
THE LATE ECLIPSE.—*Journal of a Voyage from New York to Labrador. By Lieutenant E. D. Ashe, R.N., Director of the Observatory at Quebec.*

Having heard that an American Expedition was about to visit Cape Chidley, the northern point of Labrador, for the purpose of observing the total eclipse of the sun on July 18th, 1860, I made application to the Hon. Minister of Finance for an appropriation to enable me join it, and a sum was granted for that purpose. Sir Edmund Head, Governor-General of British North America, wrote to our Ambassador at Washington, Lord Lyons, and the result was that I received a most kind invitation to join the American Expedition either at New York or at Sidney, C. B., with the understanding that I should be incorporated with the American astronomers, and that my observations should be given to them.

All things being now arranged, I made up my mind to join the expedition at New York instead of meeting it at Sidney, and on Saturday, the 23rd of June I left Quebec by the morning train, and on Tuesday 26th, arrived at New York and went to the Brevoort House, where the party was to assemble.

On Wednesday, the 27th, most of the expedition had arrived, and Professor Bache, who had the formation of the party, made the several members known to each other, and we drank success to the expedition in a glass of champagne.

On the morning of Thursday the 28th, after breakfasting on

board the vessel that was to take us to Labrador, (the U. S. coast surveying steamer *Bibb*,) Professor Bache mustered all the party with their instruments, which consisted of Lieutenant Murray, U.S.N., commander; Professor Stephen Alexander, Professor J. A. P. Barnard, Lieutenant E. D. Ashe, R.N., and Professor Smith, Astronomers; Professor C. S. Venables, Oscar Lieber, and William Henry, Meteorological Department; T. C. Goodfellow and Henry Walker, Magnetic; Peter Duchochais and A. W. Thompson, Photographers, and Oscar Lieber, Geologist and Draughtsman.

About ten a.m. our little vessel steamed out of the harbour and passed through Hell Gate, inside Long Island; and our expedition was now fairly afloat. Boxes began to be stowed away, and the party to know each other; and we all felt quite at home although we were at sea. At an early hour we retired to our berth for the night. In the middle watch I heard the cry "Man overboard," and went on deck. It was a calm night, with smooth water. The vessel was soon stopped and a boat lowered. The man was heard crying out astern, but as there was no lifebuoy he sank before the boat reached him. The young sailor who fell overboard had a brother in the same vessel, who naturally was in the greatest state of suspense while the boat was away, and when she returned without him, and the order "Go ahead" was given, it was truly distressing to witness the agony of the poor boy: far worse than hearing the clay rattle on the coffin of a loved one, for in your sad moments you can return to the grave and weep in silence—but here, all traces are for ever gone, the close affection of brotherhood snapped in a moment,—and the feelings crushed by the routine of the ship going on as if there never had been such a person on board.

We had light fair winds for the first two or three days with tolerably smooth water; but not sufficiently so to prevent the Professors from feeling that most dreadful of all maladies—sea sickness.

Monday 2nd.—Smooth water: all the party in good spirits. Eight p.m., rounded Scatarie Island, and stood in for the harbour of Sidney, and anchored close to the coal wharf.

3rd.—Found H.M.S. *Cossack* here, commanded by an old messmate (Moorman); and as our vessel had to take in coal, I went on shore to North Sidney with him, and had a talk of bygone days and of former messmates. Some had risen to the top of the profession, others were dead, and some worse than dead—they had turned out drunkards. Some of the most noble and gifted of our profession had fallen victims to that vice. I look upon it as a disease, and no more capable of being cured than cancer.

We completed coaling and started again that night about eleven. Captain Murray had wisely contrived to charter a schooner with coal to go some 500 miles to the northward, on the Labrador coast, to meet us on our way back at a fishing station (Domino).

As I was charged with the astronomical arrangements for getting time, before starting I had the materials for a small wooden observatory cut out, so that I should have nothing to do when I arrived at our place of destination but to nail it together.

4th.—Strong winds and much sea. At eleven a.m. all hands assembled in the cabin to drink the "American Independence."

I joined most cordially, being the only Britisher on board, and was glad to see so much enthusiasm, for without it no nation can be great.

5th.—Gale blowing from the N. W., and our little craft was scarcely making headway; there was a great sea and we shipped a great deal of water. I was much pleased with the sea qualities of the *Bibb*. Set the fore trysail and kept away E.N.E. Noon, weather more moderate.

6th.—Fresh breezes from the North. Labrador coast in sight. Set fore and aft sails. Showed our colours to the *St. Lawrence*, steamer, going to Quebec. In the afternoon passed the lighthouse on Point Amour. Several large icebergs in sight. Night fine and clear.

7th.—Beautiful weather. Passed Belle Isle and kept close to the Labrador shore; patches of snow on the land and several curiously shaped icebergs in sight. They are of all sizes and forms, and vary in colour according to the light seen in. A common form for the icebergs that are seen in these low latitudes, and that have weathered many gales of wind, is that of a decayed tooth, the centre part being filled with water; some look like Parian marble, whilst others are the colour of blue vitriol, and some are a beautiful sea green with purple streaks. Most of them have rents or cracks that run across them, and which are filled up with frozen water, and then these veins present beautiful colors as different lights fall upon them. As we got to the northward they increased in size and number. Nothing could be more dangerous to navigation than these icebergs; in a fog they cannot be seen the length of a ship, and have sharp projections beneath the water far more fatal to a ship than a rock, for alongside the iceberg there is deep water and the ship goes down before the boats can be lowered.

One of the pilots told me that he was in a brig on the coast of Labrador that ran on an old decayed iceberg and the smooth water in the centre enabled them to lower their boats, and ultimately they were picked up by a schooner. A fisherman from Sydney told me that he was in company with a fishing schooner that tried to pass between the icebergs, but struck against a projecting piece of ice beneath the water and went down immediately, the crew saving themselves by jumping overboard, and were picked up by the other schooner.

I have not the slightest doubt that many of the missing vessels have been lost on these islands of desolation.

We kept close in with the land and spoke a fishing-boat. There are several hundreds of fishermen that come every spring from Newfoundland, Nova Scotia, the States, and even from England, erect their huts on one of the thousand islands that are off the coast, leave their wives and families on shore to clean and dry the fish, whilst the men are out catching more. Small American and other schooners make a good thing of it by exchanging provisions for green fish, and bartering skins from the Indians.

The fishing ground extends up the coast as far as lat. 56° ; beyond this the water at the bottom is too cold for cod. Our charts were not of much service to us, no two being alike, and none having any pretensions to accuracy. Great caution was therefore necessary and a most careful look-out had to be kept. We had a great advantage in having a strong twilight all night, even in lat. 53° .

Monday, 9th.—Strong fair winds all night; kept off shore. At sunrise no land in sight; altered course and kept well in for the land. About four p.m. saw several islands about Nukasusuktok; ran in, and at nine p.m. anchored between

some islands. Keyed up the engine and put on a new float to replace one that had been knocked off by the ice.

10th.—Detained by fog. Went on shore to the island with a party and collected plants and geological specimens. Obtained observations of the sun at noon with artificial horizon; lat. $56^{\circ} 43' N$. Caught a few fish.

11th.—Strong gales from the N.E., with rain. Noon, gale broke and weather cleared up; got underway and commenced picking our way between the islands. It is a complete archipelago, and often difficult to discover how you got in and still more so how to get out. Saw several of the Esquimaux, and in exchange for tobacco and biscuit obtained fish. I was glad to see that they refused spirits when offered to them. We were not far from the Moravian settlement of Nain, but could get no information of our position or on any other subject, although we tried them with Dutch, German, French, English and Irish.

Some of the passages were very narrow, and, rounding a point, the *Bibb* ran with great force upon a ledge of rocks, and carried away the fore foot and a great part of the false keel. As she had run upon the rocks at the rate of about eight knots, we found that there was about four feet less water under her bows than she required to float in. I was very anxious to see if she made much water, as in that event our case would have been hopeless and the astronomical expedition would have ended there, and we should have been obliged to have coasted along a bleak and desolate shore without help for five hundred miles in open boats; but our little vessel was staunch, and no leak of any great consequence had been sprung; so we set to work with a will to get her off by laying out two anchors astern, and bringing one of the hawsers to the

donkey engine and clapping all hands on the other. The men worked well and were all sailors,—a rare thing in these days. About eleven, p.m., we managed to get her off and rode by one of the anchors until four a.m. (12th), when we got under way and stood to the northward. Being completely land-locked, and not having the slightest idea of the way out amongst so many islands, I proposed to Captain Murray that we should land and get on the top of a mountain, and learn the way out.

We accordingly landed on one of the islands that had a commanding height, and commenced the ascent. The island was covered with rich moss, with a few coniferous trees. It was like walking on a spring mattress, the moss was so rich and elastic. Captain Murray, who was a long way ahead was brought up by a ravine, whilst I, a few yards to his right, had a good road, and succeeded in being the first up.

From our position we observed the ocean, which was separated from us by numerous islands, and that our passage out was most intricate. I however drew a plan of the most likely way to gain the open sea; after which we commenced our descent, and when we got on board again we found that some Esquimaux had been on board, and one had drawn the way out on the log slate, which exactly agreed with the bird's eye sketch I had taken.

In the kyacks that came alongside were two women; one young and good-looking enough, the other had a baby in her arms,—so there are babies even in this outlandish place. They appeared to be perfectly happy and without any care.

The navigation was of a very remarkable nature. We had to pass between very high rocks, and close under mountains that appeared to rise perpendicularly out of the water. They had not the slightest vegetation on them, and those enormous

masses of granite had several streams of water tumbling down their sides, giving the scenery a grandeur that far surpassed anything that I have seen.

We succeeded in reaching the open sea about noon, near the place marked Port Manvers on the chart. From Cape Mugford to Cape Chidley the land has the same aspect of extreme desolation, with a high range of mountains without any vegetation, having only patches of snow on them. It is impossible to conceive a grander or more sublime scenery than that exhibited on this coast. The rugged out-line of this vast chain of mountains presents a barrenness and an unfitness for human habitation not to be described.

At noon of the 13th we were in latitude $59^{\circ} 4' N.$, and during the afternoon we had to run between numerous sunken-rocks and breakers. Had there not been daylight and clear weather I do not think we could have gone six miles without being wrecked. About midnight we entered a bay that was thought by Captain Murray to be the place we were looking for; and, although there was plenty of light for all purposes of navigation, we let go a kedge until sunrise, when we could take observations and ascertain if we were on the central line of the eclipse.

14th.—At about seven, a.m., went on shore and took observations, and at noon found our latitude to be $59^{\circ} 48'$, three miles only to the southward of the computed centre; and as there was a beautiful harbour we got the vessel in, and selected a site for our observations on the westernmost side of a small neck of land that connected a high mountain at the entrance of the harbour with a range that appeared to run along the island. By this means the fog that came in from the sea was dissipated by the warm surface of the land that we had between the sea and us.

All hards were now busy in landing the different instruments and pitching tents. As I had brought a house already cut out, I commenced, with the assistance of Captain Murray and Mr. Frerch (our talented engineer), to put it up. It came on foggy and squally from the S.E., and during the night it blew very hard in squalls. About daylight the wind shifted to the N. W., and blew with equal violence.

15th.—Windy and foggy; squalls from the N. W.; some of the party on shore.

Monday, 16th.—Fine clear weather; wind N. W. The different parties employed in getting their instruments into position. I got my hammock on shore and took up my quarters there. A barrel with the heads knocked out, partly sunk in the ground, filled with earth and well rammed, and then having a flat stone placed upon the top, offered a firm support for my transit instrument. The magnetic and meteorological parties were supplied with tents, and had taken up a position some little way off.

The difficulty that I laboured under was that the short interval that stars of the fourth or fifth magnitudes were visible—the only slow moving stars near the pole that passed at that time,—gave me so little time that I was unable to get the transit instrument into the meridian, and had to get time with sextant and artificial horizon: but as Professors Alexander and Smith also observed, we had the time to a fraction of a second.

The night came on stormy and cloudy, wind from S.E., and no observation could be taken.

17th.—More moderate, but still cloudy. The astronomers employed fixing their telescope for to-morrow; great anxiety about the weather. Afternoon, strong wind from N. W.

18th.—At daylight, passing clouds from N. W., with open blue sky. Six a.m., weather improving; great hopes of clear weather. The different parties were now actively employed in making final arrangements. All the telescopes were placed close together and all round our chief—Professor Alexander, who was in the middle. Near him Mr. Henry was placed, with a chronometer, who counted the seconds aloud in order that each astronomer might note the exact time of any phenomenon. The photographers were close behind, so that at any given signal a picture of the sun could be taken. The meteorological and magnetic departments were well attended to and had every convenience. We all had our instructions given to us.

At about half-past seven the party, after a hurried breakfast, formed, and there were fine clear openings in the clouds which promised to give us an uninterrupted view of the eclipse.

I must now confine my remarks to the eclipse as seen by me. My telescope had a 42-inch focus, aperture $3\frac{1}{2}$ -inches, by Dolland. I used a power of about 40. It was mounted upon a tripod having a rack and pinion motion, and was so adjusted that by moving it in right ascension only I kept the object in the middle of the field.

I was comfortably seated, and was steadily looking at that part of the sun where the first contact was expected to take place, when, at 8h. 8m. 5s. (mean time and place), the dark edge of the moon was seen upon the sun's surface. I must confess that notwithstanding I had promised to keep myself quite calm and collected, I was so much startled by the phenomenon that I am doubtful of the time to two seconds. The signal to the photographers was given, and they instantly pulled the trigger, and in the smallest fraction of a second they

had a good picture showing the moon's limb just entering upon the surface of the sun, (as seen in plate i.) There did not appear to be any disturbance of the sun's limb before contact.

Clouds passed occasionally over the sun's surface, but they did not prevent our making the time of the moon's passing over the principal spots on the sun's surface, which took place without any apparent attraction or repulsion between the moon's limb and spots. Two high mountains were seen on the surface of the moon just under the upper cusp, (and which are distinctly seen in plates iv. and v.)

About eight minutes before the total eclipse I removed the coloured screen from the telescope; and as there was a light thin cloud over the sun, I could look on the bright part without protection to the eye. At this time I looked around upon the several objects that were before brightly illuminated by the sun, but now a great change had taken place: a gloomy unearthly light fell upon the surrounding objects, impressing me with the idea that some fearful calamity was about to happen, and well can I imagine that armies engaged in battle would lay down their arms when Nature threw such a ghastly light upon the combatants.

When the bright crescent was reduced to a thin line of light extending round the edge of the moon about 130 degrees, it was a beautiful object to behold. Shortly afterwards it broke up into fragments—"Baily's Beads"—which appeared to swim from the centre towards the cusps. At 9h. 13m. 32s. the last speck of light vanished and a bright halo surrounded that part of the moon that I was looking at, and at about twenty degrees in the second quadrant I saw distinctly a white flame shooting up to a considerable distance. A dense cloud now passed over the sun, preventing further observations being made until the emersion.

At the time of the total eclipse the wind, which had been blowing in gusts, now fell, and a death-like stillness prevailed; a little solitary bird poured forth a melancholy song, and then the stillness appeared even greater than before. Between the clouds I saw Capella shining brightly with its natural light. The darkness was not so great as I had anticipated. I could see the remarks in my note book without much trouble. The light is very different from that of morning or evening, and well calculated to excite great fear in the minds of the ignorant.

The emersion was seen, and the time (10h. 25m. 26s.) taken with accuracy. The least portion of the sun's surface was sufficient to light up the surrounding country: it was like bringing a candle into a dark room. I could follow the edge of the moon off the sun for nine or ten degrees. The cusps of the sun appeared sharp and well defined, excepting one occasion, when the lower one, instead of coming to a point, appeared to be broken off, which was caused no doubt by a mountain in the moon intercepting the light. The faculæ on the sun's surface round the edge of the moon at the least part of emersion, appeared very plain, more so than I had ever seen them before. The corona was seen by those on board with the naked eye, and a good drawing was made of it.

I have spoken of the parts of the sun and moon as seen through an inverting telescope, and supposed a vertical line drawn through the sun, and the time given is the mean time at place of observation. As my observations are incorporated with those of the American expedition, I must wait until they are all reduced before any deduction is made with regard to the longitude of the place of observation.

19th.—Professor Alexander, Professor Smith, and myself, were busy in taking every opportunity of getting the time. I remained on shore and took observations for time and latitude.

20th.—All the parties returned on board, leaving me only on shore. I remained in my little wooden hut on this bleak desolate land in order that I might continue my observations until the last moment. As I was walking backwards and forward during the night, waiting until certain stars passed the meridian, I thought what an uncomfortable position I should be in if a bear came to reconnoitre the place left by the other parties, as the only weapon in my possession was a clasp knife. It so happened that on board the vessel, shortly after sunset, they saw a bear coming down the mountain, but I am happy to say it was not on my side of the harbour.

21st.—I took my house down and went on board, hoping that we should be able to get to sea at noon.

After the eclipse we had more time to look about, and several parties were formed to survey and explore. We discovered that we were on the island called Aplezavik. One party went into an Esquimaux hut that apparently had recently been occupied, for they discovered several portions of deer and also the head and paws of a young bear, so cleanly picked that they made capital specimens.

There is plenty of game, as the marks of deer and other animals were seen; but we were so much taken up with our respective duties that no time could be spared for the sportsmen.

We were detained until Tuesday, 24th, by heavy gales of wind, and felt very thankful that we had the shelter of a good harbor, instead of being at the mercy of the winds and waves outside, amidst so many dangers that beset that iron-bound coast.

At sunrise of the 24th the gale abated, and at 6, a.m., we got under way and stood out under easy steam. There was a great swell outside, which broke on all the sunken rocks, and thereby showed us how to avoid those dangers. We found that in consequence of losing our false keel and forefoot some of the seams had opened, and that our little vessel was making much water. We had but one hand pump, which threw a stream no bigger than that which comes from a teapot, and, should the leak increase, would not enable us to free the ship; therefore Mr. French made an excellent pump of some boards, which, together with that worked by the engine, could keep under any leak that might reasonably be expected.

26th.—Fine day, with smooth water. We had made great progress. At noon passed Cape Webuck and succeeded in taking a photograph of an iceberg. The night came on overcast and rainy.

27th.—Thick weather, with rain. Ran past Domino, where we had ordered our coal schooner to meet us, and had to turn back. At noon we arrived there. It is merely an anchorage between two islands, where some fishermen have erected huts to clean and dry their fish. There are excellent fishing grounds in the neighborhood. We saw a great number of boats employed, and obtained some fish from a boat that came longside: gave the men whiskey, bibles, and tracts in exchange, for which they seemed very thankful.

28th.—Went on shore with Capt. Murray at one of the islands, which is about fifteen miles from the mainland. A few small shrubs and rich mosses compose the vegetable kingdom. We caught a few small trout. We went into a fisherman's hut before going on board: found his wife and grown

up daughters, who were delighted to see us. They live in one of the bays of Newfoundland, and come every spring to these shores, and remain until the beginning of November. They were very sorry that we did not stay for Sunday, in order that they might go on board to church. They offered us cake and spruce beer, but I positively was unable to drink the spruce beer—although I made several attempts to do so—which I fear was put down to a want of cordiality. We went to sea in the evening, and as we had not taken all the coal out of our schooner (the *Tickler*) we took her in tow.

Sunday, 29th.—Passed Belle Isle. Wind fresh, with heavy sea. Noon, kept away for Chateau Harbour, and about four p. m. let go our anchor.

Went on shore in the evening, and the Rev. Professor Barnard read prayers in a fisherman's hut, which was much too small for those who wished to join us.

This is a very fine harbour and completely landlocked, with a small stream running into it at the head, which is filled with large trout; but the flies and mosquitoes are so numerous that it was impossible to remain on shore, so after catching a few very large ones, we were fairly driven away and glad to escape from our tormentors.

We remained until Tuesday before the gale was over, and then a fog came on; but in the afternoon we steamed out, leaving our coal schooner (cleared) behind.

2nd.—Fair wind and weather. Cape Ray on the beam. Arrived at Sydney at eleven p. m.

3rd.—The U. S. coast surveying steamer *Bibb* completed her coaling and proceeded to sea, and then I parted company with my American cousins, who had treated me with kindness and hospitality and showed so much attention and civility to

me that I shall ever look back with extreme pleasure to the fortunate occurrence that brought us together. On arriving at Quebec, *viâ* Halifax, I found myself just in time for all the gay proceedings consequent on the Prince's visit.

[Read before the Society, 24th October, 1860.]