Monday April 28
At two p.m. weigh anchor & beat out of San Francisco Bay.
Passing the heads at 4 p.m. & sail for Unalaska A.T.
Wind W by S. Ther. 62. Cloudy.

Tuesday April 29
Wind fresh W W. Sky half clear.
Bar. 30.440. Ther. 60.
Commence current observations.

Wednesday April 30
Commence hydrostatic observations.
Water at 4 p.m. reads -24.

Thursday May 1
Commence sea time. 4 p.m. Bar. 30.44. Air 66°. Water 62°. Sph. gr. 29.
8 p.m. Bar. 30.42. Air 62°. Water 60.
12 p.m. Bar. 30.42. Air 60°. Water 60.
4 A.M. Bar. 30.35. Air 59°. Water 60.
12 M. Bar. 30.43. Air 70°. Water 59°.
<table>
<thead>
<tr>
<th>Date</th>
<th>Wind Direction</th>
<th>Time</th>
<th>Bar.</th>
<th>Air.</th>
<th>Water</th>
<th>Sp.gr</th>
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<td><strong>Friday May 2, 1873</strong></td>
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<td>4 P.M.</td>
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<td>Water</td>
<td>Sp. Gr.</td>
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<td>42</td>
<td>S</td>
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<td>42</td>
<td>42</td>
<td>S</td>
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</tr>
</tbody>
</table>

Blowing a gale, cloudy, very rain.

Blowing very strong, cloudy, much rain.

Blowing very strong, cloudy, much rain.

Blowing very strong, cloudy, much rain.

Wind more moderate with rain.
Wednesday May 14, 73

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air.</th>
<th>Water</th>
<th>Sp.gr.</th>
<th>Winds</th>
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<td>-0.27</td>
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<td>39</td>
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<td>29.61</td>
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<td>SW</td>
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<td>SE</td>
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<td>8 ..</td>
<td>29.83</td>
<td>39</td>
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<td>12. M. 29.22</td>
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<td>4 P.M. 29.08</td>
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<td>-0.27</td>
<td>SW</td>
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<td>12 P.M. 29.01</td>
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<td>40</td>
<td>W</td>
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</table>

Winds light with rain, Many birds seen.

(This day contains 36 hours to recommence civil time and conform with the original note books for the season)

Thursday May 15

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air.</th>
<th>Water</th>
<th>Sp.gr.</th>
<th>Winds</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 A.M. 29.17</td>
<td>38°</td>
<td>39°</td>
<td>NW</td>
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<tr>
<td>8 ..</td>
<td>29.35</td>
<td>42</td>
<td>40</td>
<td>W</td>
<td></td>
</tr>
<tr>
<td>12 ..</td>
<td>29.46</td>
<td>40</td>
<td>39</td>
<td>W</td>
<td></td>
</tr>
<tr>
<td>4 P.M. 29.56</td>
<td>40</td>
<td>39</td>
<td>-0.265</td>
<td>W.S.W.</td>
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<td>8 ..</td>
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<td>35</td>
<td>39</td>
<td></td>
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<tr>
<td>12 ..</td>
<td>29.62</td>
<td>34</td>
<td>39</td>
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</tbody>
</table>

Cloudy, very light winds or nearly calm.

Friday May 16

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air.</th>
<th>Water</th>
<th>Sp.gr.</th>
<th>Winds</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 A.M. 29.62</td>
<td>33°</td>
<td>39°</td>
<td>W.S.W.</td>
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<td>8 ..</td>
<td>29.70</td>
<td>33</td>
<td>39</td>
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<td>12 ..</td>
<td>29.78</td>
<td>40</td>
<td>39</td>
<td>Calm</td>
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<tr>
<td>4 P.M. 29.75</td>
<td>40</td>
<td>39</td>
<td>-0.26</td>
<td>S.S.W.</td>
<td></td>
</tr>
</tbody>
</table>

Take a series of observations to determine the position of a codbank, on which we catch a large number of cod and halibut about 9 A.M. These will be found in the astronomical...
notebook. At the commencement of these circummeridian observations, take
the following bearings by compass.
E end of Saunakal groupNW 1/2 W
W ... E island W 3/4 N
E ... Peak W 3/4 N
Peak bears W (alt. by sextant 0° 41' 30")
W end of Peak island W 1/2 S
Outlying rocks W N 30 minutes after, at end of observa-
tions having gone one mile on a
W 1/2 S Mag. course, take the fol-
lowing bearings.
Easternmost small rocks Why S 1/2 S
... end next island W
S ... Peak W 1/2 N
Peak (alt. 0° 48' 20") Why N 1/2 N
E end peak island WHW
W ... next NWW
E ... 
Breakers off last NWW 1/2 W
Southernmost rocks WSW

Nearly clear, very light airs or
calm. Lee Shishaldin & Danotsky
volcanoes.

Monday May 19. 73
Fine Bar. Air. Water Spq. Wind
4 A.M. 30.66 36° 36° N W
8 ... 30.20 33 36 h W
12 ... 30.20 41 39 "
4 P.M. 30.27 38 39 -0.255 NNW
8 ... 30.30 33 39 "
12 ... 30.32 31 37 WNW

Fresh breeze, cloudy with some fog
yet through the Unimak Pass head-
ing against a 3 knot current. Pass
the NE end of Akkun and look
into the bay which Smith supposes
to contain a harbor, but see nothing
remarkable.

Tuesday May 20
4 A.M. 30.38 30° 37° h
8 ... 30.38 30 36 NNE
12 ... 30.40 44 36 -0.255 ...

Come into Captains Bay about 8
A.M., and anchor in St. John's Harbor
about 10 A.M. having made the
voyage in 21 days and 12 hours, the
quickest time from San Francisco.
Unalaska, yet on record.

Weather cloudy with fresh N'W breeze

Wednesday May 21, 1873

Cloudy, very strong, NW wind with snow squalls. Examine instruments and measure a staff for the small Casella theodolite to use as a telemeter. Between the upper and lower wires, at a distance of two meters, with a correction of 0.228 m four inches are suspended and between each pair of wires two inches. The staff is seven feet long which will admit of measuring 84 meters with it. Put out minimum and deep-water thermometer and carry on our observations henceforward at the hours of 6 A.M., 12 noon and 6 P.M. each day.

6 A.M. 33° 39° 40° N
12 M. 30.10 34° - N
6 P.M. 30.14 33° 38° - NW

Thursday May 22

Cloudy with squalls and strong NW by W + W wind. Occupied in examining instruments and cler-

ical work. Min. Therm. 31°

6 A.M. 30.11 32° 38° 40° NW
12 M. 30.12 49° - W
6 P.M. 30.22 40° 38° - NW

Friday May 23, 1873

Morning cloudy with fresh wind and snow squalls. Min. Therm. 32.5°. Yet meteorological record from Jan. 1, 1873, to date kept by the Rev. Innocentius Shayes, priest of Unalaska, with the thermometer which I left with him last year.

6 A.M. 30.32 34° 39° 40° NW
12 M. 30.40 42° - S
6 P.M. 30.45 38° 38° - S

Saturday May 24

Wind light. Weather thick cloudy and rainy. Min. Therm. 34°.

Work all day over clerical work and repairing signals.

6 A.M. 30.42 34° 39° 40° SW
12 M. 30.33 42° - S
6 P.M. 30.31 40° 38° - S

Sunday May 25

Morning, sky partly clear. Wind fresh. Min. Therm. 34°.
Go ashore at 7 A.M. with the Baker and attempt observations for time with vest circle No.75. Come aboard at 10 A.M. at three P.M. go out again and continue observations which are soon interrupted by clouds.

6 A.M. 30.34 41° 39" 41° W
12 M. 30.38 67° - W
6 P.M. 30.40 54° 38° - SSW

Monday May 26

Cloudy nearly calm. Sailing master Herendine goes to Ratchhta Bay in a bidarka with two natives to search for a stick to replace our jibboom. Go ashore and work at adjustments of instruments and testing new telemeter. P.M. go to Ulakhta Spit and take a series of observations for determining the magnetic azimuth of the baseline of the sun of this latitude, with observations for astronomical azimuth at the same time, which are interrupted by clouds and wind. Back by 8 O.M. Capt Herendine returns without having obtained a spar.

6 A.M. 30.48 40° 40° 42° SW
12 M. 30.47 54° - 5 W
6 P.M. 30.34 46° 40° - WSW

Tuesday May 27

Morning cloudy with occasional bits of clear sky. Wind NW fresh in puffs. Go to Ulakhta Spit in A.M. to obtain another series of observations for magnetic azimuth of base line. Return at noon. P.M. Cloudy wind strong with occasional snow squalls. Busy on clerical work.

6 A.M. 30.24 40° 40° 42° NW
12 M. 30.20 55° - N
6 P.M. 30.15 42° 40° - N

Wednesday May 28

Fine Bar. Air. Sun. water deep. Wind
6 A.M. 30.15 36° 40° 42° N
12 M. 30.10 37° - N
6 P.M. 30.09 36° 40° - NW

Wind fresh with a good deal of fleet and snow. Min. Therm. 32°
Thursday May 29, 1873
Fine, Bar. surf. water, deep do. Wind. air
6 A.M. 29.95 39° 41° N 35°
12 A.M. 29.97 - - NW 45°
6 P.M. 30.00 40° - NW 43°
Storming hard with rain & squalls
P.M. rain ceases. Go ashore and
establish a station for astronomical
purposes, consisting of three blocks
of wood, buried in a mass of stones
and coming to the surface so as
to afford a steady support for
the tripods of our instruments,
with a flat stone in the middle
for placing the mercurial horizon
on. The position of the station
is nearly on the spot where our
astronomical observations of 1871-2
were taken.

Albatross A bears S 77° 4 E
A 6° 0' 0" B 180° 0' 0"
Church cupola bears 8 56° E
A 41° 21' 40" B 221° 22' 00"
Keystone A bears S 7° W
A 154° 15' 20" B 334° 13' 40"

Evening being nearly clear we go
out with the vertical circle

and attempt to get time from
one of the stars in the constella-
tion Aquilae, but the lamp gives
us so much trouble that we
have not great confidence in
the readings. Return to vessel
at 2.30 A.M. Min. then, 33° 5

Friday, May 30, 1873
6 A.M. 42° 39° 41° N 24° 96°
12 A.M. 0° - - W 29° 96°
6 P.M. 57° 42" - W 29° 96°
Morning clear & fine, wind light &
airwards fresh. Min. then, 35° 0.
Go out at 6 A.M. with sextant
and artificial horizon to obtain
a series of equal altitudes for time.
P.M. complete the series which
promises good results.

Saturday May 31
6 A.M. 30.00 42° 41° 41° N
12 A.M. 30.02 54° - NE
6 P.M. 30.08 48° 43° - NE
Morning cloudy, wind light NW
wind; water fresh. All
hands busy, fitting new jibboom.
P.M. Take the boat 18 so to
Hog Island and set up a new signal on the edge of the bluff on the SW end, 136 feet above the beach, to be called Island Signal. Return to vessel at 7 P.M., with a dead calm and fog coming in.

Sunday June 1, 1873

6 A.M. 30.10 60° 47° 40° East N. W.
12 A.M. 30.15 62° - 3.6
6 P.M. 30.13 52° 47° - N E

Morning remarkably clear and fine. To ashore for the new astronomical Δ and take a series of observations for astronomical azimuth between the Δ and the apex of the church cupola. May 30th, observed 62°. Late in P.M. foggy wind mod.

Monday June 2

6 A.M. 30.13 44° 45° 60° West N. W.
12 A.M. 30.15 60° - 3.6
6 P.M. 30.16 62° 47° - N

Morning clear and fine. Wind light.
Min the 36. P.M. Mr. Baker takes azimuth observations. Take the boat, Mr. Wysor,3 aide and 3 men and start for the site of the old Igaznak or Eider village, to erect a signal on the bluff to be used in the S W of the Bay. Arrive about 1 P.M. Spend the P.M. in erecting the signal which is on the high bluff behind the point, & composed of three scantily stayed & anchored as in the case of the Island Δ. Return to the Spit about 9 P.M., after having taken a series of angles step by step to determine the position of the signal and a series of telemetric observations to determine its heigh which is about 622 feet. Camp for the night.

From Elder Δ

Near Cape Cheerful
N & shore of Atakan bears N 35° E
B 180° 01°
Prest Rock bears N 51° 34° E
A 16° 10°
B 196° 29°
S. Head Constantine Bay N 76° E
A 41° 05°
B 221° 06°

North Head Δ N 92° E
A 67° 48°
B 237° 42°
End of reef W of Wakita Head 2 108 1/2 E
A 73° 22'  B 253° 21'
Needle Rock bears N 117° 48'
A 82° 24'  B 262° 24'
KeyShore 4 bears N 145° 3/4 E
A 110° 44'  B 290° 43'
W Head of Captain's Harbor S 46° 2
A 119° 20'  B 299° 20'

Tuesday June 3
Fine. Bar. Air. Surf water deep & Wind
6 A.M. 30.17  45° 44°  41° N
12 M.  30.21  49  -  NE
6 P.M. 30.22  49  -  NE
Go out in the A.M. after breakfast
and take some soundings to determine the character of the anchorage, which is in from 22 to
30 fms hard sand floors, close to
the spit and 30 fms without bottom. Further out but still well inside the reef. The shore is pretty
well laid down in the old chart as is the reef which protects the anchorage. Day fine & clear
a little fog on the east side of the Bay. Start back about noon
having a smart breeze after getting about half way over

Thursday June 4
Fine. Bar. Air. Surf water deep & Wind
6 A.M. 30.09  39° 44°  48° W
12 M. 29.47  -  33  -
6 P.M. 24.91  -  48  46  -  ESE
Cloudy with a little rain wind light
in A.M. stronger with a little rain
in P.M. All hands busy filling
water & repairing tide gauge house

Thursday June 5
Fine. Bar. Air. Surf water deep & Wind
6 A.M. 29.85  43° 45°  40  SE
12 M. 29.86  48  -  SE
6 P.M. 29.89  44  46  - E
Raining with moderate wind.

Friday June 6
Raining all day. Wind light.

Saturday June 7
Raining all day. Wind light.

Sunday June 8
Blowing hard and raining all day
<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Barometer (in.)</th>
<th>Air (°F)</th>
<th>Water (°F)</th>
<th>Direction (deg)</th>
<th>Weather</th>
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<tbody>
<tr>
<td>Monday, June 9, 1873</td>
<td>AM 6:11</td>
<td>29.16</td>
<td>61</td>
<td>52</td>
<td>38</td>
<td>Blowing pretty fresh, Rains all day.</td>
</tr>
<tr>
<td></td>
<td>AM 12:07</td>
<td>30.04</td>
<td>60</td>
<td>52</td>
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<td>Fine</td>
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<tr>
<td></td>
<td>PM 6:11</td>
<td>29.96</td>
<td>62</td>
<td>52</td>
<td>38</td>
<td>Wind fresh in squalls, some rain.</td>
</tr>
<tr>
<td>Tuesday, June 10</td>
<td>AM 6:11</td>
<td>29.87</td>
<td>62</td>
<td>52</td>
<td>38</td>
<td>Fine</td>
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<tr>
<td></td>
<td>AM 12:07</td>
<td>29.87</td>
<td>62</td>
<td>52</td>
<td>38</td>
<td>Cloudy in early A.M. but soon clears.</td>
</tr>
<tr>
<td></td>
<td>PM 6:11</td>
<td>29.88</td>
<td>62</td>
<td>52</td>
<td>38</td>
<td>Wind moderate. Take a series of angles from the new Astronomical A and Albatross A to connect the line on which the azimuths have been observed with the harbor S.W. PM, connect the Astronomical B with Station A and take a series of observations on the sun for azimuth.</td>
</tr>
<tr>
<td>Wednesday, June 11</td>
<td>AM 6:11</td>
<td>29.94</td>
<td>62</td>
<td>52</td>
<td>38</td>
<td>Fine</td>
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<tr>
<td></td>
<td>AM 12:07</td>
<td>29.88</td>
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<td>52</td>
<td>38</td>
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<td>PM 6:11</td>
<td>29.84</td>
<td>62</td>
<td>52</td>
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<td>Calm</td>
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<td></td>
<td>PM 8:07</td>
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<td>52</td>
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<td>Calm</td>
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<td></td>
<td>PM 12:07</td>
<td>29.69</td>
<td>62</td>
<td>52</td>
<td>38</td>
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<tr>
<td>Thursday, June 12</td>
<td>AM 6:11</td>
<td>29.59</td>
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<td>52</td>
<td>38</td>
<td>Fine</td>
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<td></td>
<td>AM 12:07</td>
<td>29.52</td>
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<td>52</td>
<td>38</td>
<td>Fine</td>
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<tr>
<td></td>
<td>PM 6:11</td>
<td>29.48</td>
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<td>Fine</td>
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<td></td>
<td>PM 8:07</td>
<td>29.53</td>
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<td>Fine</td>
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<tr>
<td></td>
<td>PM 12:07</td>
<td>29.65</td>
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<td>Fine</td>
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<tr>
<td>Friday, June 13</td>
<td>AM 6:11</td>
<td>29.71</td>
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<td>Fine</td>
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<tr>
<td></td>
<td>AM 12:07</td>
<td>29.85</td>
<td>62</td>
<td>52</td>
<td>38</td>
<td>Fine</td>
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<tr>
<td></td>
<td>PM 6:11</td>
<td>29.95</td>
<td>62</td>
<td>52</td>
<td>38</td>
<td>Fine</td>
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<tr>
<td></td>
<td>PM 8:07</td>
<td>29.91</td>
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<td>Fine</td>
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<td>PM 12:07</td>
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<td>PM 8:07</td>
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<td>Fine</td>
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<tr>
<td></td>
<td>PM 12:07</td>
<td>30.11</td>
<td>62</td>
<td>52</td>
<td>38</td>
<td>Fine</td>
</tr>
</tbody>
</table>

The weather was thick and foggy, and the wind was moderate.
Saturday June 14th 1873.

4 A.M. 29.94 39° 39" E.W.N.
7 " 29.95 40° 40" E.
10 M. 29.96 40° 39" E.
1 P.M. 29.97 42° 40" E.
7 " 30.00 42° 40" E.
12 " 30.01 42° 40" E.

Winds fresh, Weather cloudy.

About 10 A.M. see Boulder Island bearing S. magnetic. At noon having obtained some bearings for position placing us in Lat. 52° 56' 41.2" and Long. 175° 38' 20" E.

Sound as follows:

Time run out (June)
Let go 12 h. 40 m. coffee
50 50 12 40 18
50 50 12 30 36
100 100 12 41 36
100 100 12 43 36
100 100 12 44 21
50 50 12 46 05
100 100 12 47 59
100 100 12 50 63
100 100 12 52 29
200 200 12 54 57
118 " 1nd of June 12 59 02
Total 1018 " without bottom; the deepest sounding ever taken in Bering Sea. Conditions all favorable, the sea quiet, the heave nearly plumb, and the sand cup with which the 100 lb. lead was armed came up clean and unscratched, showing that no bottom could have been reached.

Clouidy, very clean by moon, Wind very light.

Sunday, June 15th.

4 A.M. 29.89 38° 40" W.
7 " 29.91 41° 39" W.N.W.
10 M. 29.96 42° 40" W.
1 P.M. 29.97 42° 40" W.
7 " 30.00 42° 40" W.
12 " 30.01 42° 40" W.

Wind fresh, Weather cloudy.

Monday, June 16th.

4 A.M. 30.16 41° 40" N.
7 " 30.20 40° 41" N.W.N.
10 M. 30.20 42° 42" N.
1 P.M. 30.26 44° 44" N.
7 " 30.29 43° 42" S.W.S.
12 " 30.29 43° 42" S.W.H. S.

Cloudy at times, Wind very light.
Tuesday, June 17th, 1853

Time Bar Alt. Data: 30. 05° 40' 40"

4 A.M. 30.05 40' 40"
F 30.10 41 40
12 M 30.01 45 42
4 P.M. 30.51 43 41 25.5
F 30.04 41 41 21.2 N
12 " 30.00 42 40

Foggy & cloudy, blowing a stiff breeze.

Wednesday, June 18th,

4 A.M. 29.98 41 41' - N.E.
F 30.00 42 41
12 M 30.03 44 41

Foggy & cloudy. About noon a stand in
in halls, Chickagoff. Carter, 14th Island,
coming to an anchor in the middle of
the Bay about 1:30 P.M.

The Carter is a good one but can
only be entered with a fair wind and
is still more difficult to get out of.

The entrance is exceedingly narrow,
so that there is no opportunity to tack
15 miles. In an emergency one
may anchor outside the narrows
in a small height on the S. E. side.

A southwest wind drives in, as
far as the narrows, when it comes
dead ahead. A ground swell has
in, so that it is difficult to make
headway against it in calm or light
weather by towing, even with the tide,
and there is no hold for an anchor
in the entrance.

The latter breaks clear across during
the heavy winter storms. The best
holding ground inside is pretty
muck between the western piers,
about two thirds of the way from the
rocks to the village. 6 feet muddy grass.

The is good water but no draft was
or growing lches of any sort.

There is a dwindling and store
house occupied by the Agent of the
Fair Company, and about thirty
native hoves in which live about
250 natives.

At the present time there is salt
fish to be obtained here, though
formerly abundant.

The hoodles or squalls from the
mountains are very severe in winter
and the worst weather generally
comes from the Southeall Railroad.

Northeast weather in summer is
usually more or less clear; also,
much of the Southwest weather. Southwest and west are the prevalent summer winds.
The harbor never freezes over and the fall of snow is not large.
Very good potatoes have been raised by the Company's Agent, but no other vegetables have been tried for want of seed.

Thursday, June 19th, 1873

June Bar. Air. Water, Deep do. Wind
6 A.M. 29.99 40° 42° 44° N.
12 M. 29.97 47°
6 P.M. 29.96 44° 43°
Cloudy all day with fresh N. wind. There is no anchorage in Shell goby tank as called on the Ex. Exp. Charts, as the water is too bold, and there are many
on high rocks. Mr. Frost sounded
third last summer.

The same is asserted by the natives to be true of the other Bays, which indent the shore line of the island, except Massacre Bay, where there is an anchorage, though in pretty deep water, and not very good shelter.

There are no harbors on Bandon or
Sanchi Islands or on Bandon.

Friday, June 20th, 1873

June Bar. Air. Water, Deep do. Wind
6 A.M. 29.96 43° 44° 42° N.W.
12 M. 29.94 51°
6 P.M. 29.90 50° 46°

Half clear in the morning. Obtained observations for time and azimuth and an announcement, an ad for news for latitude. Wind moderate.

Saturday, June 21st

June Bar. Air. Water, Deep do. Wind
6 A.M. 29.96 43° 44° 42° N.W.
12 M. 29.94 51°
6 P.M. 29.02 49° 45°

Lt. Master Vick and Peggy. Wind light.

Sunday, June 22nd

June Bar. Air. Water, Deep do. Wind
6 A.M. 30.20 44° 43° 42° N.W. S.
12 M. 30.20 53°
6 P.M. 30.20 51° 46°

Day cloudy, wind light.

Monday, June 23rd

June Bar. Air. Water, Deep do. Wind
6 A.M. 30.17 45° 44° 42° Calm
12 M. 30.25 55°
6 P.M. 30.20 50° 44°

Weather cloudy with glimpse of sunshine in P.M. Wind variable, light.
Weather thick, wind fresh. Setting ready for 24.

Wednesday, June 23, 1873

Time Bar. Air. Lat. Water Deep. True Wind
6 A.M. 30°.07 43° 45° 42°. W.S.W.
12 M. 30°.06 50
6 P.M. 30°.03 46

N. W.

Early in the day, sky covered with broken clouds. Attempt azimuth observations, which are interrupted by clouds, and the weather becomes thick. Wind west.

Thursday, June 24th

Time Bar. Air. Lat. Water Deep. True Wind
6 A.M. 30°.21 46° 44° 43°. N.N.E.
12 M. 30°.26 56
6 P.M. 30°.26 66

Wind light northly, weather thick & foggy. Obs. for magnetic dip by ordinary and Lloyd's method. A.M. and P.M.

Late in P.M. sun comes out well and we get four sets of azimuth obs. The best yet obtained.

Friday, June 25th

Time Bar. Air. Lat. Water Deep. True Wind
6 A.M. 30°.22 48° 45° 43°. S. E.
12 M. 30°.25 57
6 P.M. 30°.23 46

N. W.

Sailed about 3 P.M. The bay being open to the north and east and affords no anchorage. There are scattered rocks and reefs, most of them visible above the surface at low water. There is a considerable depth of water in the outer part of the bay, but near its head it suddenly shallows and terminates in a broad sand bank a mile long, through which a stream flows on which is a native fishing station. Natives had better avoid this bay.

Return to the Harbor about 3 P.M. The tide agent attar, as in the eastern part of the channel, invariably rises to the westward, and falls to the north and east, causing a strong current near the shores; of which rebels bound for the Harbor with light minds will do well to take notice.

Obtain a few observations for azimuth after returning.

Tuesday, June 26th.

Time Bar. Air. Lat. Water Deep. True Wind
6 A.M. 30°.07 43° 45° 42°. N.W.
12 M. 30°.05 50
6 P.M. 30°.03 46

N. E.
Heugh anchor early in the morning and stand out with a fair wind, but put before reaching the narrows take a tack and lay.

The anchor is let go at 3 h. 55 m. on the 28th of June 1853. The bearings outside the Harbor do not agree with the exactitude of the chart, but this variation appears to be more correct in the vicinity of Isumichi Ed, which we pass in the P.W. Weather very fair.

<table>
<thead>
<tr>
<th>Time</th>
<th>Basal Water</th>
<th>Wind</th>
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<tbody>
<tr>
<td>4h</td>
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<td>5h</td>
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<tr>
<td>12h</td>
<td>30.30</td>
<td>1h</td>
</tr>
<tr>
<td>12h</td>
<td>30.34</td>
<td>1h</td>
</tr>
</tbody>
</table>

Heather thick and foggy. Midnight, AM Calm. About 2 P.M. We leave the line.

52° 20' N. and Long. 6° 17'.

178° 17' Longitude north of the N.W. end of Kyuka Ed. Take a deep sounding as follows: Attaching a Castella Thermometer to the line.
under such circumstances. With the con-
strain of a steam-engine reeling in on a
cylindrical drum, better results may be
obtained. While reeling in the line at 10
min past 5 P.M. a sudden sharp
report was heard, like the discharge of a
large gun about five miles S.W. of us. There
are no volcanoes in that direction and the
report was sharp and more cannon-like than the volcanic noises which
we have frequently heard at
Unalaska. There is no likelihood
of any vessel having been in the vicinity
and the occurrence seems inexplicable.

Sunday, June 29th, 1878.

4 A.M. 30.50 42° 10° S.
7      30.36 44° 42° S.W.
12 M. 30.37 47° 42°
6 B.M. 30.40 46° 42°

Wind moderate; weather foggy and rainy.

Anchor in Kyska Harbor about 11 A.M., in
9 fathoms sand mud. This is a noble harbor
perfectly sheltered from all winds, except
in the Southern & Eastern shores, where
the only tyng rocks forbid anchoring.

It is of oval shape sheltered by the
two Western end of Little Kyska,
from Easterly winds. The channel betw
Great and Little Kyska, to the South is so
narrow and obstructed by rocky islets
that no sea can reach the anchorage
from this direction. The Western Shore
of the harbor is a broad sand beach
behind which three valleys extend for
some distance, in two of which are lakes
of some size. Over the low water shed of
the island by the middle valley is a
portage to a bay on the West coast of
Great Kyska. A narrow defile from the
head of the valley leads to a deep and
narrow valley to the North of the promontory
which forms the North head of the anchorage.

This is nearly filled by a large and deep
lake of brackish water, separated from the
sea only by a low sand beach.

On the shores of this lake is stored a
large amount of driftwood.

The rocks of which the island is princi-
pally composed about the harbor are a
coarse sand, slate, or fine conglomerate
of volcanic material. Principally

They are somewhat broken and contorted

and overlaid in their higher parts by in-
terlaced porphyrite. Some portions of the
sand shore, when metamorphosed, are
June enough to resemble a coarsy plate. This principally occurs in the vicinity of the drupaceous rocks. There are no animals on the islands, but a great many sea-fowl and a few small land birds. Shell fish and eel fish are very scarce exceptbrook trout in the streams.

There is abundance of good water, but no timber except driftwood and the rolling hills are covered with a thick growth of grass herbage and moss with a few hemlock bushes and cranberry vines interspersed in it. The edible "chouangoula" and "fridallaria" are abundant. There are a house and some huts on the beach occupied at times by hunting parties of allent, from the other islands. The only fish is the sea otter, though occasional sea lions are found there.

---

**Monday, June 30th, 1873**

Nineteen Aux. Air St. Mat. Up to Winds
6 A.M. 30.39 44° 42° 41° S.W.
12 M. 30.36 55° N.E.
6 P.M. 30.30 47° 42°

Kens for all day, broken by the sun for a short time at noon.

---

**Tuesday, July 1st, 1873**

Nineteen Aux. Air St. Mat. Up to Winds
6 A.M. 30.02 43° 41° 42° 41° S.W.
12 M. 29.92 30° N.E.
6 P.M. 29.79 49° 41°

Winds from all day; can see nothing afoot, wind light and variable.

---

**Wednesday, July 2nd**

Nineteen Aux. Air St. Mat. Up to Winds
6 A.M. 29.76 45° 42° 42° N.E.
12 M. 29.76 54°
6 P.M. 29.73 31° 4.3
Friday, July 4th

Time Bar. Air Temp. Water deep at Wind
6 A.M. 30.15 44° 43° S.W.
12 M. 30.11 49°
6 P.M. 30.02 44° S.E.

Came now fog all day, with heavy rain late in P.M. and high wind.

Saturday, July 5th 1873

Time Bar. Air Temp. Water deep at Wind
6 A.M. 29.95 45° 42° 41° E.
12 M. 29.99 49°
6 P.M. 30.00 50° 42° S.W.

Run and heavy fog in A.M. P.M. foggy and thick but less rain. Send the boat out to obtain some fish if possible, but they do not succeed in finding any.

Sunday, July 6th 1873

Time Bar. Air Temp. Water deep at Wind
6 A.M. 30.09 44° 43° 42° S.W.
12 M. 30.07 49°
6 P.M. 30.06 49° 42° S.E.

Dry foggy and wet, wind strong.

In P.M. cross the divide between the head of the harbor and add a small bay on the other side of the island. The ridge is not over 500 ft. high. The distance across is about two miles and a half. The western bay is shallow and full of rocks and rocky reefs; the beach of sand and rocks with a good deal of drift wood.

Monday, July 7th

6 A.M. 29.89 45° 42° 42° E.
12 M. 29.75 48°
6 P.M. 29.61 44° 41°

Came out fog and fresh wind with rain.
Friday, July 5th, 1873.

Time Bar. Air Water Deep de Wind
6 A.M. 29.54 43° 41° 42° N.
12 M. 29.54 52 N.
6 P.M. 29.53 44° 41° W.S.W.

Strong wind with occasional squalls of heavy rain, succeeded by calmer intervals.

Use the last in A.M. in taking angles from North & South end A's and in P.M. from Cave A. Evening stormy.

Wednesday, July 9th.

Time Bar. Air Water Deep de Wind
6 A.M. 29.51 44° 41° 42° S.W.
12 M. 29.57 48
6 P.M. 29.59 46° 41°

Any strong wind; cloudy & rainy all day.

Thursday, July 10th.

Time Bar. Air Water Deep de Wind
6 A.M. 29.76 45° 41° 42° S.W.
12 M. 29.76 48
6 P.M. 29.79 46° 41°

Curves & bows paravels all day.

Friday, July 11th.

Time Bar. Air Water Deep de Wind
6 A.M. 29.57 44° 41° 42° S.W.
12 M. 29.5 47
6 P.M. 29.9 45° 41°

More moderate; rainy & windy all day.

Saturday, July 12th, 1873.

Time Bar. Air Water Deep de Wind
6 A.M. 30.01 43° 41° 42° S.W.
12 M. 30.10 56 N.W.
6 P.M. 30.16 52° 42° W.S.W.

Day half clear, wind fresh.

Run shore line on North side of Harbor.
Observations for time with vertical circle.

Sunday, July 13th.

Time Bar. Air Water Deep de Wind
6 A.M. 30.26 45° 41° 42° S.W.
12 M. 30.30 52 N.
6 P.M. 30.34 49° 41°

Rainy & cloudy in A.M. Half clear in P.M. with fresh wind. Obs. for Astronomical Adjustment in P.M.

Monday, July 14th.

Time Bar. Air Water Deep de Wind
6 A.M. 30.54 44° 41° 42° N.W.
12 M. 30.55 52 N.
6 P.M. 30.36 58 42° Cabot

Day half cloudy. Wind light. Running shore line on South side of Harbor. Circumferential Obs. and equal altitudes with instant A.M. & P.M.

Tuesday, July 15th.

Time Bar. Air Water Deep de Wind
6 A.M. 30.58 45° 41° 42° S.E.
12 M. 30.57 41°
6 P.M. 30.38 44° 41°
Tuesday, July 13th, 1873.

Day cloudy, with some fog and light wind.

Sunr. 11h 40m

Wind. N. W.

Observations:

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<tbody>
<tr>
<td>6 a.m.</td>
<td>30.26</td>
<td>44°</td>
<td>41°</td>
<td>42°</td>
<td>S. E.</td>
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<tr>
<td>12 m.</td>
<td>30.20</td>
<td>41°</td>
<td>42°</td>
<td>43°</td>
<td>S. W.</td>
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<tr>
<td>6 P.M.</td>
<td>30.13</td>
<td>45°</td>
<td>44°</td>
<td>42°</td>
<td>N.</td>
</tr>
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</table>

Day rainy with thick fog and light wind.

P.M. Wind strong.

Wednesday, July 16th.

Sunr. 11h 35m

Wind. S. W.

Observations:

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<td>44°</td>
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<tr>
<td>6 P.M.</td>
<td>30.51</td>
<td>61°</td>
<td>46°</td>
<td>W.</td>
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</table>

Storms all day. Evening all some stages for the second time since June 10th.

Thursday, July 17th.

Sunr. 11h 30m

Wind. S. W.

Observations:

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<td>6 a.m.</td>
<td>29.93</td>
<td>50°</td>
<td>42°</td>
<td>42°</td>
<td>S. W.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 m.</td>
<td>29.91</td>
<td>50°</td>
<td>42°</td>
<td>42°</td>
<td>S. W.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 P.M.</td>
<td>29.79</td>
<td>50°</td>
<td>42°</td>
<td>42°</td>
<td>W.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A.M. Stormy, much dense fog. P.M. some.

Friday, July 18th.

Sunr. 11h 20m

Wind. S. W.

Observations:

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
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<td>49°</td>
<td>42°</td>
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<td></td>
</tr>
<tr>
<td>12 m.</td>
<td>29.32</td>
<td>37°</td>
<td>42°</td>
<td>42°</td>
<td>S. W.</td>
<td></td>
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<tr>
<td>6 P.M.</td>
<td>29.84</td>
<td>63°</td>
<td>42°</td>
<td>42°</td>
<td>W.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A.M. Heavy wind, squalls. P.M. Partly foggy.

To shore and run some shore line and make some observations for magnetic azimuth, interrupted by

Saturday, July 19th.

Sunr. 11h 10m

Wind. S. W.

Observations:

<table>
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<tr>
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<tbody>
<tr>
<td>6 a.m.</td>
<td>30.03</td>
<td>31°</td>
<td>42°</td>
<td>42°</td>
<td>S. W.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 m.</td>
<td>30.20</td>
<td>64°</td>
<td>42°</td>
<td>42°</td>
<td>S. W.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 P.M.</td>
<td>30.30</td>
<td>59°</td>
<td>44°</td>
<td>44°</td>
<td>S. W.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

At anchor, Punta Sur. (Is. middle.)

On P.M. Capt. Herendeen goes to a peak in the middle of the North part of the island where he obtains some bearings on distant objects, islands &c. as follows:

Reef (end) stretching towards Aller Rock N. 5.4 W. Pillar N. 60 W. (or 62 W.) Pillar N. 76 W.
Continued

N. edge Iron I.d.  N. 70° E.
S.  N. 56° E.
S. " Little Sikkin I.d.  S. 88° E.
N.  S. 78° E.
N. E. corner Little Kyeka I.d.
S. edge Rat I.d.  S. 75° E. (monsoon S. 75° E.
Small island off Little Kyeka I.d.
S. edge Amchitka I.d.  S. 69° E.
Island  60°  S. 55° E.
South Head  S. 41° E.
South End  S. 4 E. 0°.
Astronomical  S. 7° E. 0°.

A field of low land with lakes cut across the island about a mile north of the peak and between it and the high North Peak.

Wednesday, July 23, 1793

Time Bar. Air Water Barbs. Wind
6 a.m. 30.36 33° 44° 43° Variable
12 M. 30.35 56 + 43
4 P.M. 30.30 53 + 46
8 30.29 48 + 43
12 30.25 48 + 42 S. S. E.

Day very foggy with light winds.

Standing out of the harbor intending to pass between Little Kyeka and Iron I.d. but a head wind sets us back so that we were obliged to pass to the North of the latter.

About noon the peak of Amchitka I.d. appearing bore E. by S. and that of Iron I.d. S. E. by S.
E. (distant about 3 miles) by compass.

The North edge of the latter at the same time bore S. E. 0°. At noon get an observation for position, which shows that these islands are placed considerably to the North on the chart. At this time the North peak of Great Kyeka I.d. bore W. by N. magnetic.

The east slope of Iron I.d. is long even, the ravines are seemingly even filled with sand of a gray color. The North slope is abrupt, rocky. The west slope down to a sandy bluff about 100 feet high.

Dusk the night packing about in Amchitka bay.
Thursday, July 24th, 1873.

4 A.M. 30.20 45° 42' 4.6.

5 A.M. 30.16 44° 48' 6.

12 M. 30.01 32° 48' 6.

6 P.M. 29.99 44° 42' 6.

Day, dense fog, foggy, wind fresh.

The fog lifted at times about noon and we make the coast of Unalaska and after standing in along shore we enter Constantine Harbor and anchor in 8 fms. lead, sandy bottom about 1 P.M.

Shortly after this the fog shot in very thick with rain. This is a very good harbor except N. N.E. winds, and during the prevalent W. S.W. winds, and during the prevailent W. S.W. winds may be advantageously used. The opening is wide enough for any vessel to bed in and there is abundance of water. A deep patch of 5 fms. water on is in the middle of the inner part of the entrance. The shores are principally low bluffs with tidal water but the head of the bay has a sandy beach and close in is shoal.

One site of old village exists here, there is plenty of drift wood on the beach and abundance of fresh water. We caught abundance of cod sheil but near the entrance most.

Friday, July 25th, 1873.

6 A.M. 30.09 46° 42' 42'.

12 M. 30.05 52° 42' 7.

6 P.M. 30.05 49° 42' 7.

Day foggy, cloudy, wind light.

The boat goes out sound on the keep patch finding the least water at low tide to the first fms. She brings back a good supply of fish. The first cod. the habit of good quality obtained since leaving Unalaska.

Saturday, July 26th.

6 A.M. 30.18 44° 42' 42° 7.

12 M. 30.24 52° 7.

6 P.M. 30.29 48° 42° 7.

Day, foggy, cloudy, wind light.

P.M. Boadshore for three hours, bottled down some.

Sunday, July 27th.

6 A.M. 30.32 45° 43° 43° 7.

12 M. 30.39 62° 2.

6 P.M. 30.45 62° 4.

Foggy, calm. At noon the sun comes out bow and then. Dry for circumfereing altitudes with sextant and get a fixed to many ones, then attempt observations for time with poor success.
Monday, July 28th 1717.

June Bar. Air. Water. Depth. Wind
6 a.m. 30.50 50° 43° 48° S.
12 M. 30.51 54
6 P.M. 30.43 32 W. S.W.

Morning foggy, trying, wind fresh. Evening rainy.

Tuesday, July 29th

6 a.m. 30.41 49° 43° 43° S.
12 M. 30.40 58 W. S.W.
6 P.M. 30.39 56 W. S.W.

Foggy misty again at times, wind equally Brazil point.

Take a large boat & run out of the harbor, beating up the N. coast of the island examining Kurlitoff Harbor. Do not find anything corresponding to the bay on the chart, and go ashore at a low point, which is the most prominent one above Constantine Bay, and take the following bearings (magnetic):

East cape of Amchitka 1. 6. 2.
W. Head Constantine Bay 3. 65° E.
Small B. in right W of do 3. 48° E.
W. Head Kurlitoff Harbor 3. 37° E.
Small B. off W end Amchitka N. 57 W.
Low point N.W. " " " N. 62° W.

After taking tea return along shore and see the Cove & village of Kurlitoff 4th time to examine the locality. There is hardly any Bay, the Shelter is very poor.

no better than that afforded by a number of other bays between this and Constantine Harbor. The anchorage is exceedingly contracted and only sufficient for the smallest vessels. The water is very shoal.
Foggy and rainy. The sun shines through the fog occasionally, and at the P.M. attempt observations for time with the vertical circle, and get one attitude. Wind fresh. Evening rainy. An echo of earthquake followed by another lighter one was felt this evening at 10.57. The interval was about three seconds.

Thursday, July 31, 1873.

June Bar. Aug. Water Supp.o. 2nd
6 A.M. 30.15 52 43° 43° S.
12 M. 30.13 54
6 P.M. 30.10 52 43°

Rainy with strong wind and dense fog.

Friday, Aug. 1st

6 A.M. 29.95 50 46° 44° S.
12 M. 31.92 52
6 P.M. 29.14 50 43°

Rainy and stormy all day. Cross the island and find a high fall of rocks on the opposite side.

Saturday, Aug. 2nd

6 A.M. 29.79 50 43° 44° S.
12 M. 29.84 49
6 P.M. 29.90 50 42°

Wind fresh fog very thick. Rains and storms all day.
**Thursday, Aug. 1st, 1873**

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 A.M.</td>
<td>30.29</td>
<td>49°</td>
<td>46°</td>
<td>S.E.</td>
</tr>
<tr>
<td>7</td>
<td>30.29</td>
<td>49°</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 M.</td>
<td>30.29</td>
<td>54°</td>
<td>46°</td>
<td></td>
</tr>
<tr>
<td>4 P.M.</td>
<td>30.22</td>
<td>59°</td>
<td>49°</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>30.22</td>
<td>54°</td>
<td>44°</td>
<td></td>
</tr>
</tbody>
</table>

Morning cloudy, training, but clears off a good deal about noon. See Peak #1 and N. peak of Sanaga, and get the following observations on them:

- Gorelai bears S.W. by S., magnetic
- Peak #1 and Sanaga: S. and N. by S., respectively
- Log reads 15 miles, course N. by W.
- Attitude of Gorela 1° 35' 30"
  1° 35' 30"
  1° 36' 30"
  1° 36' 0"

Attitude of Sanaga

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 A.M.</td>
<td>30.20</td>
<td>57°</td>
<td>50°</td>
<td>N.</td>
</tr>
<tr>
<td>7</td>
<td>30.19</td>
<td>52°</td>
<td>49°</td>
<td></td>
</tr>
<tr>
<td>12 M.</td>
<td>30.15</td>
<td>55°</td>
<td>44°</td>
<td></td>
</tr>
<tr>
<td>6 P.M.</td>
<td>30.11</td>
<td>55°</td>
<td>45°</td>
<td>Calm</td>
</tr>
</tbody>
</table>

Morning early thick fog and rain, with strong wind. Later the wind dies away and we spend most of the day beating into Adakhi Straits with poor success. About 4 P.M. anchor in Chaghak Bay about a mile off shore in 14 fms sand.

**Friday, Aug. 2nd, 1873**

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 A.M.</td>
<td>30.05</td>
<td>50°</td>
<td>45°</td>
<td>N.</td>
</tr>
<tr>
<td>12 M.</td>
<td>30.05</td>
<td>50°</td>
<td>44°</td>
<td>W.</td>
</tr>
<tr>
<td>6 P.M.</td>
<td>30.10</td>
<td>56°</td>
<td>44°</td>
<td>W.W.</td>
</tr>
</tbody>
</table>

Light bracing airs and calm, with light rain.

Temp. deep water 44°.

**Saturday, Aug. 3rd, 1873**

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 A.M.</td>
<td>30.05</td>
<td>50°</td>
<td>45°</td>
<td>N.</td>
</tr>
<tr>
<td>12 M.</td>
<td>30.05</td>
<td>50°</td>
<td>44°</td>
<td>W.</td>
</tr>
<tr>
<td>6 P.M.</td>
<td>30.10</td>
<td>56°</td>
<td>44°</td>
<td>W.W.</td>
</tr>
</tbody>
</table>

Light bracing airs and calm, with light rain.

Temp. deep water 44°.
Sunday, Aug. 11, 1878

Nine Bar. Air. Water 5 ft. by 30°. Wind
6 A.M. 30° 19' 49° 48° 45° N.
12 M. 30° 34' 55°
6 P.M. 30° 39' 50°

Day foggy and cloudy. Wind fresh at intervals.

Monday, Aug. 12

6 A.M. 30° 40' 56° 48° 45° N.
12 M. 30° 44' 56°
6 P.M. 30° 46' 52° 43°

Wind fresh; weather half clear with drifting clouds. Obs for latitude, time & azimuth.

Hall wanting and get ready for sea.

Tuesday, Aug. 13

6 A.M. 30° 44' 56° 48° 45° N.
12 M. 30° 40' 62°
6 P.M. 30° 34' 52° 46°

Foggy with light winds and a little sun occasionally.

Obs. 1: Time in a.m. interrupted by fog.

Very thick fog.

Wednesday, Aug. 14

6 A.M. 30° 26' 52° 49° 44° Calm
12 M. 30° 24' 56° 48° N.W.
4 P.M. 30° 22' 53° 46°
7" 30° 20' 51° 49° 3.46'
12 " 30° 20' 51° 50°

Morning foggy, with very light airs.

About noon anchored a mile out of the barb.
and stand out into the straits. Set abs. 4 \( \frac{3}{4} \) Th. 54° 07' 50' Pm 39 sec.

cross bearings on the N. Bank of Alaska, making it approximately 3675 ft high,
which must be nearly correct.

---

**Thursday, Aug. 14th, 1873**

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 a.m.</td>
<td>30.19</td>
<td>50°C</td>
<td>47°F</td>
<td>W.S.W.</td>
</tr>
<tr>
<td>7</td>
<td>30.22</td>
<td>50</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>12 m.</td>
<td>30.23</td>
<td>54</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>4 P.M.</td>
<td>30.20</td>
<td>50</td>
<td>50</td>
<td>E.</td>
</tr>
<tr>
<td>7</td>
<td>30.19</td>
<td>49</td>
<td>50</td>
<td>W. Variable</td>
</tr>
<tr>
<td>12</td>
<td>30.18</td>
<td>49</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

Sky foggy or cloudy. Wind moderate or light.

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**Friday, Aug. 15th**

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 a.m.</td>
<td>30.18</td>
<td>48°C</td>
<td>50°C</td>
<td>W. Variable</td>
</tr>
<tr>
<td>7</td>
<td>30.20</td>
<td>48</td>
<td>50</td>
<td>Calm</td>
</tr>
<tr>
<td>12 m.</td>
<td>30.20</td>
<td>49</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>4 P.M.</td>
<td>30.19</td>
<td>48</td>
<td>50</td>
<td>W.N.E.</td>
</tr>
<tr>
<td>7</td>
<td>30.20</td>
<td>49</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>30.21</td>
<td>48</td>
<td>46</td>
<td></td>
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</tbody>
</table>

Day cloudy, nearly calm.

---

Bottom about 700 ft. Lead came up clean. Kasatokh K. bore S. by W. Konigsh E. bore
S. by E. 2/3 magnetic. Latex calm.

---

**Saturday, Aug. 16th, 1873**

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 a.m.</td>
<td>30.20</td>
<td>48°C</td>
<td>46°C</td>
<td>Calm</td>
</tr>
<tr>
<td>7</td>
<td>30.20</td>
<td>47</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>12 m.</td>
<td>30.18</td>
<td>49</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>4 P.M.</td>
<td>30.13</td>
<td>49</td>
<td>48</td>
<td></td>
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<tr>
<td>7</td>
<td>30.13</td>
<td>48</td>
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<td></td>
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<tr>
<td>12</td>
<td>30.13</td>
<td>49</td>
<td>48</td>
<td>L.N.</td>
</tr>
</tbody>
</table>

Day cloudy, nearly calm.

About 9 a.m. being in Lat. 52° 19' N. long. 15° 33'.

N. take a deep sound.

Pain. Risen out. Time occupied in

Th. 52° 0' be go running at 50 ft. Lead calm with fog all day, until late in evening, with a heavy smell from the N. E. Some small sails to observe the plotting.
Sunday, Aug 17th 1873

Time   Bar. air  Water  Wind
4 A.M.  30.10  48  46  46  S
1  "    30.10  46  46  46  
12 M.   30.10  48  46  
6 P.M.  30.09  50  46  

Wind light and unfavorable. Spent the entire day beating into the Harbor of Ysyam Bay. There is a settlement and trading post of the Alaska Co. at this place, and the agent came out to meet us in a skin canoe. There is also a small settlement in the strait between Amba and Atka on the Amba shore, and another at the old Russian Station on Korsovinsky Bay on the West side of the island. There are in all about 354 natives in these villages. Those which are poor more less comfortably clothed and live near in their proper than those at any of the other stations we have visited. The Harbor is small with shelter from all winds, only a little better than any of the others we have visited. The harbor is small with shelter from all winds, only a little better than any of the others we have visited.

The shores are mostly rocky and the shelter is formed by many small inlets. The ground was covered with a rank growth of grass and heath grass. The vegetables are cultivated here, though appearances would indicate that they could do well if properly attended to.

North of the harbor is a broad sand bank. In the village there are six houses of planed lumber and a number of huts. The tides rise and fall from four to six feet. There is no establishment.

Codfish and herring and a large kind of salmon and several sorts of shellfish are abundant on the west side of the island. Many whales were seen in the bay. Coal is said to exist on the South side of the island and on Korsovinsky Bay. There are also hot springs near the Kluchefskaja Volcano, where a resort for invalids was established by the Russians.

Sulphur, alum and several kinds of clay or tale are obtained in the vicinity of the volcanoes.

Anchor about 6 P.M.

Continued.
Monday, Aug. 18th, 1873

June 7 am. 30.07 51 49° 44° E.
12 m. 30.01 50
6 p.m. 30.06 53 44°

Rainy and foggy. Mind green with squalls.

Tuesday, Aug. 19th

6 am. 30.07 52 46° 41° S.
12 m. 29.97 56 28 S.
6 p.m. 29.94 52 44°

Rainy & stormy all day.

Wednesday, Aug. 20th

6 am. 29.90 49° 47° 44° N.
12 m. 29.94 56
6 p.m. 30.00 51 47°

Rainy & stormy all day. Work on sketches and chemical work.

Thursday, Aug. 21st

6 am. 30.22 56 41° 44° S.
12 m. 30.26 51
6 p.m. 30.28 52

Foggy & rainy with occasional squalls.

Friday, Aug. 22nd

6 am. 30.22 50 46° 44° S.
12 m. 30.14 62
6 p.m. 30.09 55 49° S.

Day foggy..
take a bidanka and cross the portage to
examine the old anchorage at Katajanokka
Bay. On our way over visit the hot springs with three fathoms of water at high
water
on the slope of the cheekta or Volcan.
These springs contain sulphur, lime, and
alum. They have a temperature of 88° so that it is now inexpedient to
walk
and the water deposits a variety of red, blue, and white clays about the springs.
The Indians formerly had a bath house and retreat for invalids here and the great
distance from the shore (about 5 miles)
and the long exhausting climb up to reach
the plateau on which the springs are situated
under them difficult of access to Indians
in a weak condition. They are reached
from the head of a long bay making up
from the old harbor, where a large
stream enters in which is a great amount
of salmon. This bay is very small, its bottom and shores stony and the depth
of water rarely exceeding one fathom.
Reaching the settlement towards evening
I found that the spit which encloses
the bay formerly entered by vessels
are composed of large boulders with a
little sand on the outer face. The coast
one and the inner face of the outer
one. Between the two there is a sand bar
and about two at ordinary low water.
The inner bay has become very shallow
and the water very muddy. It is
large and seems to be diminishing.
The Indians became friendly to our
people and offered us fish, eels, and
abundance of shellfish here, but in their
dearer and halibut but little driftwood.
The inhabitants number about 100 souls
and there are several good houses and actual
village.
This settlement from the abundance
rapidly falling into decay.
The abundance of fresh fish, eels, and
time, has not the harbor as no longer
available through Klinkofstrom Harbor
paid to the well protected.

Tuesday, Aug. 30th, 1873.

Time, Bar, and Water degree.

6 A.M. 30.50 32. 47° 44′
215
12 m. 30.44 62
6 P.M. 30.41 60 48
7 S.W.

Day cloudy with clear sky—occasionally
foggy in G.M. Observations for latitude un-
successful on account of sand. Cona Korpovisky Bay in the skin came to Klinkofstrom Harbor, a small bay making in from the extremity of the larger one. Here complete protection is had from all winds on 11 fms hard sand. This anchorage was first used by Capt Martin Klinkofstrom, then of the American Company Marine Service, and since by others. The above name was applied to it by the Russians.

Coal was reported in the bluff forming the N.E. head of this harbor, but on examination only drift fragments of lignite and siliceous wood of no value for economical purposes were found, and it is quite certain that this well defined bed even of this material, exists in this locality.

After examining this locality we return to Nagan Bay to get ready for sea.

**Wednesday Aug 29th 1873**

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air.</th>
<th>Water</th>
<th>Deep.</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 A.M.</td>
<td>30.11</td>
<td>55°</td>
<td>48</td>
<td>43° S.W.</td>
<td></td>
</tr>
<tr>
<td>12 M.</td>
<td>30.01</td>
<td>60°</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 P.M.</td>
<td>29.96</td>
<td>60°</td>
<td>50</td>
<td>S.W.</td>
<td></td>
</tr>
<tr>
<td>8 &quot;</td>
<td>29.90</td>
<td>46°</td>
<td>46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 &quot;</td>
<td>29.90</td>
<td>50°</td>
<td>46°</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Day, half cloudy, with light wind in A.M., clearer with fresh wintry winds in P.M. About noon, right anchor and stand out of Nagan Bay to the eastward, finding a very heavy N.W. ground swell off shelf.

**Thursday Aug 30th 1873**

Day partly clear with fresh winds & heavy groundswell. Fog squalls passing over from the N.W. in rapid succession.

Make the most Northern of the group of islands, known as the "Four Brothers." It is a very sharp and irregular island, four or five miles long, from N.N. & W. about half as wide, without bays or anchorages. It is separated from the island next S.E. of it by a strait not over three miles wide, but further narrowed by a refracting ridge, which is a very high above water, 71 fms. from the latter side. There is a rocky pillar off the N.W.
Continued.

...end of the first island, but no outlying reefs were observed. The second island is mountainous but not so rugged as the first. It extends in nearly a N. and S. direction and may be eight miles long by five miles or less. The peaks were foggy but apparently from two to three hundred feet high.

Around the North point of this island the East shore is rocky with a prominent point making out South of which is a bright white low land and a stream behind it, and a single beach on which a landing might be made in fair weather. There was a good deal of driftwood on this beach.

The Northeast end of this island is a moderately high broken rocky point with precipitous sides.

A large island supposed to be Kamjil, if the chart is separated from the one just spoken of by a strait running in an E. & W. direction, five miles or more in width, at the Western end of which appears like another island. The third mentioned to the South of the strait is larger than any of the others, and the Northeast may have been twelve miles in length terminating in the Westward in a long low narrow point. Between this all the N. and S. is another low point behind which is probably situated the anchorage spoken of by the natives.

A heavy swell and strong S. W. wind blowing straight in hindered us from entering. To examine the locality the shores of these islands appeared to be formed of volcanic breccia and tufa, graphic plates overlaid by layers of volcanic ash and Suf.

Coated round the North East shore of the group, but finding no safe anchorage of landing place, we were reluctantly obliged to give up the idea of obtaining an acquaintance of this place as the latitudes of the season and character of the weather gave us little hope for even if we lay off and on for a week or more.

The islands present no resemblance whatever to the representation of them on Tetenkoff's and the U.S. Hydrographic charts and the differences are irreconcilable. The older chart of Sarychild and the Russian Hydrographic Office are...
perhaps a very little better, but still exceedingly incorrect and it would appear to be the only method of obtaining an approximate chart to take an opportunity of landing a party on them in the fall weather of the spring and have them now during the summer until a harbor should be discovered somewhere which would afford good protection and this does not from our observations appear very likely.

Friday Aug. 29th 1875

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air.</th>
<th>Water</th>
<th>Wind</th>
</tr>
</thead>
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<tr>
<td>4 A.M.</td>
<td>30.21</td>
<td>47°</td>
<td>44°</td>
<td>N.</td>
</tr>
<tr>
<td>8 &quot;</td>
<td>30.29</td>
<td>48°</td>
<td>46°</td>
<td>N.</td>
</tr>
<tr>
<td>12 &quot;</td>
<td>30.30</td>
<td>48°</td>
<td>47°</td>
<td>N.</td>
</tr>
<tr>
<td>4 P.M.</td>
<td>30.39</td>
<td>50°</td>
<td>49°</td>
<td>N.</td>
</tr>
<tr>
<td>8 &quot;</td>
<td>30.40</td>
<td>60°</td>
<td>46°</td>
<td>N.</td>
</tr>
</tbody>
</table>

Day half clear with light airs from the northward, and the still continued heavy ground swell from the N. & W.

P.M. Nearly calm.

Gone up with the Volcanic Island of Bogoslof, or St John the Theologian.

At noon being at Lat. 53° 14' 52" W. The island bore N. by E. by compass about 10 miles distant.

Later in the day the North edge of Malalashka bearing N. E. by E. ± 4° magnetic and the North edge of Malasukin Bay E. rounded with 200 fathoms of water bottom and being directly on the line of the supposed reef, replaced the lead with a heavier one and sounded again in nearly the same locality, with two fathoms less, again obtaining no bottom. The following bearings & altitudes were taken at this same time:

A. Ship Rock N. by N. 2° 10' 15" Off 1° 45' 6"
B. N. by N. 1° 45' 0"

F 15 measured 4° 15' 10" 1° 45' 6"

B. 3° 21' 55" 1° 45' 6"

Reef E. of island bears N. Indic. 3° 15'
Ship Rock on or with edge of Bogoslof bear N. N.W. W. 2° and on with N. N.W. W. 2°.

In the latter case the altitudes were as follows:

1° 20' 35" 20" 25' 20"
1° 20' 35" 30" 25' 50"
1° 19' 35" 10" 25' 30"
1° 19' 35" 10" 25' 20"

A little later Bogoslof bearing W.N.W. (the axis of the islands & the reef, if it exists) turned again with 250 fathoms & no bottom a good straight sound, North coast of
Unalaska bearing N. by E. = 6. and attitude 1° 16' 0" by 1° 16' 20".

From these data we gather the position of the island to be approximately 53° 37' N. Lat. 16° 33' 30" W. Long. 5° and bore an altitude of between 739 and 739 feet.

The reef may be considered as Exploded.

A man stationed at the main head with clear weather and a very heavy swell running, could distinguish the breakers except those immediately around the island. The vessel being run as nearly as possible along the line of the supposed reef for probably ten or twelve miles.

This remarkable island presents the appearance of a perfectly bare and extremely rugged precipitous rock of a pimilak clay color, and without an indication of stratification.

Its axis extends in a N.N.W. (magnetic) direction and is essentially a sharp ridge about half as high as long, breasting with pinnacles and ragged projections and scored with narrow gullies worn by the weather. It appeared that it would not be possible to reach the summit or even to ascend it for any distance. The pinnacles are disposed in three

principal groups, of which the middle, the most elevated, and the northern the most acute. There appeared to be little or no beach or landing place except the valley of broken rock near the S. E. end, and most of the shore was precipitous.

"Ship Rock" is a perpendicular square topped pillar about half the length of the island North & West of the N. end of the island. There is a small rock half a mile N. E. of the island, which rises but a few feet above the water and on all sides (except the West) and especially to the S. & E. of the island breakers here there were cliffs, extending less than three quarters a mile from the shore. The rocks of Bogolov appear to have a general cleavage plane of 60° in a W. S. W. direction.

There is no crater, nor appearance of a cone. There is no water on it, and it is inhabited by a vast number of birds to feed on it the heavy swell breaking many feet high on the precipitous shore. We had no idea of a landing and the weather gave us no hope of getting satisfactory observations on or about the island, so reluctantly headed the vessel for Unalaska.
The island is evidently smaller than
than the plan given of it by Dr. Henry and
his sounding appear quite unreliable.
The position differs on all the maps.
Even Dedanoff's two charts of the same
date Nos 234 and 241 give slightly different
positions and one indicates the supposed
reefs while the other omits it.
The Russian Admiralty Charts as usual
appear more accurate in regard to the
position than the later ones of Dedanoff.
The island is more to the North East
than any of the charts place it according
to our rather limited observations,
which last were interfered with by
the surge and current.
Donny noted here that when in Alaska
the foreman of the native hunting
party came from the back end
of Amelia, where he had been hunting
deer, and on enquiring in regard
to the high rock said to exist to the
North of this part of the island, but
disputed by Bremester, he stated
that there was no such rock there,
but there was a patch in the locality
which was indicated with five to ten fathrons
in it where in very heavy Bremesters
breakers were visible. The rock may
have sunk, or been broken away since
the time it was originally reported.
Yesterday P.M. we obtained a bearing
and altitude on the Kunikoff Volcano
which if we had not been materially
set out of our course by the current
would give us a height of 11,668 feet.
It is probably lower but nevertheless
is one of the highest in the whole
group of islands and from it
appearance I should say it was
only second to Shishalding.

Also, Aug. 30th, 1872.

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air.</th>
<th>Water</th>
<th>Wind</th>
</tr>
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<tbody>
<tr>
<td>4 A.M.</td>
<td>30.50</td>
<td>46</td>
<td>45</td>
<td>71</td>
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<tr>
<td>7 A.M.</td>
<td>30.52</td>
<td>46</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>12 M.</td>
<td>30.55</td>
<td>50</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>4 P.M.</td>
<td>30.50</td>
<td>55</td>
<td>59</td>
<td></td>
</tr>
<tr>
<td>7 A.M.</td>
<td>30.42</td>
<td>49</td>
<td>49</td>
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</tr>
<tr>
<td>12 M.</td>
<td>30.82</td>
<td>48</td>
<td>46</td>
<td></td>
</tr>
</tbody>
</table>

Day half clear, wind very light.
The same annoying heavy smell continuing.
P.M. when boromiles North of Cape
Crescent the most northern point of
Unalaska, sound an 60 fathoms
black gravel. The shallow plateau
of Bering Sea first touches with it
Monday, Sept. 1st, 1873

June Bar Air Water Temp. Frd. Wind
6 A.M. 29.95 50° 46° 45° N.N.W.
12 M. 29.90 36° S.

Day cloudy and squally.
P.M. Clouds and a little wind.

Attempt abs. for time with sextant, which are interrupted by high wind and rolling.

Tuesday, Sept. 2nd

6 A.M. 30.12 49° 45° S.
12 M. 30.64 53° S.
6 P.M. 29.95 30° S.

Day calm, cloudy. A little wind in early A.M., but abs. for time with Nort. Circle are frustrated by clouds.

Wednesday, Sept. 3rd

6 A.M. 29.30 52° 46° 45° Calm
12 M. 29.23 37° W.N.W.
6 P.M. 29.18 48° 45° W.

Morning cloudy with heavy rain. P.M. Squally.

Thursday, Sept. 4th

6 A.M. 29.58 45° 45° 44° N.
12 M. 29.70 45° W.N.W.
6 P.M. 29.84 44° 45° W.

Rain and storms all day.
Friday, Sept 3rd 1873

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Deped.</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 am</td>
<td>29.95</td>
<td>49°</td>
<td>44°</td>
<td>44°</td>
<td>W.</td>
</tr>
<tr>
<td>12 M</td>
<td>29.79</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 P.M.</td>
<td>29.76</td>
<td>50</td>
<td>46</td>
<td>S.</td>
<td></td>
</tr>
</tbody>
</table>

Cloudy, winds light. Later, fresh.

Direct a new signal "Swim" on Key Island, Captains Bay; but the wind becomes very fresh and we are obliged to give a man on the signal is on the edge of the bluff, near the North end of the island, and is one of the tripod kind like Sister A.

Saturday, Sept 6th 1873

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Deped.</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 am</td>
<td>29.40</td>
<td>47°</td>
<td>46°</td>
<td>44°</td>
<td>S.E.</td>
</tr>
<tr>
<td>12 M</td>
<td>29.32</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 P.M.</td>
<td>29.30</td>
<td>54</td>
<td>47</td>
<td>G.</td>
<td></td>
</tr>
</tbody>
</table>

Wind light; rainy all day.

Sunday, Sept 7th 1873

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Deped.</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 am</td>
<td>29.40</td>
<td>47°</td>
<td>46°</td>
<td>44°</td>
<td>S.W.</td>
</tr>
<tr>
<td>12 M</td>
<td>29.43</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 P.M.</td>
<td>29.50</td>
<td>51</td>
<td>47</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Morning partly clear. Take obs. for them with last line.

Monday, Sept 8th 1873

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Deped.</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 am</td>
<td>29.65</td>
<td>46°</td>
<td>44°</td>
<td>Calm</td>
<td>G.</td>
</tr>
<tr>
<td>12 M</td>
<td>29.69</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 P.M.</td>
<td>29.61</td>
<td>52</td>
<td>47</td>
<td>Lt Variable</td>
<td></td>
</tr>
</tbody>
</table>

Morning perfectly clear & calm. Obs. for them with

Continued.

Tuesday, Sept 9th 1873

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Deped.</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 am</td>
<td>29.75</td>
<td>47°</td>
<td>46°</td>
<td>44°</td>
<td>N.E.</td>
</tr>
<tr>
<td>12 M</td>
<td>29.45</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 P.M.</td>
<td>29.48</td>
<td>48</td>
<td>47</td>
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</tbody>
</table>

Slow steady rain all day. Wind moderate.

Wednesday, Sept 10th 1873

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Deped.</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 am</td>
<td>29.58</td>
<td>48°</td>
<td>46°</td>
<td>44°</td>
<td>W.S.</td>
</tr>
<tr>
<td>12 M</td>
<td>29.60</td>
<td>50</td>
<td></td>
<td></td>
<td>W.</td>
</tr>
<tr>
<td>6 P.M.</td>
<td>29.58</td>
<td>49</td>
<td>47</td>
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</tbody>
</table>

Cloudy, wind moderate. Angles all day.

Thursday, Sept 11th 1873

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Deped.</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 am</td>
<td>29.38</td>
<td>46°</td>
<td>46°</td>
<td>44°</td>
<td>N.W.</td>
</tr>
<tr>
<td>12 M</td>
<td>29.62</td>
<td>51</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 P.M.</td>
<td>29.63</td>
<td>50</td>
<td>47</td>
<td></td>
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</tr>
</tbody>
</table>

Morning cloudy, wind very light & few drops of rain. So I go back and spend the day there, taking angles and running shore line.

Friday, Sept 12th 1873

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Deped.</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 am</td>
<td>29.82</td>
<td>56°</td>
<td>47°</td>
<td>44°</td>
<td>N.W.</td>
</tr>
<tr>
<td>12 M</td>
<td>29.76</td>
<td>58</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 P.M.</td>
<td>24.95</td>
<td>52</td>
<td>48</td>
<td></td>
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</tbody>
</table>

Cloudy with light wind in A.M. and fresh in P.M. Some fog in P.M.
Continued

Angles from Eider A. Ascend the Sognad Volcano (extinct) with Sailing Master Acheson for the fog interferences and periscopes on proposed observations for the altitude and position of the crater. The cone is principally of red and black color and is quite steep. The crater is about two hundred feet deep with a small lake at the bottom.

---

Saturday, Sept. 13th 1793

Time Bar. Air. Water. Depth. Wind
6 A.M. 29.76 49° 44° 44" 4° N.
12 M. 29.82 56°
6 P.M. 29.92 54° 44° S.E.

Sandy, wind moderate and variable.

---

Sunday, Sept. 14th

1 A.M. 29.89 49° 44° 44° S.W.
12 M. 29.88 56°
6 P.M. 29.86 48° 44° N.

Wind light. Aner. fog continues all day.

---

Tuesday, Sept. 16th 1793

Time Bar. Air. Water. Depth. Wind
6 A.M. 29.90 49° 44° 44" 4° N.
12 M. 29.91 55°
6 P.M. 30.10 50° 47° calm

Morning fresh S. wind and broken clouds. Observations for azimuth. Later cloudy with rain squalls. Evening clears off and we take obs. for azimuth on the field star.

---

Wednesday, Sept. 17th

Time Bar. Air. Water. Depth. Wind
6 A.M. 30.13 48° 45° 44° 42° 5° E.
12 M. 30.23 53°
6 P.M. 30.22 50° 47° S.E.

Sandy; light Easterly winds. Angles between the signals used for azimuth with Polaris, and the church spires, and magnetic azimuth of the latter.

O.M. Wind keeper in the Hoy 32 in the large boat and finish up the angles from Shintoa A and the shore lumps of the island.

---

Thursday, Sept. 18th

Time Bar. Air. Water. Depth. Wind
6 A.M. 30.14 49° 46° 44° 4° N.E.
12 M. 30.19 54°
6 P.M. 30.20 49° 47° W. Variable

Sandy, early A.M, wind light; later very strong.

Obs. for magnetic azimuth. 5 P.M.

Bank Lyane 32 days from San Francisco arrives with one first and only mail this season.
Friday, Sept. 19th, 1873.

Time  Bar  Air  Water  Sep't.  Wind
6 A.M.  30.22  46°  47°  44°  5  N.
12 M.  30.18  53
6 P.M.  30.15  49°

Cloudy, wind moderate. Obs. for magnetic azimuth continued.

Saturday, Sept. 20th.

6 A.M.  30.10  45°  46°  44°  5  N.
12 M.  30.12  57
6 P.M.  30.10  49°

Cloudy, wind fresh. Obs. for time interrupted by wind and clouds.

Sunday, Sept. 21st.

6 A.M.  30.20  44°  45°  44°  5  N.
12 M.  30.21  57
6 P.M.  30.24  48°  44°

Cloudy, wind light.

Monday, Sept. 22nd.

6 A.M.  30.30  45°  45°  44°  5  N.
12 M.  30.30  51
6 P.M.  30.26  54°

Day, half clear, wind fresh in squalls.

P.M. Calmer. Obs. for time with vertical scale.

Tuesday, Sept. 23rd.

6 A.M.  30.02  42°  45°  44°  5  N.
12 M.  29.53  50
6 P.M.  29.34  48°

Wednesday, Sept. 24th, 1873.

6 A.M.  29.79  49°  47°
12 M.  29.82  53
6 P.M.  29.72  51  48

Rainy, cloudy. Wind moderate.

Thursday, Sept. 25th.

6 A.M.  29.94  48°  49°  44°  5  Calm
12 M.  30.01  54
4 P.M.  29.95  56  46
7 P.M.  29.90  51  46
12 P.M.  29.80  50  46

Cloudy, wind very light. Sail for the Thirteen Islands about noon.

Friday, Sept. 26th.

4 A.M.  29.68  49°  47°  49°
7 P.M.  29.36  49°  46°
12 M.  29.55  50°  46
4 P.M.  29.39  50°  46
7 P.M.  29.60  49°  47°
12 P.M.  29.66  49°  46°

Cloudy, wind light and variable.

Saturday, Sept. 27th.

4 A.M.  29.45  49°  46°
7 P.M.  29.32  49°  46°
12 M.  29.18  50°  47°
4 P.M.  29.06  49°  47°
7 P.M.  28.99  49°  47°
12 P.M.  28.90  49°  47°
**Sunday, Sept. 28th, 1873.**

<table>
<thead>
<tr>
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<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 A.M.</td>
<td>28.76</td>
<td>49°</td>
<td>47°</td>
<td>S.N.E.</td>
</tr>
<tr>
<td>8</td>
<td>29.10</td>
<td>47°</td>
<td>47°</td>
<td>S.N.E.</td>
</tr>
<tr>
<td>12</td>
<td>29.22</td>
<td>50°</td>
<td>47°</td>
<td>S.</td>
</tr>
<tr>
<td>4 P.M.</td>
<td>29.26</td>
<td>50°</td>
<td>47°</td>
<td>S.</td>
</tr>
<tr>
<td>8</td>
<td>29.23</td>
<td>47°</td>
<td>47°</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>29.18</td>
<td>47°</td>
<td>47°</td>
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</tbody>
</table>

Cloudy, half a gale of wind blowing with the sea. Kept or laying to nearly all day.

---

**Monday, Sept. 29th.**

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 A.M.</td>
<td>29.04</td>
<td>47°</td>
<td>47°</td>
<td>S.</td>
</tr>
<tr>
<td>8</td>
<td>29.58</td>
<td>47°</td>
<td>47°</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>28.58</td>
<td>47°</td>
<td>47°</td>
<td></td>
</tr>
<tr>
<td>4 P.M.</td>
<td>29.02</td>
<td>49°</td>
<td>46°</td>
<td>S.E.</td>
</tr>
<tr>
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<td>47°</td>
<td>S.</td>
</tr>
<tr>
<td>12</td>
<td>24.08</td>
<td>48°</td>
<td>47°</td>
<td></td>
</tr>
</tbody>
</table>

Cloudy, with squalls, high sea running. Laying to all day.

---

**Tuesday, Sept. 30th.**

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Wind</th>
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<tbody>
<tr>
<td>4 A.M.</td>
<td>29.05</td>
<td>46°</td>
<td>47°</td>
<td>S.</td>
</tr>
<tr>
<td>8</td>
<td>29.03</td>
<td>46°</td>
<td>47°</td>
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</tr>
<tr>
<td>12</td>
<td>29.06</td>
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<td>46°</td>
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</tr>
<tr>
<td>4 P.M.</td>
<td>29.10</td>
<td>46°</td>
<td>46°</td>
<td>S.</td>
</tr>
<tr>
<td>8</td>
<td>29.19</td>
<td>47°</td>
<td>47°</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>29.23</td>
<td>47°</td>
<td>47°</td>
<td></td>
</tr>
</tbody>
</table>

Cloudy, with strong head wind and sea. Stand to the Northwest to avoid it.

---

**Wednesday, Oct. 1st, 1873.**

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 A.M.</td>
<td>29.22</td>
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<td>47°</td>
<td>S.E.</td>
</tr>
<tr>
<td>8</td>
<td>29.22</td>
<td>45°</td>
<td>45°</td>
<td>W.S.</td>
</tr>
<tr>
<td>12</td>
<td>29.23</td>
<td>46°</td>
<td>47°</td>
<td></td>
</tr>
<tr>
<td>4 P.M.</td>
<td>29.20</td>
<td>48°</td>
<td>47°</td>
<td>S.N.E.</td>
</tr>
<tr>
<td>8</td>
<td>29.19</td>
<td>47°</td>
<td>47°</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>29.18</td>
<td>47°</td>
<td>47°</td>
<td></td>
</tr>
</tbody>
</table>

Light adverse winds all day. Cloudy with occasional rain. Open new notebook (2) hunting.

---

**Thursday, Oct. 2nd.**

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Wind</th>
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</thead>
<tbody>
<tr>
<td>4 A.M.</td>
<td>29.18</td>
<td>46°</td>
<td>46°</td>
<td>W.S.W.</td>
</tr>
<tr>
<td>8</td>
<td>29.25</td>
<td>45°</td>
<td>45°</td>
<td>N.</td>
</tr>
<tr>
<td>12</td>
<td>29.23</td>
<td>46°</td>
<td>46°</td>
<td></td>
</tr>
<tr>
<td>4 P.M.</td>
<td>29.28</td>
<td>48°</td>
<td>47°</td>
<td>S.E.</td>
</tr>
<tr>
<td>8</td>
<td>29.21</td>
<td>48°</td>
<td>48°</td>
<td>E.N.E.</td>
</tr>
<tr>
<td>12</td>
<td>29.14</td>
<td>47°</td>
<td>48°</td>
<td></td>
</tr>
</tbody>
</table>

Windy, light, cloudy. About noon managed to work through the Alkanara Pass and to the Southward. Weather better but barometer very low.

---

**Friday, Oct. 3rd.**

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 A.M.</td>
<td>28.99</td>
<td>47°</td>
<td>47°</td>
<td>S.</td>
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<tr>
<td>8</td>
<td>28.93</td>
<td>47°</td>
<td>46°</td>
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<td>28.93</td>
<td>47°</td>
<td>47°</td>
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<tr>
<td>4 P.M.</td>
<td>28.93</td>
<td>47°</td>
<td>47°</td>
<td></td>
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<tr>
<td>8</td>
<td>28.91</td>
<td>47°</td>
<td>47°</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>28.76</td>
<td>47°</td>
<td>47°</td>
<td></td>
</tr>
</tbody>
</table>

Windy, light, cloudy. About noon managed to work through the Alkanara Pass and to the Southward. Weather better but barometer very low.
Monday, Oct. 6th, 1873.

Time Bar. Air Water Depth Wind
6 A.M. 29.08 47° 47° N.W.
12 M. 29.14 47° 47° N.W.
6 P.M. 29.16 47° 47° N.W.

Day half clear with strong breezes from W. Observations for azimuth, magnetic variation with Chant. Hug. & latitude with vernier circle at Sand point station. Object observed upon for azimuth is "hill" station of our submarine station of last year. The signals on Hong Island & Sand point have been removed by some one, probably stolen for the lumber contained in them. But the position of the signal at Sandpoint was readily found by means of a stake driven last year to indicate the erroneous station, and still station being difficult of access had not been disturbed. Some a heavy stake to be buried when we are done observing a mark center of station

Sunday, Oct. 7th, 1873.

6 A.M. 29.15 38° 47° N.
12 M. 29.26 53° 47° N.W.
6 P.M. 29.28 47° 47° N.W.

Nearly clear with moderate wind in early AM. Left

Arrived at Sandpoint & for action & mounting

Time + latitude with sextant + chart.
Wednesday, Oct 8th 1873.

6 a.m. 29.82 39 47 ° N. W.
12 m. 29.89 44
6 P.M. 29.94 49

Strongly and uniformly with rain and squalls.

Thursday, Oct 9th.

4 a.m. 29.36 38 44 ° S. W.
12 m. 29.54 40
6 p.m. 29.66 39 46

Noumy with heavy squalls all day.

Friday, Oct 10th.

6 a.m. 29.80 38 46 ° N. W.
12 m. 29.99 48
6 p.m. 29.92 43 48

Very half clear. Wind rather fresh. Observed an anomaly in the magnetic azimuth with Thiel's needle, which interfered with the compass by strong wind.

Saturday, Oct 11th.

6 a.m. 29.79 40 41 ° N. W.
12 m. 29.90 55
6 p.m. 29.79 42 47

Morning clear with very strong wind. P.M. wind shifts to the Southward with rain and squalls.

Sunday, Oct 12th 1873.

6 a.m. 29.70 47 47 ° S. C.
12 m. 29.54 50
6 p.m. 29.24 46

Moody all day with severe squalls, rain and heavy strong variable wind.

Monday, Oct 13th.

6 a.m. 29.38 42 48 47 S.W.
12 m. 29.47 48
6 p.m. 29.39 47 48

Cloudy. Wind moderate with rain.

Tuesday, Oct 14th.

6 a.m. 29.74 42 48 47 S.W.
12 m. 29.73 45
6 p.m. 29.73 40 47 S.W.


Wednesday, Oct 15th.

6 a.m. 21.85 35 47 47 ° S.
12 m. 29.64 44
6 p.m. 29.23 42 48

1.4
Rainy with half a gale blowing from the S. W. in P.M. Capt. Kohlen arrives from the wreck in a bidaoka and remains all night.

Thursday, Oct. 16th 1873.

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Depth</th>
<th>Way</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 a.m.</td>
<td>29.37</td>
<td>48°</td>
<td>45°</td>
<td>16°</td>
<td>S.W.</td>
</tr>
<tr>
<td>12 M.</td>
<td>29.48</td>
<td>48°</td>
<td>46°</td>
<td>V.</td>
<td></td>
</tr>
<tr>
<td>6 P.M.</td>
<td>29.43</td>
<td>39°</td>
<td>47°</td>
<td>S.D.</td>
<td></td>
</tr>
</tbody>
</table>

Rainy and stormy all day.

Friday, Oct. 17th 1873.

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Depth</th>
<th>Way</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 a.m.</td>
<td>29.52</td>
<td>48°</td>
<td>46°</td>
<td>16°</td>
<td>W. N.</td>
</tr>
<tr>
<td>12 M.</td>
<td>29.65</td>
<td>60°</td>
<td>47°</td>
<td>W.</td>
<td></td>
</tr>
<tr>
<td>6 P.M.</td>
<td>29.79</td>
<td>49°</td>
<td>47°</td>
<td>S.D.</td>
<td></td>
</tr>
</tbody>
</table>

Day clear with moderate westerly wind.

Grand for magnetic and solar azimuth with Thandolite; latitude 47° 44.3' with a vertical circle at Sand Point.


Saturday, Oct. 18th.

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Depth</th>
<th>Way</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 a.m.</td>
<td>29.94</td>
<td>41°</td>
<td>45°</td>
<td>16°</td>
<td>N.W.</td>
</tr>
<tr>
<td>12 M.</td>
<td>30.10</td>
<td>46°</td>
<td>46°</td>
<td>V.</td>
<td></td>
</tr>
<tr>
<td>4 P.M.</td>
<td>36.20</td>
<td>46°</td>
<td>46°</td>
<td>N.W.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>30.29</td>
<td>46°</td>
<td>46°</td>
<td>N.W.</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>30.54</td>
<td>44°</td>
<td>44°</td>
<td>S.D.</td>
<td></td>
</tr>
</tbody>
</table>

Sail for San Francisco at 7 a.m.

Sunday, Oct. 19th 1873.

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Depth</th>
<th>Way</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 a.m.</td>
<td>30.40</td>
<td>44°</td>
<td>41°</td>
<td>47°</td>
<td>S.W.</td>
</tr>
<tr>
<td>12 M.</td>
<td>30.41</td>
<td>44°</td>
<td>41°</td>
<td>47°</td>
<td>V.</td>
</tr>
<tr>
<td>4 P.M.</td>
<td>30.41</td>
<td>45°</td>
<td>41°</td>
<td>47°</td>
<td>S.</td>
</tr>
<tr>
<td>7</td>
<td>30.39</td>
<td>45°</td>
<td>41°</td>
<td>47°</td>
<td>S.</td>
</tr>
<tr>
<td>12</td>
<td>30.39</td>
<td>45°</td>
<td>41°</td>
<td>47°</td>
<td>S. D.</td>
</tr>
</tbody>
</table>

Cloudy, wind moderate all day with heavy S.W. Swell.

Monday, Oct. 20th 1873.

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Depth</th>
<th>Way</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 a.m.</td>
<td>30.15</td>
<td>47°</td>
<td>45°</td>
<td>45°</td>
<td>S.C.</td>
</tr>
<tr>
<td>12 M.</td>
<td>30.06</td>
<td>47°</td>
<td>45°</td>
<td>47°</td>
<td>V.</td>
</tr>
<tr>
<td>4 P.M.</td>
<td>29.92</td>
<td>47°</td>
<td>45°</td>
<td>S.C.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>29.81</td>
<td>47°</td>
<td>45°</td>
<td>S.C.</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>30.03</td>
<td>47°</td>
<td>45°</td>
<td>S.C.</td>
<td></td>
</tr>
</tbody>
</table>

Half a gale from S.E. with rain Thursday.

Tuesday, Oct. 21st 1873.

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Depth</th>
<th>Way</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 a.m.</td>
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<td>48°</td>
<td>45°</td>
<td>48°</td>
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</tr>
<tr>
<td>4</td>
<td>30.26</td>
<td>48°</td>
<td>48°</td>
<td>S.W.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>30.35</td>
<td>47°</td>
<td>47°</td>
<td>S.W.</td>
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</tr>
<tr>
<td>12</td>
<td>30.42</td>
<td>52°</td>
<td>52°</td>
<td>S.W.</td>
<td></td>
</tr>
</tbody>
</table>

Cloudy, winder moderate all day with half clear with moderate westerly wind. Heavy S.W. Swell.
<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 a.m.</td>
<td>30.50</td>
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<td>49°</td>
<td>S.E.</td>
</tr>
<tr>
<td>8</td>
<td>30.49</td>
<td>48°</td>
<td>50°</td>
<td></td>
</tr>
<tr>
<td>12 m.</td>
<td>30.44</td>
<td>51°</td>
<td>49°</td>
<td></td>
</tr>
<tr>
<td>4 p.m.</td>
<td>30.39</td>
<td>51°</td>
<td>50°</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>30.33</td>
<td>51°</td>
<td>50°</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>30.33</td>
<td>51°</td>
<td>50°</td>
<td></td>
</tr>
</tbody>
</table>

*Blowy, with moderate wind all day.*

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 a.m.</td>
<td>30.29</td>
<td>52°</td>
<td>50°</td>
<td>S.</td>
</tr>
<tr>
<td>7</td>
<td>30.32</td>
<td>51°</td>
<td>49°</td>
<td></td>
</tr>
<tr>
<td>12 m.</td>
<td>30.30</td>
<td>52°</td>
<td>51°</td>
<td></td>
</tr>
<tr>
<td>4 p.m.</td>
<td>30.32</td>
<td>54°</td>
<td>50°</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>30.33</td>
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<td>50°</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>30.32</td>
<td>52°</td>
<td>50°</td>
<td></td>
</tr>
</tbody>
</table>

*Blowy with fresh winds from S. wind.*

<table>
<thead>
<tr>
<th>Time</th>
<th>Bar.</th>
<th>Air</th>
<th>Water</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 a.m.</td>
<td>30.33</td>
<td>52°</td>
<td>50°</td>
<td>S.</td>
</tr>
<tr>
<td>7</td>
<td>30.37</td>
<td>52°</td>
<td>51°</td>
<td></td>
</tr>
<tr>
<td>12 m.</td>
<td>30.37</td>
<td>52°</td>
<td>51°</td>
<td></td>
</tr>
<tr>
<td>4 p.m.</td>
<td>30.40</td>
<td>53°</td>
<td>52°</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>30.45</td>
<td>54°</td>
<td>52°</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>30.46</td>
<td>53°</td>
<td>51°</td>
<td></td>
</tr>
</tbody>
</table>

*Weather unchanged, with heavy S.W. wind.*
This time of the year, almost unlooked for, a westerly wind, 132° 41' 6" W. latt. a squandering through a line composed of

<table>
<thead>
<tr>
<th>Run out</th>
<th>Time 50 fms</th>
<th>Time 100 fms</th>
<th>Rate per 100 fms</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>6° 40'</td>
<td>05 53 05 38</td>
<td>05 38</td>
<td>01</td>
<td>32</td>
</tr>
<tr>
<td>16° 4</td>
<td>06 38 06 38</td>
<td>01 25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>56° 4</td>
<td>08 45 08 45</td>
<td>01 47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>76° 4</td>
<td>11 04 11 04 02</td>
<td>19 32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>96° 4</td>
<td>13 35 13 35 02</td>
<td>31 12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>76° 6</td>
<td>16 13 16 13 02 38</td>
<td>07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>96° 4</td>
<td>19 0 19 0 02 47 07</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>76° 6</td>
<td>22 0 22 0 03 0 13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>96° 4</td>
<td>23 30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>76° 6</td>
<td>25 0 25 0 03 0 00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>96° 4</td>
<td>26 38</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>106° 4</td>
<td>28 17 28 17 03 14 14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 29 37</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>106° 4</td>
<td>31 38 31 38 03 21 04</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Bar.</td>
<td>Air</td>
<td>Water</td>
<td>Wind</td>
</tr>
<tr>
<td>-------</td>
<td>------</td>
<td>------</td>
<td>-------</td>
<td>--------</td>
</tr>
<tr>
<td>4 A.M.</td>
<td>30.25</td>
<td>50°</td>
<td>52°</td>
<td>S.W.</td>
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<tr>
<td>7</td>
<td>30.34</td>
<td>49°</td>
<td>49°</td>
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<td>12 M.</td>
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<td>52°</td>
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<td>30.38</td>
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<td>52°</td>
<td>34°</td>
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**Day cloudy; wind light**
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<th>Air</th>
<th>Water</th>
<th>Wind</th>
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<tr>
<td>7</td>
<td>30.24</td>
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<td>52</td>
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Day foggy with a little sunshine and light southerly winds.

---

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<thead>
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<th>Water</th>
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<td>Variable</td>
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<td>4 P.M.</td>
<td>30.15</td>
<td>56</td>
<td>53</td>
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<td>30.16</td>
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<td>12</td>
<td>30.24</td>
<td>53</td>
<td>52</td>
<td></td>
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</tbody>
</table>

Some sun, with fog and light winds.

---

<table>
<thead>
<tr>
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<th>Water</th>
<th>Wind</th>
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<td>57</td>
<td>37</td>
<td>S.E.</td>
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</table>

Day foggy and cloudy with some rain and moderate winds.
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