	29.82	46	47	47 $\frac{1}{2}$	46	NW
8 "	.86	64 $\frac{1}{2}$	51 $\frac{1}{2}$	51	47	Baffling
12 M.	.86	65	51 $\frac{1}{2}$	51	47	"
4 P.M.	.89	56 $\frac{1}{2}$	60	59	48 $\frac{1}{2}$	"
8 "	.95	50 $\frac{1}{2}$	52	52	46 $\frac{1}{2}$	NW.

Weather fine - clear with passing clouds all day. Wind light to moderate.

Occupy most of the early part of the day taking bearings from the ship. As the wind is too light to admit of getting the vessel to Belkoffsky before night we take the boat and go ashore on the south cape of Dolgoi Island at the top of a small gravel beach just inside the Cape, establish our astronomical station where we obtain latitude and time; from a station about 250 feet above the sea on top of the Cape get a series of angles and bearings on the myriad rocks and islands in the vicinity, with a few observations for azimuth. Build a cairn on the site of the station, and return to the vessel about 3.45. Proceed toward Belkoffsky but owing to light winds it is midnight before we can come to anchor about a mile off shore from the town in 20 fms, shelly & gravelly bottom. Bearings from the ship were taken during the afternoon.

Friday July 23<sup>rd</sup> 1880

Time.	Barom.	Ther.	Dry b.	Wet b.	Water	Wind.
6 A.M.	29.97	48	48	48	46	N
12 M.	30.01	53	55	54	47	SSE
6 P.M.	30.02	56½	54	54	47	"

Morning foggy, wind light. Later the fog rises and becomes so thin that the sun is visible through it. Get obs. for latitude, time, azimuth dip and intensity from a station at top of beach on the edge of a grassy flat; in front of the town which is situated on a moderately high bluff bank behind this flat. There is a high very steep ridge immediately behind the village; a low flat, with a stream, to the eastward, and a mountain, trending with the Iliasik Ids. immediately beyond this flat.

From a station on the top of the bluff, just beyond the village get a series of angles and bearings on surrounding objects, somewhat interfered with by fog. Population here half a dozen whites, a few Russians + creoles and 350 Aleuts, the adult males all hunters.

The town is built of wood with few barrabaras and a fine church is going up at the expense of the natives. Frost is agent +

has his wife and four children here. A creole named Pavloff and the Western Fur and Trading Co. have establishments here for trading beside the A.C.C.:

The landing is very bad at low water being a boulder beach an eighth of a mile wide between the sand beach and water enough to float a boat. In rough weather a boat cannot land. Keep extends off a third of a mile. They grow a few turnips but being all hunters or traders take little interest in agriculture. The rock here is a breccia of trachyte.

Notes. There is a vein of good coal on the eastern head of Pavloff Bay.

The extraordinary pinnacles seen yesterday in the midst of the Alaskan mountains are nearest to the head of Medvidnickoff Bay between <sup>the hills at the head of</sup> which and the pinnacles (called Aghilien) is a glacier. They are at the SE. edge of a crater visible from the N. side of Alaska and are inaccessible. A rock of doubtful existence, called Hennig's rock was reported by him in Lat. 54.22 20" Lon. 163.03½ No one else has seen or heard of it and the navigators hereabouts do not believe in its existence.



## Saturday July 24/80

Time	Barom	Ther.	Dry b.	Wet b.	Water	Wind
6 A.M.	30.07	46	48	48	45	SSE
12 M.	.20	52½	52½	52	47½	SE
6 P.M.	.14	48½	50	50	47	"

Day foggy with light or moderate breezes  
 At 10.30 sail from Belkoffsky taking  
 angles and bearings on the land adjacent  
 at 2.30 P.M. anchor in the strait between  
 Lisy or Fox Id. and Oleny or Deer Id. wait-  
 ing for the weather to clear. Get angles  
 from the top of the Fox Id. & from the ship  
 for a sketch of the vicinity.

## Sunday July 25th

4 A.M.	30.12	47½	49	48½	45½	ESE
8 "	.11	47	48½	48½	47½	E
12 M.	.14	48½	50	49½	46	ENE
4 P.M.	29.80	46	49	49½	46	"
8 "	.79	46	49	48	44	"
12 "	.76	46	50	49	45½	NNE

Weather foggy with squalls of rain in  
 P.M. very heavy SW. sea, moderate to  
 strong gales from the eastward lighten in  
 the evening. Get a few bearings in the A.  
 M. Vessel under double reefed foresail &  
 jib. Get through the Unimak Pass, after  
 which the sea moderates.

## Monday July 26/80

Time	Barom.	Ther.	Dry b.	Wet b.	Water	Wind
4 A.M.	29.70	46	49	49½	45	ENE
8 "	.69	46	47½	47½	44	E
12 M.	.70	49	50	50	43	"
4 P.M.	.72	49	51	50½	43½	N
8 "	.74	46	48	48½	43	ENE
12 "	.73	47	47	48	43	Calm

Morning cloudy with some fog Wind light  
 to moderate. When the fog clears up in  
 P.M. find ourselves to the westward of  
 Cape Cheerful in a nearly dead calm.  
 Toward night clear, calm, later light airs.

## Tuesday July 27th

4 A.M.	29.83	45	46½	46½	43½	W.
8 "	.90	46	48½	48	45	N.
12 M.	.94	48	48½	49	48½	NE
4 P.M.	.97	49	50	50	48½	"
8 "	30.00	47½	48	48½	49	"

Morning foggy followed by rain. Thick  
 all day with light winds. Reach Iliulik  
 Harbor about 8.15. The town has been much  
 enlarged and improved. The cutter has  
 been here and departed for the Arctic.  
 From the Schr. Les. captured and sent  
 down by her it was learned that no

news had been received from the imprisoned whalers. The winter was fine here severe at the north and in St. Michaels & at St. Paul Id. St. Michaels was reached in the latter part of June at which time also the western side of Bering Strait was open but the eastern side blocked with ice. The barkentine Malay is in port discharging coal. The signals put up by us except one on top of a high hill, have been removed, doubtless for the lumber. About 3000 feet of lumber left here by us securely housed has been stolen outright and the house itself pulled to pieces and most of the lumber stolen.

Wednesday July 28/80

Time	Bar.	Ther.	dry b.	wet b.	Water.	Wind
5 A.M.	29.98	43½	44½	45	47	NE
12 M.	.94	56	60	58½	52	"
6 P.M.	.87	53½	55	56	52	"

Weather foggy. Later clearing so that the sun can be seen through the fog, still later dense fog. Wind light all day.

Obtain observations for time to rate

chronometers, astronomical and magnetic azimuth and dip, at work on accounts

Thursday July 29/80

Time.	Bar.	Ther.	Dry b.	Wet b.	Water	Wind
6 A.M.	29.86	46½	47½	47	48	NW.
12 M.	29.92	52½	59	57½	49½	"
6 P.M.	30.00	47	52	52	57	"

Weather foggy or overcast nearly all day, the sun peeping out a few times. Wind light. Day devoted to observations for dip and intensity and to working on accounts. In the morning Capt. Herendeen sounds on the 6½ fm spot in Iliulik Harbor, and finds it a flat topped rock with 20 inches less than 6 fms on it, least water, at ordinary low water; small and rapidly falling off into 8 fms mud.

Mr. King of the Western Fur & Trading Co. gives some notes in regard to hydrographic observations in the Territory.

There is a rock, half a mile to a mile off the east point of Attu. This is several feet above water with a passage behind it clear of dangers. There is a reef off Massacre Hat on Attu Id. in Lat. 54° 43' and Lon. 173° half a mile long and ten feet high, not on the charts.



He could find none of the small bays indicated on the Rodgers chart in the coast of Agattu Id. and the natives said there were none. Two rocks near Amatignak are placed (on that chart) in the passage east of it, whereas they are still further to the eastward, out of the way. There is an anchorage on Amatignak, for a small vessel, between two points in  $2\frac{1}{2}$  fms: a kelp patch at the entrance contained no dangers as far as he could determine. These facts were noted on our copy of the Rodgers' chart. The chart taken down by Mr. Reushaw of the W. F. & T. Co. of the region about Saunakh, contains notes and improvements on the old Russian chart made by Pavloff at Belkoffsky, & can be seen at the company's office in San Francisco.

Friday, July 30, /80

Time	Bar.	Ther.	Dry b.	Wet b.	Water	Wind.
6 A.M.	30.17	44½	45½	45½	47	Calm.
12 M.	.26	56	68½	66	53	NW.
6 P.M.	.27	58	67½	66	-	ENE.

Weather foggy early in A.M. and late in P.M. Rest of day fine and nearly clear with moderate winds. Day devoted to work on secular variation of the compass and the reports & accounts which are to be mailed here.

Saturday July 31/80

Time	Bar.	Ther.	Dry b.	Wet b.	Water	Wind
6 A.M.	30.26	54½	57½	50½	57½	SSE
12 M.	.26	56	61	60½	52	"
6 P.M.	18	52	59	58	53½	"

Morning cloudy with short intervals of sun light, with strong winds and heavy squalls. Later, rains very hard; wind shifting to S + E. with squalls and strong gusts of rain. Day devoted to records and accounts.

Sunday Aug. 1st

Time	Bar.	Ther.	Dry b.	Wet b.	Water	Wind
6 A.M.	30.05	59	62	61½	54	SW
12 M.	30.02	61½	64½	63	52½	"
6 P.M.	29.94	62½	64	64	52½	S

Morning cloudy with showers, the sun breaking through occasionally. Wind light. About 6 P.M. southeasterly gale begins and blows heavy especially about midnight with squalls and heavy rain. Steamer St. Paul arrives from Seal Ids. to sail for San Francisco on the 4th. Will carry our official mail.

Monday Aug 2nd

Time	Bar.	Ther.	Dry b.	Wet b.	Water	Wind
6 A.M.	29.59	57½	60	59	53	SSE
12 M.	.78	58½	62	60	46	SW
6 P.M.	.90	55.	56½	56	45	"

Weather squally, weather cloudy but with glimpses of sun. Wind very high, preventing us from going to sea or doing any field work. Put official mail in the hands of Capt. Erskine of the str. St. Paul and of Capt. Petersen of the barkentine Malay for San Francisco, and Port Townsend respectively. Work over records and accounts.

Tuesday Aug. 3rd/80

Time	Barom.	Ther.	Dry b.	Wet b.	Water.	Wind.
4 A.M.	30.02	48½	49½	49½	45½	SW.
8 "	.03	47	47½	47½	43½	WSW.
12 M.	.05	47½	48½	49	44	"
4 P.M.	.04	47	49	49½	44	"
8 "	.04	46½	48	48½	44	"
12 "	.05	47	49	49	45	"

Weather foggy wind moderate. Leave Unalaska about 4 A.M. and throughout the day go on our course for St. Paul Id. with little disturbance. Work over records + computations.

Wednesday Aug 4/80

Time	Barom.	Ther.	Dry b.	Wet b.	Water.	Wind.
4 A.M.	30.06	47	48½	49	46	W.
8 "	.06	48	49½	49½	47	NW by N.
12 M.	.11	47	50	51	47	"
4 P.M.	.12	48½	51½	51	48½	NW
8 "	.14	48	49	49½	48	"
12 "	.19	49	49½	50	48	SW

Wind very light. Sky partly sunny and partly overcast. Make very little headway. Work over records.

Thursday Aug. 5/80

Time	Barom.	Ther.	Dry b.	Wet b.	Water.	Wind.
4 A.M.	30.16	46½	48	48½	47	SW
8 "	.11	47	49	50	46	"
12 M.	.10	49½	50	50	45½	"
4 P.M.	.12	47	49	49½	44	"
8 "	.02	47	48½	49	44	"
12 "	29.99	46	48	48½	44	"

Morning cloudy, sun out for an hour or two but foggy toward evening. Wind moderate.

Pass the eastern end of St. George Id. about noon. At 4 P.M. anchor off Black Bluffs St. Paul Id. where we are boarded by several fishing boats, and later by Col. Otis, Special Agent at St. Paul and Mr. Armstrong agent of the A.C. Co. As the weather is unsettled conclude to send in instruments with Messrs Noyes + Baker to remain over night in case landing in the morning should prove impracticable. Go ashore with them and have some conversation with the residents.

There are twenty five wooden buildings at St. George including a rather nice looking church 20,000 seal taken there this year.



The winter was rather severe and the spring unusually late. The first landing at St. Paul was May 31st. The season so far has been one of the driest known. No rain fell during July and during June & July there was no time when a landing could not be made and the usual work done.

At St. Paul last winter about 11,000 seal were taken for food, of which 4000 furnished skins which were taken by the Company. About 80,000 skins were taken and accepted and six or seven thousand in all rejected this year. Only 18 skins of the regular killing rejected on account of cutting. Sixty natives did the skinning and the quota was taken in thirty five days.

No oil was taken this year. Last years oil sold for 35¢ per gallon and it does not pay. There are about 80 wooden buildings here including a fine church & school house. The latter has 30 scholars and they are taught by an Aleut of the name of Butrin who was educated in Vermont at the Company's cost. The meteorological observations are taken by the Company's agent here (Dr. Noyes)

The instruments are in the village school house and all at the top of the village bluff or very nearly. Seven cottages are to be put up this winter. They cost the Company about \$400.00 each. There are only one or two barabaras left. There are seven whites on the island this season to winter here. For the Government, J. A. Moulton and Col. Otis on St. George and St. Paul respectively. Go aboard again at 8 P.M.

Friday Aug. 6. 1880

Time	Bar.	Ther.	Dry b.	Wet b.	Water	Wind.
4 A.M.	29.92	45½	46½	47	43	SSW
8 ..	.87	46	47	47½	43½	"
12 M.	.79	46½	48½	48½	43½	"
4 P.M.	.68	48½	48½	48½	43½	SS E
8 ..	.59	46	48	48½	43½	"
12 ..	.38	46	48	47½	47	SE

Morning mostly cloudy or foggy with the sun out for a few moments at a time. P.M. cloudy. Wind moderate, at evening rising to a stiff gale.

Observations for dip intensity & declination none first class but all very welcome, as the weather shows signs of becoming bad. Go ashore about 1 P.M. and visit

the Reef rookery with Col. Otis. Hurry the observers off as wind increases and getting aboard about 5 P.M. make sail at once, going round the southern part of the island and meeting a SW. swell which had it risen before our departure would have interrupted all communication with the shore.

Saturday, Aug 7 1880

Time	Bar.	Ther.	Dry b.	Wet b.	Water.	Wind.
4 A.M.	29.14	46	48	48	47	SE.
8 "	28.90	47	48	48	45	ESE.
12 M.	.78	46	48	49	45	"
4 P.M.	.68	47	48½	48½	46	"
8 " <sup>(6)</sup>	.65	47	48½	48½	46½	"
12 "	.77	46	48	48	47	"

A very stiff gale blowing with the lowest barometer of the season. Rain & heavy sea. Heave the vessel to. All work interrupted.

Sunday Aug 8th

4 A.M.	28.78	46½	48	48	46½	ESE
8 "	.88	47	49	49	46	"
12 M.	.94	47½	49	49	45	"
4 P.M.	29.07	46	48	48½	46	"
8 "	.07	46	46½	47½	44	"
12 "	.11	45	47½	47½	43½	"

Wind fresh, sea high, making good headway under reefs but all work interrupted. Rain & fog all day.

Monday Aug 9/80

Time	Bar.	Ther.	Dry b.	Wet b.	Water.	Wind.
4 A.M.	29.11	46	48	48½	43	ESE.
8 "	.14	44½	45½	46	43½	E
12 M.	.18	45	47	47½	45	"
4 P.M.	.20	45½	47½	47½	44½	"
8 "	.27	45½	47	47	44½	"
12 "	.30	46	47	47	45	"

Rainy & foggy. Stiff breeze & heavy sea. Pass St. Mathew about 15 miles to the westward at 3 A.M. but see nothing in the fog. Keep on for Plover Bay.

Tuesday Aug 10th

4 A.M.	29.32	45½	47	47	44½	E
8 "	.38	46	47	47½	44	"
12 M.	.42	46	48	48	47	"
4 P.M.	.43	46	46	46½	44	"
8 "	.38	47	48½	49	45	NE
12 "	.32	48	50	50	46	E

Morning foggy with rain. P.M. rain holds up at times. Wind moderate to light but heavy sea continues. In the morning make land, Cape Aggen, sixty miles to



the westward from Plover Bay, bearing N.W. by N. about thirty miles. Beat to the eastward with light wind and heavy <sup>head</sup> sea. Later foggy and rainy. Everybody pretty well disgusted by the constant pitching and tossing of the last few days.

Wednesday Aug. 11th 1880

Time.	Bar.	Ther.	Dry b.	Wet b.	Water.	Wind.
4 A.M.	29.39	45	47½	48	43	E
8 "	.42	44½	46	46	43½	"
12 M.	.52	46	48	48½	46	"
4 P.M.	.56	45½	47	47	44½	"
8 "	.60	45	47	47	44	"

Morning, wind light & so continues most of day. Heavy sea continues, weather overcast with occasional showers. In the afternoon finally get into Plover Bay entrance and meet the steamer Corwin of the U.S. Revenue service coming out, bound for St. Michaels after coaling. Captain Hooper comes aboard and informs us that three weeks ago the ice prevented his going further than Dey Cape, but a week ago he was within twenty miles of Herald Id., where most of the whales were, having had

good luck. All well on board. After going to St. Michaels he was going to Herald Id. and then over to the American coast again then to Unalaska and down by Oct. 1st. No news from the Jeannette or the whales. Part company and then proceed into Plover Bay where we anchor in Port Providence about 10 P.M. in 17 fms. water. Several canoes of dirty but good natured natives come alongside.

Thursday Aug. 12

Time.	Bar.	Ther.	Dry b.	Wet b.	Water.	Wind.
6 A.M.	29.67	45	46½	47	44	N.
12 M.	.75	49	50½	50½	44½	S.
6 P.M.	.78	52	52	52	45	Var.

Weather overcast with a few glimpses of sunshine. Wind quite light. Obs. for time dip, intensity, astronomical & magnetic declination, at, or very near, Oratsevich's station on the spit.

Friday Aug 13th

6 A.M.	29.78	46	46½	46½	44½	Var
12 M.	.76	47	48½	48½	45	"
6 P.M.	.78	48	48	48	45½	S

Weather overcast with showers. Evening calm foggy. Throughout the day, wind light or none.

## Saturday Aug. 14/80

Time	Bar.	Ther.	Dry b.	Wet b.	Water.	Wind.
6 A.M.	29.78	46	47	47 1/2	45	S
12 M.	.78	49 1/2	50	50	45 1/2	"
4 P.M.	.75	47	48	48 1/2	45 1/2	SW
8 "	.72	44 1/2	46	46	45	"
12 "	.70	44	44	45	46	Calm

Day foggy with about an hour's sunshine in the latter part of the afternoon. Wind none or light. Observations for fixing station. About 1.10 P.M. heave up anchor & drop out of Plover Bay with the tide, en route for Cape Lisburne. Later calm.

## Sunday Aug 15th

4 A.M.	29.68	42	41 1/2	41 1/2	35	NE
8 "	.61	44	38 1/2	39	36	"
12 M.	.56	48	51 1/2	51	38	Calm
4 P.M.	.50	48	49	50	45	"
8 "	.48	46	47	48	44 1/2	"
12 "	.45	42	43	43 1/2	38	N

Dead calm all day. Get sounding and bottom temperature off Cape Chaplin. Bottom gravelly. Some Eskimos come off from the village on the Cape. Weather half cloudy rains at night.

## Monday Aug. 16/80

Time	Bar.	Ther.	Dry b.	Wet b.	Water.	Wind.
4 A.M.	29.42	41 1/2	44	45	37 1/2	N
8 "	.42	43 1/2	45	45	45 1/2	NNE
12 M.	.41	46	46	45 1/2	46 1/2	"
4 P.M.	.41	42	43 1/2	44	43 1/2	N by E.
8 "	.38	41	43	43	41 1/2	"
12 "	.36	45	42	43	44	"

Weather foggy with some rain. Wind moderate. Work over records & computations.

## Tuesday Aug. 17

4 A.M.	29.32	43	44 1/2	44 1/2	44	NW
8 "	.35	44	44	44 1/2	44 1/2	Calm
12 M.	.35	43 1/2	44	44 1/2	44	E NE
4 P.M.	.41	42	41	41 1/2	41 1/2	NE
8 "	.50	42	42	42 1/2	43 1/2	"
12 "	.55	42 1/2	44 1/2	44 1/2	43	E NE

Day foggy except about 2 hours in the P.M. Wind moderate morning & evening, fresh in the middle of the day. At 8 A.M. sound in 13 fms. Top temperature 44 1/4 bottom 40° F. per specific gravity cup. E. head St. Lawrence Bay bore ~~E~~ N by E 1/2 E.; the mountains north of Mechigme, W. by N. 1/2 N.; and those S. of do. W 1/2 S. Lat. 67° 17'. Lon. 171° 12' W. Put over the dredge finding bottom of coarse gravel & stones. Work over records.



Wednesday Aug. 18/80

Time	Barom.	Ther.	Dry b.	Wet b.	Water	Wind.
4 A.M.	29.58	41	42	42½	44	NNW
8 "	.59	44½	46	46	45	"
12 M.	.60	50	49	50	51	N
4 P.M.	.61	48	49½	49½	49½	"
8 "	.58	47½	49½	49½	51	"
12 "	.49	47	49	49	50	"

Weather foggy except an hour or two before sunset. Wind fresh, dead ahead. A strong tide running against it all the P.M. makes a strong choppy sea. Temperature of water rather high. See the Diomedes and get a view of them. The smaller one is inhabited. Fairway Rock is abrupt about 360 feet high, top grassy, no inhabitants or landing place. Work on records.

Thursday Aug. 19th

Time	Barom.	Ther.	Dry b.	Wet b.	Water	Wind.
4 A.M.	29.50	46½	48	48	48	NNW
8 "	.48	49	49	49½	49	"
12 M.	.44	50	51	51	50½	"
4 P.M.	.40	51	51	51½	51	Calm
8 "	.44	50	48½	49	51	"
12 "	.50	50½	52	52	50½	S

Weather fine, warm, foggy in the distance; wind light & adverse. Work over records. Cross the Arctic circle.

Friday Aug. 20/80

Time	Barom.	Ther.	Dry b.	Wet b.	Water	Wind.
4 A.M.	29.51	48	49	49½	50	SW
8 "	.60	47½	47½	48	45	"
12 M.	.70	48½	47½	48	49	SSW
4 P.M.	.77	46½	48½	48½	49	SSE
8 "	.82	46	47½	47½	47½	"
12 "	.89	46	48½	48½	48	"

Strong fair wind all day; sky overcast with some fog. Pass point Hope at 3.15 P.M. It is a long low gravel spit with numerous stages, caches, graves & moundlike Eskimo houses scattered along it. There is a stiff current & rip at the end but no shoal or reef as far as visible. The village at this season is empty the natives being engaged in fishing elsewhere. The chart gives a current of 1½ - 2 knots to the westward and northward and three knots to the northward around Pt. Hope, but this is not constant and is chiefly due to tide and wind for Mr. McDonald informs me that both he and Capt. Smithers of the Vigilant experienced in 1879 in July, or the early part of August an equally strong

set to the eastward and southward (with a N.W. wind) for at least ten hours. Cape Thompson to the eastward from Pt. Hope is high bluff & bold; northward from Pt. Hope the land is high & bluff seeming to be composed of much tilted & twisted stratified rocks, mostly dipping about  $20^{\circ}$  to  $50^{\circ}$  to the eastward and southward. Cape Lioburne with which we come up about 7 P.M. is high, bluff and bold composed of much metamorphosed limestone beds containing large masses of silicious material which stands out along its edges in sharp pinnacles. From its extreme a long narrow band of shoal water extends as indicated by the charts, several miles but probably with not less than three fathoms in it. We crossed it in  $5\frac{1}{4}$  fathoms and came to anchor under the lee of the cape in 7 fms muddy bottom about 8.35 P.M.

Saturday Aug 21/80

Time	Bar.	Ther.	Dry b.	Wet b.	Water	Wind.
4 A.M.	29.92	47	47	$47\frac{1}{2}$	49	NE
8 "	30.00	48	49	$49\frac{1}{2}$	48	"
12 M.	30.06	53	53	$52\frac{1}{2}$	$50\frac{1}{2}$	"

Time	Barom.	Ther.	Dry b.	Wet b.	Water	Wind.
2 P.M.		80				
4 "	30.17	53	$58\frac{1}{2}$	59	50	Calm
8 "	.12	52	52	52	57	NE
12 "	.16	49	$49\frac{1}{2}$	50	$50\frac{1}{2}$	"

Morning mostly cloudy, sun out at times P.M. half clear. Calm until evening when we have light air. Observations at the mouth of a small stream about 2 miles eastward from the Cape, for dip, intensity declination, time and latitude. Get a serial sounding, showing a gradual diminution of temperature of one degree from top to bottom. The shore here is sandy & gravelly backed by banks of waterworn pebbles, sand &c, covered with a six foot layer of vegetable mould. This bank rises to a height of fifteen or twenty feet and slopes gradually toward rounded limestone hills, for the most part bare of vegetation and greatly weathered so that the superficial rock is crumbled into gravel by the frost. The usual northern vegetation covers the low lands with an olive green mantle. A good many flowers, including the forgetmenot, marks



hood, chickweed, scurvy grass, dock &c were still in bloom, many however were far gone in seed. Mosquitos, but not numerous, a few hymenoptera of small size and one or two microlepidoptera were seen. Birds were moderately abundant including a titlark which seems new to the fauna; and the marmots were very large & fat. The beach was very bare of life or remains of either animal or vegetable matter; the stream & sea were destitute of food fish, but the water seems crammed with whalefeed of various kinds. There were no traces of moraines erratics or true glacial debris, and very few patches of snow, these mostly in sheltered ravines. There is a small village of ten or fifteen people at the eastern end of Cape Lisburne bluff.

During the entire time of our stay the current at our anchorage runs about 2 knots to the west and south at evening there was an eddy along shore in the opposite direction. A light air springing up, weigh anchor & stand to the N.E. ward at 7.45 P.M.

New Notebook commenced  
Aug 22<sup>nd</sup> 1880.

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