

This booklet records some memories of our work and travel on the coast of Labrador in 1946 and 1947. It is not a journal, because I didn't keep one, and is intended only for the amusement of my family. It ignores essentially all things geological and concentrates upon the things that stand out in my memory as strange, interesting, or amusing.

Because I kept no journal in 1946, all the dates and many of the facts come from that of Nordau Goodman, who was kind enough to loan to me a booklet similar to this one that he had prepared thirty years ago. I am much in debt to him, for his journal proved beyond doubt that my memory even had events occurring in the reverse of their actual order, and there is no way that my memory could supply dates, even for the beginning and end of our journey.

The majority of the photographs are also from his negatives, which I have in my possession, though I don't now know how that came about.

At this date, even the youngest of my grandchildren is old enough to appreciate the situations where Grandad's actions were well short of genius, and I hope they find the recital to be of some interest, and that it helps to understand the sort of work and the conditions under which it was done.

28 October, 1998.

The Reasons For The Expeditions

In 1946 and 1947, the Commission of Government of Newfoundland financed two exploratory expeditions to the coast of Labrador. They were staffed by G. V. Douglas, the professor of geology at Dalhousie, and his students. When he came to Dalhousie in 1932, Douglas found among his students a young Newfoundlander named Claude Howse and now, fourteen years later, Howse was the Chief Geologist for Newfoundland. Howse was easily persuaded that some exploration of Labrador was badly needed.

The Privy Council, in 1927, had settled the boundary between Canada and what was then the Dominion of Newfoundland. This award defined the inter-dominion boundary, except for some bits in the south, as the height of land between the Atlantic and the rivers flowing into Ungava Bay and Hudson Bay. This very large area of Newfoundland Labrador was essentially unexplored.

Some exploration had been done between 1884 and 1898, by A. P. Low of the Geological Survey of Canada. Between 1892 and 1898 he had done some spectacular river surveys and was famous among the geologists because he had discovered the great iron deposits of Labrador. To the geologists he was also famous for his ability to travel: In the 1880's an expedition to Mistassini, in central Ungava, produced discord about who was in command. Low put on his snowshoes, walked to the end of the railway east of Quebec city, thence to Ottawa. Assured he was in charge, he reversed his route and walked back to Mistassini, all in the dead of winter. At one time in his later Labrador explorations, the Survey did not hear from him for a very long time and assumed he must be dead. But he found a fishing schooner somewhere near Fort Chimo, and so made his way back eventually. All this travel of Low's produced a track survey south to north, and a couple more, east to west across the country.

The Survey had also sent A. P. Coleman, of the University of Toronto, to examine the Torngat Mountains, in 1916. That range is at the northern end of the coast.

In a book about Labrador, by Dr. Grenfell and others, R. A. Daly, of Harvard University, had written about the geology and scenery of the coast.

In 1944, Vaino Tanner had published his report on the geography of Labrador. This was the result of work done in 1938 and E. H. Kranck was the geologist of that expedition. This report also dealt only with the coastal area.

Less well known, but much more famous on the coast, was the work of E. P. Wheeler, of Princeton University, who had been working on the coast all by himself since at least 1932. He was a legend among the Eskimo but had not published very much about his work. The major publication dealt with anorthosites and related rocks around Nain.

Douglas argued that Newfoundland had a large area in Labrador, but knew not what was in it. He proposed to reconnoitre the coast to find areas of potential importance or value that justified further work. This was done in 1946, and in 1947 we went back to three areas: Charlie Smith at Makkovik, Douglas on Kainariktok River, and I at Rowsell Harbour.

It is probably true that a more important move by the Commission of Government was granting of exploration "concessions" to mining companies. A company paid a fee for the exclusive right to explore a huge area during a period of a few years. At the end of that period, the company must reduce its "concession" to a small part of its original size. Within that reduced area the company had exclusive rights for a further few years, on payment of a further, and much increased, fee. Several such concessions were granted in 1946 and considerable reconnaissance work was done. The one that proved of interest to us was that owned by Norancon-- a joint operation by Noranda and Consolidated Mining and Smelting. Ironically, the concession included the huge nickel deposit that has recently been discovered at Voisey's Bay, just south of Nain.

In this immediate post-war period also there was serious exploration of the iron deposits that A. P. Low had discovered in central Labrador, i.e. on the Quebec boundary. This work was directed by J. A. Retty of Hollinger Mines, for what later became the Iron Ore Company of Canada and was a big job. To get the ore to market meant building about 400 miles of railway, a port and ore-handling docks, and two large towns as well as the mines. To pay for all this, and for all the exploration expenses (including an airline), there had to be proven a huge tonnage of ore, and that required several years of work. Most of this great exploration cost was borne by Hollinger, the gold-mining company from northern Ontario.

Betty Ann and Marlene will remember Bill Bedwell. Though I did not know it at the time, he was the engineer on the Canso aircraft that Norancon was flying over their concession in 1946. He worked also for Hollinger-Ungava Air Transport when the railway was being built, and he has many stories about changing engines on an aircraft, out of doors, when the temperature was far below zero.

Planning the Expeditions

The summer field season in Labrador is only about three months long, and that is true only for the southern part of the coast. In 1947 we arrived at Ramah Bay on 12 July, and there were still old snow banks on the plateau above it. We had the first snow of the new winter on 31 July.

A reconnaissance survey, therefore, must extract as much information as possible in the least possible time. That requires careful planning so that there can be the maximum flexibility and ability to adjust to different situations. Douglas had been the geologist on the last expedition of Sir Ernest Shackleton to the Antarctic, and he had also represented Rio Tinto on the Rhodesia-Congo border concession, in Africa, so he had some experience with this kind of high-speed preliminary investigation.

It was necessary that we should have with us everything we would need, because there was no way of making up any deficiency once we were on the coast. During the winter of 1945-46, many hours were spent in Douglas's office planning, debating, and compiling lists of required equipment and supplies. This included everything from fuel oil to dynamite and shoemaker's pegging nails.

Sub-division into Three Parties: The expedition was organized so we could be split into three parties: GVD in charge of one; Nordau Goodman in charge of another; and I in charge of the third. Goodman was a reasonable choice: he had worked on a couple of field parties with Douglas in Nova Scotia before the war, he had been through the complete program at Dalhousie, he was completing his M.Sc. thesis, and was Nova Scotia's next Rhodes Scholar. I was a different case: by the spring of 1946, I would have as foundation only the geology classes of the preceding winter; and no experience. That I should have been chosen is not surprising; Douglas did much (most?) of his teaching in the field and I was, at that time, the only declared geology major in the class. I don't recall that I felt apprehensive, however. GVD had a habit of assigning jobs beyond our ability and then leading us to believe we were capable of doing them. It was a great way to develop initiative, confidence, and a sense of responsibility, but I now wonder if he didn't carry this a bit too far.

Each of the three parties would be able to operate by itself for a short time. In practice, this turned out to be for a single day or for up to about two weeks. Conceivably, it might be necessary, or advisable, to make maps of what we found, and it was already known that this would probably be necessary at Rowsell Harbour, on the northern part of the coast. To produce quickly a large scale contoured map, the plane table is the obvious technique to choose, and this meant that the parties should each have a surveyor and his assistant (rodman). We had in fact, in Goodman's party and in mine, two surveyors each, but the third party consisted only of Douglas and his son. Surveyors, of course, must have the necessary instruments and equipment.



Thomas and Robert anchored in ice. Lester Chapman in a snowball fight.



Crew of the Thomas and Robert: L to R:
Martin Sturges, mate
Roland Clark, engineer
Jabez Hunt, cook

Transport: We did not worry much about how we were to travel on the coast, nor about how we would get there. Claude Howse found a small schooner and a captain who had spent many years on the Labrador coast. This latter item was extremely important, because, believe it or not, on many parts of the coast, the only charts available were surveyed by Capt. James Cook in the 1760's. Only by the accumulated, and shared, experience of the captain and his colleagues was it possible to navigate on the coast, and we saw many examples of how experience was shared: When we came into a harbour where there were other schooners, their captains came aboard to hear the news on our radio. After that they spent a couple of hours comparing experiences on how each navigated a particular bay or "tickle".

We also had canoes for travel where the schooner could not go, but we had to be satisfied with what was available in Halifax. That meant we had a 16-foot and a 14-foot Chestnut canoe of the kind designed for summer resorts. In practice, these were used once or twice on rivers, and Douglas frequently used the 14-foot job for putting himself ashore from the schooner.

Most of the time we used two dories of the size used for fishing on the Grand Banks. Even with eight people in it, a 2 HP outboard motor could move the dory along at 3 to 4 miles per hour. As with the canoes, we had to take what motors were available and that meant we did not have motors with long drive shafts. That required that the motor be mounted on the gunwale of the dory, where a moderate chop produced a drowned motor on a few occasions.

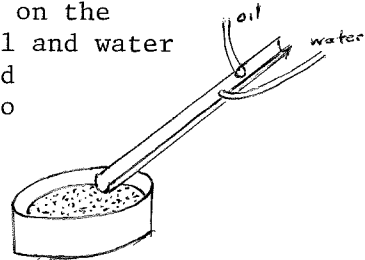
Tentage: If a party is to work independently, then it must have some kind of shelter, and tents become an obvious need. We treated ourselves very well: We had 8' x 10' tents to sleep in, and the cook had a 10' x 12' tent for his work. In the army, the cook would have served from his kitchen, and we would have eaten outdoors, but here we also had a 10' x 12' tent in which we ate our meals off a table!

Tents presented another problem however. A rectangular tent, with a wall, requires an absolute minimum of three poles to support it. Usually it uses seven or five. The northern half of the coast is beyond the tree line and we had to cut the necessary poles at Nain. Thereafter they cluttered the deck and were a nuisance.

Wood for fuel was also cut at Nain, and also cluttered the deck thereafter in 1946. But we did learn from that experience and, in 1947 we used oil for fuel for the party north of the trees.

Flash Burner: The oil burner was a device invented by some unknown in the 8 Army, and called a "flash burner". It consisted of a shallow can, six or

eight inches in diameter and partly filled with sand. Oil and water dripped from small tanks into a sheet metal trough and via the trough into the firebox of a sheet metal camp stove. To start the burner, one put some gas or kerosene on the sand and burned it to heat the sand. When the oil and water hit the hot sand, the water flashed into steam and this "sputtering" effect broke the diesel oil into tiny droplets that burned quite readily, without smoke, and, of course, kept the sand hot. At Ramah Bay, in 1947, the cook found this to be a completely satisfactory arrangement.



In the event, tents were hardly used. In 1946, we used them for a couple of days, near Cartwright, and again at Rowsell Harbour, where we had a tent camp for 22 days.

Supplies; The bulk of the supplies was loaded on the schooner in Newfoundland. The vessel then came to Halifax and picked up such items as were being supplied from here. This was mainly surveying instruments supplied by Dalhousie, the canoes bought in Halifax, and a few other items plus, of course, the gear of the students who were to do the work.

Thomas and Robert: The schooner, called the Thomas and Robert, was 80 feet long, with a beam of 18 feet, and drew 11 feet of water. She was NOT sheathed for work in ice. In 1946 we were farther north than any other vessel on the coast, and dealt with ice for a large part of that journey. We developed a great admiration for the skill with which The Skipper inserted the vessel's tender sides between the ice floes and then with "another little jig on the propellor, chief", pushed them aside. When we arrived in St. John's at the end of the season, we learned that the schooner's three-inch planking had gouges an inch and a half deep.

Halifax to Corner Brook

When the Thomas and Robert arrived in Halifax to pick up our equipment and ourselves, we met those with whom we would be living and working for the next 100 days.

The ship was commanded by Isaac John Blackwood, and had a crew of:

Martin Sturges,	mate
Jabez Hunt,	cook
Roland Clarke,	engineer

and a black Newfoundland dog called Toby. In addition, the schooner brought two cooks, who were to be available for our two separate surveying parties when it should become necessary to separate them. Andrew Mullet was assigned to Nordau Goodman's crew, and I drew John Saunders.



The Newfoundland-Dalhousie-Labrador Expedition
On the dock at Halifax, ready to depart, 31 May, 1946

Front Row, L to R:

Nordau Goodman, 2 i/c; Pat Douglas; Andrew Mullett, cook;
G. V. Douglas, leader; Toby; GCM.

Back Row:

Jabez Hunt, crew cook; Charlie Smith; Roland Clark, ship's
engineer; Mike Waterfield; Bill Chaffey; Peter Bloomer;
Colin Smith; Don Dunlop; John Saunders, cook; Lester Chapman;
Cecil Seymour; Martin Sturges, mate.

Missing: Skipper John Blackwood.

Sambro Lightship: We all came to admire "Skipper John", but our introduction left us wondering a little. The story Douglas heard from The Skipper (as related third or fourth hand to us) was that, en route to Halifax, he had cleared Cape Race and set his course for the Sambro Lightship; if the fog had not lifted when it did, he would have run the lightship down. According to Martin Sturges, however, when The Skipper laid out his course he forgot to correct for the magnetic declination and, if Martin hadn't caught the mistake, they would have missed Sambro by many miles.

It was a good story at the time, and believable. The Skipper made no bones about his navigation. He did not have a sextant aboard, and acknowledged that he would not know what to do with it if he had one. As he said himself: "I just navigates from lamp post to lamp post, b'y." On the Labrador coast, especially because the work we were doing kept us close to the land, this is exactly what he did, and we progressed from one headland to another. But I have also seen him lay out a course from time to time, and he always slid his parallel rulers across the chart to the compass rose and read the bearing off that; there were no calculations. So I rather think the story of the journey to the Sambro lightship lost nothing in the telling.

Signed on as Seamen: The members of the expedition had to have some kind of status on the ship to comply with the shipping regulations. This was solved by signing us on as seamen and members of the crew. So, in addition to the six who came with the schooner from Newfoundland, we had:

G. V. Douglas, and his son, Patrick, who was the unpaid
photographer

N. R. Goodman, and his survey crew, consisting of:

M. W. Waterfield, and
D. L. Chapman, instrumentmen
Peter Bloomer, and
Cecil Seymour, rodmen

G. C. Milligan, and a similar crew, consisting of:

Charles H. Smith, and
Don Dunlop, instrumentmen,
Colin H. Smith, and
W. H. Chaffey, rodmen.

An unsuspecting person reading this list of eighteen "seamen" must have thought the Thomas and Robert the most over-manned vessel on the seas.

When signing on, the seaman must state the name of his last ship, and Douglas duly listed R.M.S. Quest as his last ship. Quest was the ship used by Shackleton on his last expedition to the Antarctic, on which Douglas had been the geologist. He still had the aneroid barometer they used for measuring elevations, and the "Quest barometer" came aboard the Thomas and Robert, so I could measure barometric pressures for my weather



"Pumping up the anchor". When there was much chain out in deep water, it required everyone who could get near the capstan.



The deck, from aloft.

reports to the Department of Transport.

We left Halifax on the morning of 31 May. Nordau remarks that the original departure time was 0500 hrs, but "GVD thought that a bit early so the skipper settled for 6 a.m. The Customs authorities wouldn't put the bonded stores aboard till 8 a.m. so that set the hour of sailing at 9 a.m. So...at 10 a.m. we loosed our lines... and left our pier...." The Douglas family was down to the Irving wharf at the foot of Sackville Street, to take pictures and to see us off. As I remember it, it was a sunny morning with little wind and, once we got out of the harbour, only a long gentle swell. But that was enough. Though I don't recall that anyone was seriously seasick, some of these "seamen" were feeling a bit queasy.

Watches: The "crew" was promptly broken up into "watches". GVD reasoned that young men sitting about with nothing to do would quickly become bored, and he probably was correct. I suspect also that we were seeing a revival of the routine on the Quest. Goodman and his survey crew got the 4:00 to 8:00 watch, and I and my crew drew the 8:00 to 12:00 period. That left the 12:00 to 4:00 period for Douglas and Pat, which was quite manageable because if anything needed to be done between noon and 4:00 p.m., the deck was swarming with people anyway.

My crew were lucky. Once we were on the coast, the working day started at 0400, and GVD's voice would come down the cabin hatchway: "Nordau! Time to get the anchor up!" His watch would then "pump the anchor up" on the manual capstan, after which they swabbed down the deck and generally tidied things up. We could lay back till breakfast time and, on our watch, the only routine duty was filling the water barrels after we had anchored in whatever harbour we were to spend the night.

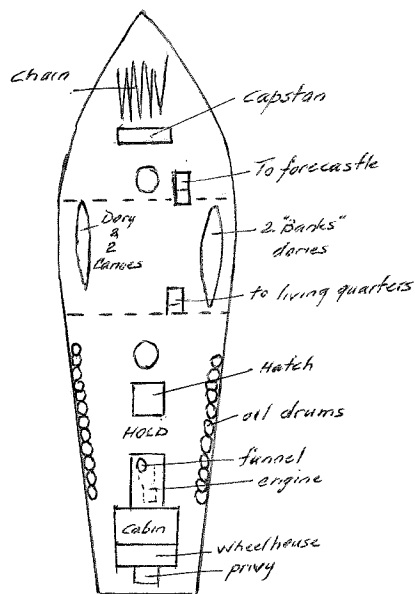
What did we do "on watch"? We did about the usual things: Each had a turn as forward lookout, when you sat in the bow and watched for danger. Initially this was a trivial job, once we were past the shipping lane in Cabot Strait. But it again became a matter of some interest when we began to encounter ice on the Labrador. Also each had a turn as helmsman. This was easy, because we hardly ever had a sail up, and maintaining a straight course under power was no problem for our young engineering students. Occasionally The Skipper would give us a small job for his own amusement, but if he had anything serious to do, he called upon his own professionals, of course.

While our lads could steer a course, what course to steer caused an initial problem, and The Skipper solved it in his own way. As surveyors our lads were quite familiar with azimuths in degrees. They were also quite familiar with directions given as angles from north or south in quadrants, e.g. N32°W or S16°E, but they were not familiar with the use of 32 compass points. On the first afternoon out of Halifax, Don Dunlop was at the helm as we made our way along the coast toward Cabot Strait. The

Skipper decided it was time to change course, got out his chart and parallel rulers and, having decided on the new course, shouted up from his cabin to Don: "Go nar-east by east a quarter east, b'y!" That produced from Don: "Huh?" The Skipper repeated. It didn't mean a thing to Don. The Skipper came up, looked at the compass, and waved his hand: "Turn that way, b'y!" When the compass card was at the proper reading, The Skipper pointed to it and said: "Hold her there, b'y!" That was his technique thereafter. Because these smart students couldn't read a compass, he would point to the appropriate spot on the compass and say: "There, b'y!" Eventually he came to trust us; if he were far forward and wanted a course change, he would catch the helmsman's eye and wave in the direction he wished to go; when the ship was headed in the right direction he raised his arm vertically above his head, and the helmsman steadied on the new course. He even used his amateur helmsmen on occasion when he was working through ice.

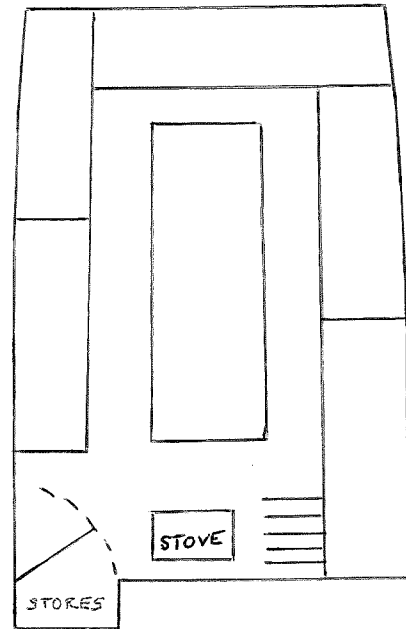
I mentioned that some were a little queasy that first day. During his stay in Halifax, The Skipper had bought a couple of bottles of rum. Nordau tells how, that first afternoon, he remarked to The Skipper that he was surprised to find that he was feeling "a bit off". Whereupon, according to Nordau, The Skipper took his pipe out of his mouth, shifted his chew of tobacco to one cheek, and tossed past it a slug of rum, along with the remark that he was feeling a bit off, himself!

The Schooner: The adjacent sketch shows the layout on the deck of the Thomas and Robert. It is obviously from memory and obviously, therefore, proportions are only approximate-- very approximate! By using the forward part of the hold, space had been created for us to live in. The ship's crew and our two extra cooks lived in the forecabin in the usual way. The after part of the hold carried our equipment and supplies, also in the usual way. Aft of that was the engine room, which was reached by a door from the cabin, where The Skipper slept, of course. He shared the cabin with GVD and Pat, but because there were only two bunks, GVD used a hammock slung length-wise of the cabin on the starboard side and out of the way of those going to and from the engine room. From the wheelhouse, of course, one went down into the cabin. Behind the wheelhouse had been erected a privy, so we did not have to hang over the rail, and cleaning that was another job for the early watch each morning.

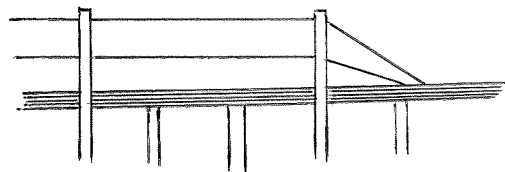


In our quarters we slept on bunks arranged against the hull and the forward bulkhead, and ate at a table between the bunks, just as in the forecabin. At the after end of this space was a small stove on which our two cooks managed to prepare and serve meals for twelve people. I have since seen this done many times on a sheet-iron stove in a tent camp, but I remain impressed that our cooks managed to do this in that exceedingly confined space.

The clutter on the deck left barely room for people to pass. Some of it was the ordinary things always found on deck, such as anchor chain and anchors, and a dory that belonged to the ship (the skipper's dory). But we had also brought aboard two canoes, which were stored in the skipper's dory, and we had two Banks fishing dories that were nested on the starboard side. Because we were going as far as Hudson Strait, we needed fuel oil, and the last place we could get it was at Hopedale. This meant we had 45-gallon drums of fuel oil lashed along the rails. In addition, wood was the fuel for cooking. At Nain, which is the last place where there is wood on the coast, we had a day felling firewood, cutting it into stove lengths, and splitting it up. It was tied up in bundles, and they, too, were scattered about the deck. Tent poles for the north had to be included also!



We also added some railing. Douglas was concerned that some of his amateur "seamen" might go over the rail near the wheelhouse. People tended to collect there, and the rail was low. So some lengths of two by four were nailed vertically to the rail to support a couple of strands of rope. The Skipper took an interest in this and, at the end, to ensure the rope would be tight, he put an eye splice in one end of the rope, under the rail, threaded the other end through the eye, and swayed it all up tight. Now, putting an eye splice in a 15-thread rope is no big deal-- even I can do it. But to do it down under the rail, where you can't even see the rope you are splicing?! I'm still impressed.



Port-aux-Basques: On our first day we encountered nothing of consequence along the Nova Scotian coast, cleared Scatari, and headed across Cabot Strait, with the glow from the slag heaps at Sydney adding to the late-evening colours to the west. During the night there was an encounter with an east-bound freighter in the Strait, and we had to get out of his way. It is even probable that he did not see us.



Approaching Corner Brook. L to R: P. Bloomer, L. Chapman, The Skipper in very characteristic pose, D. Dunlop, C. Seymour cutting the chief's hair, Charlie Smith.



Gordon Anstey

The next morning we stopped briefly at Port-aux-Basques, and we had a chance to walk around a bit and see the arrangements for handling the traffic at the ferry terminal there. This did not include handling freight cars from Canada, because the Newfoundland railway was narrow gauge. At this point, I cannot remember why we stopped there, unless it was so Douglas could telegraph to Claude Howse in St. John's.

Corner Brook: Whatever the reason, we were off again shortly, headed for Corner Brook. The Thomas and Robert whizzed along at four knots (perhaps) and we arrived in the Bay of Islands on a beautiful sunny morning. Nordau still tells with glee how, en route to Corner Brook, The Skipper was participating in various puzzles the boys were doing to pass the time. He was very good at it, but he got nowhere with the one about measuring volumes of water with 8-, 5- and 3-gallon containers. When Don Dunlop suggested he try it for rum, The Skipper solved it in about 30 seconds.

As we sailed up the Humber Arm, The Skipper was passing by and, to end a discussion that was going on, he was asked:

--"Are there lots of fish here, Skipper?"

--"No. No feesh in Humber Arm."

--"That's strange. I heard there were lots of salmon here."

--"Oh! Lots of salmon-- but no feesh."

"Feesh" referred only to cod.

Prior to departure from Halifax we had acquired a Dalhousie pennant. This was a narrow yellow flag, eight or ten feet long, with "Dalhousie" on it in large black letters. Arriving in an inhabited harbour we would display this from the foremast cross-trees. At Corner Brook, for example, it brought down to the wharf several of the local students from Dalhousie and from King's. In many others, I suspect, it produced only wonder,

When meeting other vessels (We never overtook any!) we made a production out of breaking out this pennant. It would be rolled into a tight bundle and the halliard wrapped around it with a slip knot. It was then hoisted to the cross-trees; a sharp tug on the halliard would release the knot, the pennant would "break out", and suddenly appear flying from the cross-trees. I often wondered if other vessels thought this a quarantine flag, or what they made of it. We, however, were embarrassed when on at least one occasion we broke it out upside down.

Gordon Anstey: The prime reason for going in to Corner Brook was to replace my cook, who had fallen ill. This involved some enquiries and a trip to Curling, a village practically a part of Corner Brook, to interview a possible replacement. This was Gordon Anstey, who had been a cook on ships (the "paper boats") carrying paper from the mill at Corner Brook to England and elsewhere. He was willing to come along and duly reported to the Thomas and Robert the next morning. As the result of a childhood injury

he had one leg much shorter than the other and walked with a very pronounced limp. In fact, when standing on his left foot, he couldn't quite touch the ground with his right toe. He had spent many years on crutches, and had very powerful shoulders and arms: On one occasion he came on deck when we were working ice. To get a better view, he reached up with one hand, caught a halliard, and lifted himself onto the foreboom, without even taking his eyes off whatever it was that interested him. The only time I have seen a man "chin himself" with one hand.

At Corner Brook, also, Nordau and I went to the bank to get some cash, and we both experienced what I have never seen before nor since. The floor of the bank seemed to be heaving slowly, like the deck of the schooner. The street was better behaved, but perhaps only because we were walking smartly. At least, it didn't move about as much as did the bank.

We spent the afternoon on a tour of the paper mill, while GVD dealt with fuel, supplies, messages to St. John's, and so on. I suppose he must have arranged for our mill tour also. After fifty years, I do not remember the mill with any clarity. I came away with an understanding of the process, so we must have seen its entirety. The items that remain in my mind are the barker drums and the paper machines, but these images are rather faint. Much more vivid are the rolls of paper, each weighing several tons, accumulating at high speed on the end of each machine, and the succession of calendar rolls through which the pulp passed on its way from being a wet slurry to become dry paper.

Corner Brook to Blanc Sablon

This was a quiet and pleasant journey. We were close enough to the west coast of Newfoundland to see the mountains of the Long Range very clearly, and we had good sunny weather. As we were sailing from Corner Brook out of the Bay of Islands, none of us dreamed that a few years later Charlie Smith would be back there doing his Ph.D. thesis on those islands and the hills to the south.

There was now a small disagreement between GVD and The Skipper. On the Labrador coast we did not travel at night and, for this reason I think, The Skipper did not worry very much about lights. Between Corner Brook and Blanc Sablon we would be travelling at night. Prompted, I suspect, by the episode in Cabot Strait, GVD insisted that, as we would be travelling under power, we should display the proper white masthead light, in addition to the red and green lights to port and starboard. At this distance I don't remember if GVD had bought a lantern in Corner Brook, but after some argument one was filled with kerosene, lighted, and hoisted to the masthead. Till we passed the Strait of Belle Isle again on our way south, that was the only time it was used.

Blanc Sablon: There are not many places where Cambrian rocks can actually be seen sitting upon the ancient rocks beneath them, and Blanc Sablon is one of them. It was also one of those places where we were introduced to the business of deduction from a quick examination. So Goodman and I trailed along while GVD had a look at the Cambrian limestones just behind the village and collected some fossils from them. We also had a stroll of about two miles to the north of the village to see some "coal" that had been reported by the local people. It turned out to be very poor peat, about eight inches thick. We didn't try it, but it probably would have burned, which is more than could be said for some other "coal" we checked on.

An example of how the geologist does his deduction from a quick examination:

1. The rocks under the limestones are gneisses and granite. Experiment shows that the minerals they contain can occur together only at temperatures of several hundred degrees and under high pressure.
2. Therefore those rocks must have formed deep in the earth and not at the surface.
3. The limestones sitting upon them contain fossils of Cambrocyathus amourensis, which were cup-shaped animals, vaguely like corals, that sat upon the sea floor. They were of Cambrian age.
4. Therefore, in Cambrian time, this was the sea floor and the sea must have extended at least to where the limestones are found. That is, some miles north of Blanc Sablon and down the whole west coast of Newfoundland.
5. Therefore, also, the granite on which the limestones are sitting must have been the sea floor when the limestones began to be formed.
6. For rocks formed at great depth in the earth to be the sea bottom, all the rocks that were once above them must have been eroded away beforehand.
7. Therefore there must have been a long period of erosion -- long enough to wear away some tens of kilometres of rock.
8. Erosion does not occur under the sea.
9. Therefore, the land must have been exposed to weathering.
10. Therefore, after erosion had worn away whatever was there, the land must have sunk or the sea level risen so the sea flooded that old eroded land surface, and in that sea lived the animals whose skeletons are the limestone.
11. The line (the contact) between the limestone and the granite marks a gap in the record -- a time of some millions of years? -- a time sufficiently long to permit the erosion of a great thickness of rocks.

I wrote the above from memory and it is an example of the fallability thereof. In fact, GVD's report says that there are conglomerates and sandstones between the gneisses and the limestones, and Nordau has photographs to prove it. This doesn't change the above reasoning; it just adds

sands and gravels while the sea level was rising.

I don't know why Blanc Sablon has that name. One would suppose a white sand beach, but I don't remember what the beach is like.

Blanc Sablon to St. Anthony and Battle Harbour

We stopped at several places along the Strait of Belle Isle, and in each case rumours of coal were the main interest. At Forteau Bay, a few miles east of Blanc Sablon, one of the local men described how the stuff was black, like coal but shinier, didn't break like coal when hit by the back of the axe, and how it "burned red" like coal in a fire but "it went out as soon as the kindling burned out". When questioned, he said the powder formed by the axe was white. His son was sent to the house to get a sample they had there and, while we waited for the boy's return, GVD remarked to Nordau and I: "It sounds like augite." It proved to be hornblende, which looks the same. In the same way, though we had to do some walking to get to it, coal reported at Red Bay proved to be the iron ore mineral, magnetite.

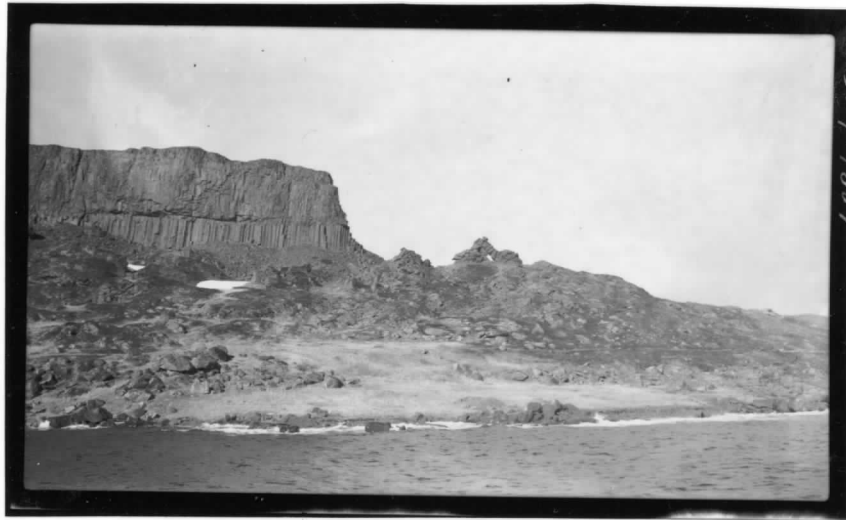
At Forteau Bay also we first played the "estimate our altitude" game. Though one might be one or two miles inland, the sea was usually visible. We each estimated our altitude and then GVD produced his pocket altimeter so we could compare it with our estimates. I recall I was usually in error by an order of magnitude, and I suppose I was over-estimating the altitude; it's unlikely I was under-estimating!

There was a similar problem with estimating distance over water. I was probably a bit better at that, because I had had some experience in my days in the oyster business. There is no record of my performance, but Nordau does record how he estimated hills to be 7 miles away, Peter Bloomer said 1 and a half miles, and the actual distance was 12 miles.

In addition to coal, iron ore would also be of interest and, at Carroll Cove, a little harbour to the west of Red Bay, our boys got a little practice at surveying the "deposit". It turned out to be small amounts of iron and titanium minerals and of no value.

The chief decided he needed some minor repairs to his engine, so we crossed the Strait to St. Anthony. This is the headquarters of the Grenfell Mission, and the major establishment in the town is the Grenfell Hospital. In his usual style, GVD went to the hospital and introduced himself to the staff. After 50 years I don't remember, but it is probable that he also requested help from their shops for the repairs to our engine. The visit resulted in an invitation to dinner. When he went ashore, GVD usually had Nordau, as his 2 i/c, accompany him and I was taken along too, in a more nebulous position as the third geologist. I must have been travelling along with them when we visited the hospital, for I was also included in the invitation.

At dinner we met essentially the entire medical staff of the hospital. The dinner proceeded as such dinners do, and was in no way unusual except that the main course was roast seal. I don't remember that this made any great impression. The meat was dark, tender, and the flavour



Columnar basalt, Henley Harbour



Charlie Smith and I, Henley Harbour

did not strike me as being very different from beef; at least, that is how I remember it.

Two of the doctors were about to have a new boat built and, after dinner, we adjourned to look at the plans for the new boat. One of the doctors, a surgeon, had been seated across the table from me at dinner, and had a vaguely familiar look about him. Apparently he had thought the same thing about me, for he raised the matter. We compared our life histories and decided that the only place our paths had crossed was in a pub in Dover the previous year. For some reason, a train or the boat had been delayed and (probably breaking the licensing regulations) the publican had opened his pub for an hour for the thirsty soldiers on their way back to Holland. We both remembered this unusual procedure, and were both suitably impressed by the coincidence that we should meet again under such different circumstances. The other doctor, Paddon, spent his working life with the Grenfell Mission, except for a few years in the 1960's (?) when he was the lieutenant-governor of Newfoundland.

From St. Anthony we went back across the Strait of Belle Isle to Chateau Bay, but we had a bit of excitement en route. Shortly after we left St. Anthony, and long before we reached Cape Bauld, there was a roar from GVD: "All hands on deck!" I have now no idea why I did it, but I remember I landed on deck wearing my oilers. The newly-repaired engine had stopped and the tide and wind were drifting us toward sheer cliffs. Our sails didn't do much good, but I don't remember if this was because of the force of the wind, its direction, or both. It was about then that GVD suggested dropping an anchor. The Skipper stared at him: "In a hundred fathoms of water?!". There were a number of fishing boats about and they realized we were helpless and drifting toward the cliffs. Two of the motor boats took our lines and held us off until the chief got his engine running again.

Chateau Bay, also called Henley Harbour: Chateau Bay is a deep inlet that gets its name from a mass of rock near the entrance. It is two old lava flows and it looks vaguely like a fortress or chateau. The bottom flow has excellent "columnar jointing". When the lava cooled the upper surface, in contact with the air, froze first. As the interior gradually froze and shrunk, it developed vertical cracks. Such cracks in a uniform sheet reach from top to bottom, there are three sets of them, and so they form vertical blocks, most of which have six sides. These are the "columns". The upper surface, which does not crack, is missing here, so the top of that flow must have eroded away before the next one flowed over it. GVD's report says the two flows together are about 85 feet thick, and that the top of the "chateau" is 220 feet above the sea. You can see similar jointing at the "Lookoff", on the North Mountain, near Canning, N. S.

I don't remember it, but according to Nordau my crew got caught in fog and rain at Chateau Bay. It seems we had been mapping a small island and were due back at the schooner at 1700 hrs. When we had not arrived by 1800, GVD went searching for us. We were rescued by 1830. We had had trouble

rowing the dory, due to the weather, and apparently had decided to spend the night on the island where we had been working. That would have been a damp and unpleasant business. As a direct result of this, GVD insisted that we should have practiced rowing, a few days later when we were at Battle Harbour.

Battle Harbour: We stopped at Battle Harbour primarily to send messages to Claude Howse in St. John's. The harbour is long, narrow, and essentially land locked and, though adequate for the coastal schooners cannot accommodate larger ships. The chief permanent feature is the Marconi wireless station, with its tall steel masts supporting the antenna wires. The station, of course, is not there to handle the traffic from a few fishing schooners passing by, but is intended to deal with ships passing through the Strait of Belle Isle on their way to and from the Gulf of St. Lawrence. It was part of the network of such stations maintained by the Marconi company and we understood it was powerful enough to work ships anywhere in the North Atlantic.

Along the coast north of Battle Harbour there is a Fox Harbour, an Ox Harbour, and a Hawkes Harbour. The Skipper added and dropped aitches and the result could be confusing. When he pointed to a spot on the land and said: "There used to be a wheel factory there," we were a bit surprised at a wheel factory in a place with no roads. Further enquiry about "What kind of wheels, Skipper?" brought the response: "Oh! sparm wheels, right wheels, all kinds of wheels!" My memory says this was at 'awkes 'arbour.

We used our sails on very few occasions, and one of them was between Domino Run and Table Bay. My weather report for 1800 GMT (1430 NST) on 17 June puts us at the entrance of Domino Run, so we would have spent the afternoon and evening under sail crossing Table Bay. That evening there was a sudden rise in temperature and at Ledge Island my weather report shows 60.0° F, the highest recorded for the whole trip.

Cartwright and Eagle River

At Cartwright we were once again dinner guests at the Grenfell Hospital and after dinner we were given a tour of the hospital. I must confess that my memory of the hospital itself is rather vague, from which I infer that much of what we saw was what we would have expected in an outpost hospital. From what we had learned at the nursing stations along the way, it is probable that many of the 20 or 30 patients were there because of accidents or of acute need for surgery. At that time, tuberculosis was a much more serious matter than it later became, and probably was common on the coast, but I doubt that hospital space would have been used for such cases. It was the common practice elsewhere to care for such cases at home and I suppose that was the case here.

I recall that the doctor showed us his operating room and that he was particularly pleased with how he had recently solved the problem of the sterilization of instruments. Immediately after the war a pressure cooker was the fashionable kitchen gadget for housewives. The cookers were available in many sizes from small saucepans to those big enough for processing preserved meats, fruits and vegetables, and were relatively inexpensive. (We still have the one, with a capacity of about four gallons, that I bought for Bobbie for about \$25.) The good doctor had bought a large pressure cooker, which served admirably as a sterilizer, for less than \$100. A proper hospital sterilizer would have cost him well over \$1000.

The other thing I recall was the doctor's Newfoundland dog, which trotted along with us as we walked from the doctor's house to the hospital. At the corner of the house, water from the roof discharged through the downspout into an upended apple barrel, which was full of water. As we passed by, the dog paused to get a drink from the barrel, while standing with all four feet on the ground. Apple barrels are not common anymore but, standing on end, it would be about as high as a table -- 32 inches. A big Newfoundland dog is a big dog!

Paradise River: One of the reasons for visiting Cartwright was to trace a rumour about a deposit of mica on Paradise River, which discharges into the bay at Cartwright. Goodman was assigned to explore the river in search of this deposit.

As a base he set up a tent camp. With a local pilot aboard, the schooner took him as far as possible, and he was then landed with a dory, a canoe, and his tents, crew and supplies. As the schooner approached the camp site there was some discussion about the bank of cloud that was building up, and whether or not Nordau would get rain before he was properly set up. A year before, Milligan had been a weather forecaster so he was consulted as the obvious local expert. He announced: "You need ten thousand feet of cloud to produce rain, and there isn't that much there; you'll be alright!" It was true that he got no rain that afternoon, and he did get his camp set up, but he got lots of rain during the evening and he woke next morning to find three inches of snow on the ground! So much for Milligan and single-observer forecasting! The snow turned to rain during the morning.

*I found a letter
from that said he
arrived 1904*

Goodman did his prospecting but was not successful, and further search was postponed till our return from the north, when we could have the help of a local guide.

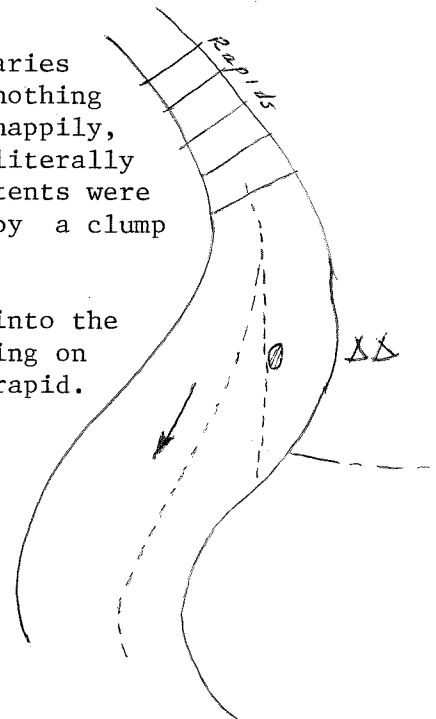
Eagle River: In the same way, Milligan and his crew were assigned to the neighbouring Eagle River, but without any definite target, rumoured or otherwise, such as the mica deposit of the Paradise. Instead, he was to look at the lower part of the river and then put his surveyors to map what he had found, while he went up the river to see what he could learn about the rocks there exposed. At suitable places he was to test for gold by panning the sands in the river. In what had become standard procedure by this time, two of us were in two different areas and GVD was off to look at a third.

Just as with Goodman, the schooner took me as far as Separation Point, whence a motor boat took us as far up the Eagle as possible, and we were put ashore to set up a tent camp. We were fortunate and must have missed the snow shower that hit Goodman.

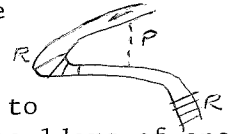
The next morning I took a look at the river banks downstream from our camp. There wasn't much there except granite gneiss, in which there was a small dyke or two and a bit of copper stain. The boys were put to work surveying this. In fact, it amounted to little more than surveying the shoreline of the river, but it did provide some practice. In the afternoon, I started up the river, accompanied by Gordon Anstey, the cook. I now have no memory of why Gordon came on this junket; because he had some experience in canoes? as a change from his normal duties? because someone volunteered to take his place as cook?

Ten years before I had built a canoe and used it extensively, but that was in the tidal estuaries of P. E. I. I had never even seen rapids and knew nothing about how to deal with them, but started off quite happily, as if I knew what I was doing. The motor boat had literally taken us almost to the foot of the rapids, and our tents were on the bank behind a small island that was covered by a clump of willows.

Very quickly after leaving camp we were into the rapids and lining up through them. This means walking on the river bank and towing the canoe up through the rapid. But in this case there was no space on the bank and we spent much of the afternoon wading in the river along the bank, in water generally over our knees, and in many places up to our waists. A very wet afternoon, but the activity must have kept us warm, for I don't remember that, after the initial shock, we found it particularly cold.



Above this rapid was a portage trail across the inside of the next bend in the river. It is indicative of our skill as travellers that we carried the canoe, one of us at either end. That technique was necessary, no doubt, for the great canoes of Governor Simpson and his HBC voyageurs, but for a 16-foot canoe it is the most awkward possible. We should have lashed two paddles to the thwarts of the canoe and carried it upside down on the shoulders of one man. After 50 years, I'm not certain, but I think we had one more portage, either that afternoon or the next morning.

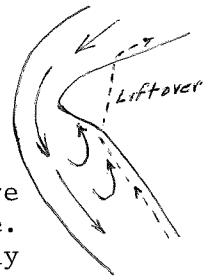


We spent the night camped on the river bank, and I remember a very pleasant, if brief, evening after we had cooked our supper over the open fire.

The next morning we tried panning the stream sands. I know I had sense enough to burn the grease out of the frying pan before trying to use it as a gold pan. I'm not sure I sampled the places most likely to have gold, and I'm certain I didn't have much skill in manipulating a pan. In any case we found no gold.

We then continued up the river. To propel our canoe we had an outboard motor clamped to the side of the canoe, and this moved us along nicely. (Remember these were not V-stern canoes because such were not available in Halifax.) I suppose we went a mile or two before we came to a narrowing of the river and a steep bank. Our motor did its best, but we made no headway against the current. Obviously, this was as far as we could go, so we turned around.

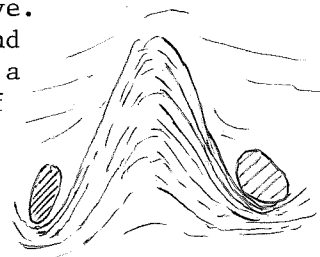
Looking back now, I think I was trying to force my way up through the fast current. I was too inexperienced to know what is common knowledge to every little Cree boy over five years old: such a jet of fast water always has an upstream eddy on its sides. By keeping to the side of the stream, I could probably have drifted upstream to the point where the rocks actually generated the high speed jet. The standard procedure is to do that, then lift the canoe and gear over the obstruction to where the river is manageable again. We were stopped by my ignorance. My consolation is that we could have continued upstream for only a couple of hours anyway.



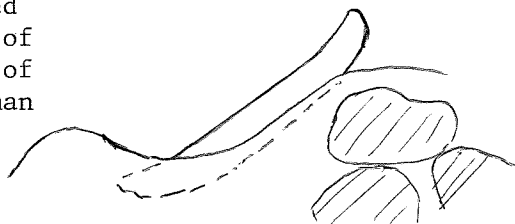
Proceeding downstream was fast and easy, and we made the one or two portages in the same way as on the upward journey. The five rapids above the main camp were now a different matter-- we were going downstream with the current, not upstream against it. Obviously we should run the rapids. We stowed our gear carefully in the bottom of the canoe, including the outboard motor, which was always attached to the canoe with a length of rope. (Even in ordinary use in the odd position on the gunwale of the canoe, there was little to prevent it from tearing loose from its clamps and falling overboard.)

My knowledge of running rapids was limited to the idea that I must keep the canoe parallel to the current, so it did not fetch up against a boulder and crosswise of the current. To someone with Jayar's experience, this will be an appallingly slight knowledge.

At that point I had never heard of, "running the V's" . Passing between two boulders, the water piles up in the space between them as a V-shaped mass of rapidly moving water, with the point of the V downstream. It is followed immediately by a low, flat, standing wave. The V is present even if the boulders are submerged, and conversely, the height of the V may be enough to carry a canoe between boulders spaced at less than the width of the canoe. So the wise canoeist picks the widest V's and runs down them.



Any small boy who had caught smelts in the brook in the spring had observed the standing wave that forms in the lee of an overtopped boulder, but it did not dawn on me that that fact might here be relevant. In some cases the standing wave was probably 18 inches high. There was quite sufficient water to permit the canoe to float over some of the boulders, but it then plunged nose first into the standing wave downstream of the boulder. This was the second major item of knowledge that I lacked. The idea that the man in the bow should choose the course and fend off from the boulders never occurred to me.



Happy that we did not have to work, we launched our canoe and headed into the rapids. Of the five, we passed the first without incident. Followed a short stretch of fast water and then we got through the second with nothing more than a little spray. In the third, the canoe ducked its nose into a wave and came up again with a couple of inches of water in the bottom. "So some of our things will get damp. No big deal" thinks I. But on the fourth she must have gone clean over a boulder and buried her nose in the standing wave beyond it. She came out of that one completely full of water. I have no idea how we got through the fifth, but we didn't hit anything.

Gordon and I stepped out into the river alongside our water-logged canoe. First was to check each with the other: "Can you swim?" Yes, we both could swim. Then decide what to do. Paddles and bits of kit were drifting away. Gordon rescued his rucksack and used it to support himself. I must have let mine float away, because I hung onto the canoe.

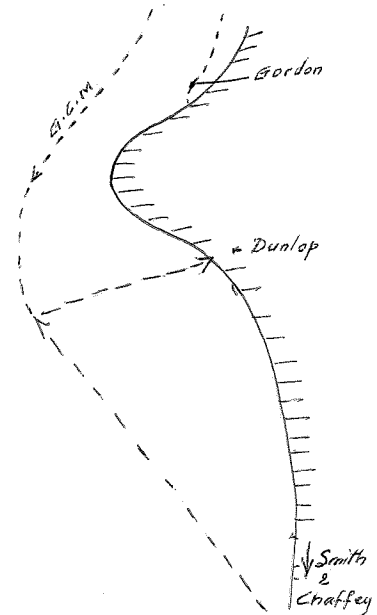
We were upstream of the island in front of our camp and Gordon decided to head for that, pushing his rucksack ahead of himself. The replacement "cook" (Colin Smith) should have been in camp, so we were both shouting for help. It turned out he was back in the woods getting fire

wood and heard nothing. Gordon made good progress across the current but he was carried past the island at a distance of 20 or 30 feet and there was no way he could swim back to it against that current. Perforce he had to carry on towards the river bank beyond, but by now he was tiring and was being carried more rapidly downstream. He would swim for an interval and then shout for help; soon he would swim for an interval, shout, and then sink. Several times he sank, and then I saw him stand up, apparently on a boulder. But he was in water up to his shoulders and the current washed him off the boulder, so he started the swim, shout, sink routine again. By this time, I and my canoe were disappearing around a bend in the river. I saw him sink once after he left the boulder, rise and begin swimming again. Then I was out of sight. When he shouted the next time, the shout ended in a gurgling sound.

Meanwhile, I was riding the canoe downstream and was thoroughly thankful for the hours we had spent as boys playing in a water-filled dory on Trout River. Like the dory, the canoe was right side up, upside down, catching one end up and then the other, but, like the dory, it was no problem to stay on, or in, it as was appropriate at any instant. It was obvious that I would have to swim ashore, and the "logans" I was wearing were obviously not going to make swimming easier.

I used my sheath knife to cut the laces and popped the boots. It was immediately obvious also that such was not a wise move; my feet began to be numb almost as soon as the cold water touched them.

As I came around the bend, however, rescue came in sight. Dunlop, with his plane table, was on the bank and Charlie Smith and Bill Chaffey, with the dory, were farther downstream and acting as spotters. At first, Don didn't recognize the source of the shouts from the river, but a quick look through his telescope made everything only too clear. Some furious signalling alerted Smith and Chaffey, who lay onto their oars and, in short order, picked me off the canoe and took me ashore. Chaffey never used profanity, but as they approached he was standing, facing forward, rowing like the good Newfoundland he is, and cursing fluently and with feeling. He cursed the canoe, the dory, the river, Claude Howse, the government of Newfoundland, me, the weather, and many other things. A most remarkable reaction.

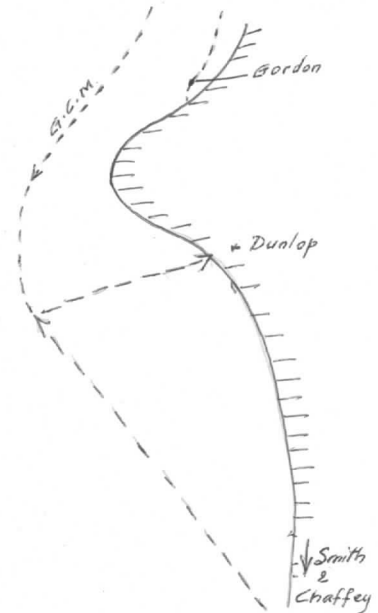


I told them I thought Gordon had drowned and sent them off to see if they could find him. They found him on the river bank, near where I had last seen him. He was able to walk, and they accompanied him back to camp. The way they had to cross a little trickle of water coming out of the bank; Gordon refused to cross until they demonstrated it was safe. They took

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him in to camp, got him into dry clothes, and put him to bed under all the blankets they could find, for he was very cold. Apparently he had no water on his lungs, for neither he nor anyone else mentioned that.

Meantime, I had been trying to get warm, while I waited on the outcrop where Smith and Chaffey had dropped me. At this distance I have no idea why I didn't go along with them on the search for Gordon; it would have been the logical thing to do. It was a bright sunny day and I remember running back and forth on a smooth glaciated outcrop while my hands shook and my teeth chattered. This was certainly the stage of uncontrollable shivering. I have a vague recollection of being unable to apply a match to the end of a cigarette, but that must be pure imagination. A match? Yes, we kept them in waterproof containers. A cigarette? In my shirt pocket it would be a soggy mess. The only thing not saturated was my black beret. I do remember that my fingers had become numb and that I had realized I would not be able much longer to deal with the canoe if it continued to be active. Corollary to that: I would not be able to swim very far. It was about then that Dunlop came in sight and did his signalling to Smith and Chaffey.

After they had put Gordon to bed they picked me up, told me the good news about Gordon, and took me back to camp.

The next morning Gordon was warm again, a bit sore in the shoulders, and glad to sit on a boulder and fish while we waited for the motor boat to pick us up. He was very quiet and not anxious to talk about our experience, but he did say that, till he woke up in camp, the last thing he remembered was being washed off that boulder. Some time later he commented: "I was torpedoed three times during the war. I would sooner be torpedoed three times more than do that one again!" I am convinced that if he had not had such powerful shoulders he would not have been able to drag himself ashore. As it was he had reached the stage of hypothermia where actions are illogical.

When we got back to the schooner and made the routine measurement of the surface water temperature it was 43°F, 6°C.

I have since been responsible for many field parties and can now appreciate what faced Douglas as the boat came to pick us up. The canoe, and anything in it that would float, had gone sailing down the river where it was picked up by the man who was to pilot the boat back up the river. Douglas was then in the position of knowing there had been an accident, but not knowing if anyone had been drowned. Obviously it had not been a matter of letting the canoe drift away through carelessness. He remarked to the pilot that "there isn't a canoeist in the lot," which was only too true.

Considering the stress he must have been under, I am thankful he treated me as kindly as he did. He enquired first about everyone, to make sure they were all OK. He then listened to my brief report of what

happened. Many would have given me a dressing down that I would still remember, but I was told only to be more careful. Goodman had been picked up first, but he says that GVD obviously didn't want to talk about it, so evidently he did not let off steam there either.

We were dropped at our camp on 18 June and picked up again on 21 June, according to Goodman's diary.

When we had loaded everything onto the schooner again, we returned to Cartwright. There was also the matter of assessing the damage from our escapade.

The canoe had been returned, and with it the motor that had been tied to it. On its journey down the river, the motor had been pounded on the river bottom. It was so damaged that the crankcase had been broken and only a few parts could be salvaged. This was a fairly serious matter, for it meant that we had two dories that should be able to operate independently of one another, but only one serviceable motor. I also lost, in addition to my boots, an old camera and a pair of 10-power binoculars I had bought in Holland for 300 cigarettes a year before.

Cartwright to Nain

After leaving Cartwright we crossed the mouth of Hamilton Inlet. The distance is only about 45 miles, but it took us all day. The early part of the crossing was uneventful, but then we had our first encounter with floe ice.

This was our first opportunity to see The Skipper in action in ice. The schooner had no sheathing to protect the planking, so The Skipper had to be very gentle as he made his way through the ice. The individual ice pans were about three to five feet thick and from three or four feet in diameter to, perhaps, a hundred yards across. GVD started reliving his days with Shackleton and promptly took the wheel, the chief disappeared into the engine room, and The Skipper took his place in the bow. From there he had to decide the track he would attempt to follow. He would put the stem against a pan, then put his hand behind himself and make rotating motions. One of us, in the wheelhouse, would press the button on the engine room bell and the chief put his engine in gear. That was designed to push the ice pan to one side. The Skipper then made further motions with his hand, the bell button was pushed, the chief put his engine in reverse and we backed off a little. Lots of arm waving by The Skipper, GVD spun the wheel first one way and then the other, The Skipper eased the stem against another pan, and it was pushed aside to make a wider space, into which the schooner was then inserted. This process was repeated over and over again for several hours before we got into the shelter(?) of Indian Harbour.

We "seamen" were excited by all this, of course, and probably

felt we were now becoming real Arctic explorers. I'm not sure what we thought we were doing-- moving the ice? protecting the propellor?--but we had a great time at the rail, armed with oars or anything that would serve as a pole, and pushing at the ice cakes alongside. The Skipper ignored us, possibly on the ground that, though we weren't doing any good, we weren't doing any harm either.

After 50 years I wonder at communication between the chief and The Skipper. The chief was down with his engine. My memory says there was one bell signal to go ahead and another to go astern. There may have been two for each, i.e. slow ahead and full ahead, and corresponding slow and full astern, and there must have been one for stop. However the chief managed to interpret the signals, the ship would ease up and just kiss the ice. Sometimes the engine would push very gently; at others it would run at full power. Sometimes it would push gently at first and then run up to full power. I suppose, from the sequence of engine orders, the chief would have some picture of what was going on and what The Skipper was trying to do, but from this distance it is almost as if one was in some way communicating the fine details of the orders to the other. And he certainly could not do that with the bell signals.



Iceberg off Henley Hbr.

The next day we got out of Indian Harbour but only made about six miles before the ice forced us into Sloop Cove, where four other schooners were also ice bound. The following day the main ice field was about ten miles off shore, but with much relatively loose ice inside that. The main ice field breaks up any swells and the water inside it is absolutely calm, which makes for very pleasant sailing on a sunny day.

At Indian Harbour we learned about sailing directions for the coast, and about how they were then compiled. We did not have a radio transmitter in 1946, but we did have a receiver. Every evening this brought aboard the skipper of every vessel present in the harbour so he could hear "Gerald Doyle's News" from St. John's. This reported briefly on the general news and then reported the really important news-- what vessels were in what harbours and how many quintals of fish each had secured. This would be discussed briefly by The Skipper and our guests. The conversation in the cabin then drifted to sailing tracks. One captain would describe his approach to Windy Tickle, for example, and the sailing marks he used. Another would comment, and recite the marks he had used for the same passage; sometimes that would include the rueful admission that on that track he had hit a reef. And so on, till everyone who wished had had his say. That would usually remind someone of another place and time and the process of analysis and reminiscence would repeat. It was very clear that on this coast, where there were no published sailing directions, the individual skipper relied upon his memory of his own experiences and those of his colleagues.



Ice at Indian Harbour. We came in through this.

At Indian Harbour we also learned that ice is not to be trifled with. Another schooner tried to force a way through the ice in the harbour, broke the propellor, and was then left dependent on sails alone.

According to Nordau we left Sloop Cove at 10:10 a.m., 25 June, travelling inside the ice and, according to my weather report for midnight GMT, we spent the night of 25/26 at Adlavik Harbour. From there the following day we reached Hopedale.



A consequence of the loss of a motor in Eagle River.
Towing one dory at Rowsell Hbr. Bill Chaffey steering.



The Winifred Lee at Nain, 28 June, 1946

Hopedale is one of the major settlements on the coast. In 1946 it had a store, operated by the Department of Natural Resources, a Moravian mission, and a school. During the summer it was the southern base for the Winifred Lee, the vessel that carried mail and supplies to the northern part of the coast. She connected at Hopedale with the SS Kyle, which operated from Hopedale to St. John's.

At Hopedale we met our first Eskimo, and the boys went to a dance in the village that night. As everyone knows, once I get to sleep it takes cannon fire to wake me, so I missed their return to the ship. Nordau tells, however, the discussion he overheard, and such comments as: "The one I was dancing with wasn't so bad. No, not the fat one; the one without teeth!"

After our overnight stop at Hopedale we pushed on to Nain, and made that in one day. I quote Nordau to the effect that we had planned to stop at Ford Harbour, but an on-shore breeze persuaded The Skipper that the ice might move in again and we pushed on till late in the evening. On 27 June, of course, there is still daylight till almost midnight. This journey took us past such well known (on the coast!) places as Cape Harrigan and Windy Tickle.

Again, I quote Nordau to the effect that "in the morning we passed thirteen schooners that had their tables set up and were splitting fish." The master of each of the schooners that went "down the Labrador" chose a sheltered berth near a place that experience had shown was likely to be frequented by cod. His "cod trap", of netting, was set at that place. The traps, so far as I could see, were often set close in to the sea cliffs of the islands. The fish were removed from the trap by the crew of the "trap boat", a large boat driven by a one-lung gasoline engine, and pitched from the trap boat onto the deck of the schooner. There, the fish passed over the "splitting tables", each fisherman performing one operation and then passing the fish on to his mate. So there were "throaters" and "headers" and "splitters", and probably others whom I have forgotten. At the end the fish, now devoid of head, entrails, and bones, and split so it would lie flat, was passed down to the hold. There they were carefully stowed in layers, like so many shingles, with salt between the fish and between the layers so each fish was encased in coarse salt. The salt was a preservative and dehydrating agent that removed moisture from the fish and began the drying process. I understand the fish were further dried in the air, after the schooner arrived back in Newfoundland. When the "fish were running" the trap might be emptied several times a day. According to Andrew Mullet, Nordau's cook, the working day then ended when the men dropped from exhaustion. According to John Samson, on ships he served on the day began at 02:30 and ended at 23:00. The crew worked on shares of the value of the cargo, so there was a very powerful incentive to load the schooner during the three weeks or so when the cod might be available. Cod are "ground fish" and I suppose they must have been following capelin, or some other food, to be

attracted near the surface and adjacent to the islands, but I don't know. During the splitting operation, the livers were removed and saved, in barrels, to make cod liver oil, which, in my youth, was a common source of vitamin D, and, in capsule or liquid form, consumed by none-too-enthusiastic school children.

The approach to Nain is through a maze of islands, and this was probably one of the few, if not the only part, of the coast that had been charted again since Capt. Cook had been there 200 years before. The islands were on the chart alright, but many of the reefs were missing. The Skipper would stand on the deck with "the sheet" in one hand and his "hoprys" (binoculars) in the other and point out the reefs that were missing: "You see that one over there, b'y? That's not on the sheet!" We would watch and we would see the surf as the waves broke on the reef, and we would agree that it was not shown on the chart. From time to time, however, though we watched carefully, we would see nothing: "You mean just in line with the end of that island, Skipper?" --- "Yes, about a quarter of a mile this side of it." --- "I still don't see anything there, Skipper." --- "No! It doesn't break." --- "How do you know it's there, Skipper?" --- "Oh! I hit that one with the Westhaver," naming a ship he had once commanded. We came to believe he had located many of the reefs by hitting them with one ship or another.

While we were at Nain, an Eskimo reported an airplane on one of the lakes and GVD and Nordau went off to investigate, because it probably belonged to Norancon. It was on Lake Tessisoak, in a glacial valley about 25 miles long and about 2000 feet deep. They hired Zacharias Ikkusik and his boat to take them to the lake, and they found the Norancon camp after sailing for about 12 hours. From the stories they told on their return, the two Norancon people that impressed them most were "Tiny" Smith, 270 pounds and former Wing Commander, and Johnny Fouquier, formerly Air Commodore, with D S O and two bars, and D F C, who was in charge. He had commanded the R A F squadron that broke several dams in the Ruhr, but I found recently, in the R C A F history, that he had commanded the squadron after the dam-busting raid. The history does not say why, but he had taken a demotion from Air Commodore to Group Captain, at his own request, in order to command that squadron.

The other thing that impressed GVD and Nordau was the attitude of Zach and his partner, Tobias. The boat had an engine that was none too reliable, and Zach and Tobias rather bounced their boat around in negotiating the rocks in the rapid at the east end of the lake. On the way into the lake they broke the rudder post and repaired it--Nordau does not say how. On the return journey down through the rapids -- according to the story they told when they arrived at the ship--- Zach seemed to be calmly enjoying the journey and without a care in the world. But when they cleared the last of the rapid, Zach threw his arms in the air and shouted: "Hurray, boys! We made it!"

Zach's motor demonstrated for us the day after their return. We went to Tabor Island to visit a quarry where Grenfell had hoped to be able to produce a colourful building stone as an additional revenue for the people of Nain. The motor stopped several times on the return journey, but Zach's cheerful comment each time was: "Just a little bit of trouble. Get her going bye and bye." I no longer remember what his problem was -- probably ignition --- but his repairs seemed to involve mostly safety pins and string.



Zach and Tobias on Tessisoak

Zach, with a brand new engine, was my boatman at Ramah in 1947. He was a convenience and our insurance and I am sure that, if he had been required to take us back to civilization, he would have done so very capably indeed and without even wiping the grin off his face.

All of the labradorite that has been lying around our house, in Bobbie's planters and in Geof's fish tanks, came from Tabor Island, and much of it from a single crystal about sixteen feet long. I took one specimen with the intention of cutting a pair of tear-drop earrings for Bobbie. Because of the cleavage in the mineral I never had the nerve to cut them, nor did Bobbie, even in her most enthusiastic days as a lapidary.

The following day we went to look at a mineral deposit on Bennet Island, according to Nordau's diary, and arrived back in time for tea and a birthday cake for GVD. It was his 54th birthday. Looking back now from my present age, this man whom I regarded as mature, if not old, was really rather young! Bennet Island is now Hillsbury Island.

I think it must have been on the trip to Bennet Island that I managed to drop the anchor on the washboard of the boat, with my hand between the boat and the shank of the anchor. It crushed the signet ring Bobbie had given me and, by the time we got back to the Thomas and Robert, my finger had swollen so I was very glad to borrow a file from the chief and remove the ring. I have never again worn one of those finger amputators.

On 4 July we celebrated The Skipper's 64th birthday, with a birthday cake. What to me is remarkable is that this was also his 43rd year on the coast in command of a schooner.

Nain to Hebron

After leaving Nain the next major stop was a day in the Kigliapait Mountains. This Eskimo word is the equivalent of "sawtooth" or "sierra" and describes the range, which is about 2,000 feet high. It trends east to west and rises abruptly out of the sea, so we had easy access to its north side. Following the now-standard practice, Nordau and Co. were sent up one ridge and told to circle round and come down another. GVD and Pat took another, and I was sent with my stalwarts to a third. We had hardly started off when there was a shout from GVD: "Keep your eyes open! This stuff looks like the Merensky horizon!" It took a while to remember that the "Merensky Horizon" is a platinum-bearing layer in the Bushveld igneous complex in South Africa.

My track ended in a large cirque. That is an amphitheatre-shaped hollow carved out of the rock by the upper end of a mountain glacier. (You can learn about them in The Changing Earth, p. 176.) The back wall, (the headwall) of a cirque is very steep and, in this case was several hundred feet high. While we were there, Nordau and his crew appeared on the upper edge of it and there was some hallooing back and forth. We worked our way in to the base of the headwall without finding any platinum sticking out of the rocks. We had a spell admiring the scenery and the snow cornice that had been built up on the top of the wall by the wind sweeping over the mountains from the south, and then we turned to return to our dory and the schooner. Again, our guardian angel must have been looking after us that day. We had not reached the mouth of the cirque when we heard a sound behind us and turned to see that the snow cornice, several hundred tons of it, was now lying where we had been standing.

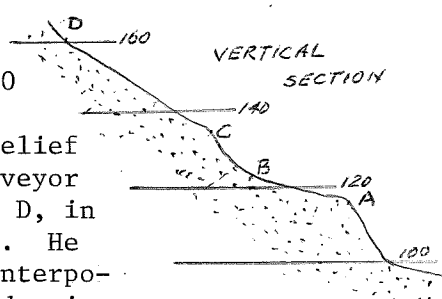
The various samples showed only a trace of platinum.

From the Kigliapaits, the next stop was the Kaumajet Mountains

and Anchorstock Harbour but, en route, we stopped overnight at Nutak, which was built when Okkak, on the other side of the island, was wiped out by an epidemic and abandoned. If I have the Moravian's story straight, this was the influenza epidemic of 1918, and this was the village where the sole survivor, a very young child, was found lying beside the body of her mother. All the other people of the village were found, dead, in their houses.

Surveying and Contours: Anchorstock Harbour was the first place where our surveyors really had anything that required contouring of elevations. My crew were working on the north side of the harbour, where the land rises fairly steeply to near-vertical cliffs of pillowed volcanic rocks.

A contour, of course, is a line drawn on the map to represent points on the ground that are all at the same elevation, e.g. 120 feet or 140 feet. Viewed together, the contours convey to the reader an impression of the third dimension, the relief of the land. Surveying with a plane table, the surveyor measures the elevation of points, such as A, B, C, D, in the diagram, where the slope of the ground changes. He assumes a uniform slope between those points and interpolates to find the positions of the contours he is drawing. His instruction to his rodman is: "Give me the breaks in the ground," i.e. the points where the slope changes.



Now this requires some judgement on the part of the rodman. As you can see in the diagram, if this were the side of a mountain and the contours were being drawn 100 feet apart, the changes at A, B, C, and D would be trivial and the rodman would ignore them. Conversely, if this was the side of a clay bank about to be excavated and the contours were at 5-foot intervals (say, to allow calculation of the volume excavated) then the "breaks" at A, B, C and D would be inadequate.

Colin Smith was expert at reading a contoured map, but he had no experience in the production thereof, and this led to a small problem the first morning. As near as I could judge, Colin tried to get on a contour (i.e. at the proper elevation) and then follow it on the ground, staying at that elevation. This is perfectly reasonable and logical and is the way contours are surveyed for maps of the highest quality, e.g. the Ordnance Survey of Great Britain. But it is time-consuming, is not justified on the less accurate maps we were making, and screwed up the procedure the instrumentman thought he was using. It appeared that the instrumentman got a bit exasperated and, without explaining about the contour interval he was using, told Colin to "Give me the breaks in the ground instead of trying to follow a contour", and did it in such a way that he annoyed Colin. Colin's reaction was: "Breaks in the ground you want; breaks in the ground you will get!" Little more than a year before Colin had been an experienced infantry officer and he proceeded to give the instrumentman an elevation on every change of

slope that he could see. When the bullets are flying, it is amazing how small is the hollow in the ground that is a place of safety, and equally impressive is the skill of the infantryman in recognizing such hollows. The instrument-man found himself plotting differences in elevation that he could measure but hardly see. It took a little while for each to learn what the problems were, and how to work as a team.

At Anchorstock I also made one of those careless moves that caused much effort and wasted time. The schooner was anchored a short distance off the area we were mapping and, at noon, I took the dory and went out to the schooner for lunch. It was glassy calm, so I fastened the painter of the dory to one of the shrouds and went below. Apparently I had not set the knot up tight and, when a gust of wind hit, the dory went adrift. The gust of wind was of the kind The Skipper called "whiz-bangs;" from flat calm the wind rises to force 5, 6, or even more, in a few seconds. This one was blowing from the east and was blowing the dory towards the mainland, many miles to the west. Martin Sturges and I launched the "skipper's dory" and took off after the runaway. Going with the wind and both of us rowing, we caught up to it after perhaps a mile and a half, tied it onto the back of the skipper's dory, and headed back to the schooner. Going back, against the wind, was another matter entirely and consumed most of the afternoon. The shore there runs east-west and we were travelling very close to it. One remembers how we could look down through the clear water at a boulder on the bottom, and continue to look at that same boulder for perhaps ten minutes, at the same time pulling for all we were worth.

In 1946 the next settlement to the north, and the last one on the coast, was at Hebron. We arrived in mid-afternoon and we stopped there for the next two days. It was a Moravian mission station and the missionary in charge was Rev. Siegfried Hettasch, the son of Dr. Hettasch at Nain. As usual the mission was hospitable and told us much about the coast and about the Eskimo who lived on it.

The great story, and the great mystery, at Hebron was the behaviour of the crew of an American plane that had crashed nearby the previous autumn. The plane was en route to Iceland(?), but had been forced to land. Their navigation was good and they knew exactly where they were. They sent two (or three?) in a rubber dinghy for help. This meant passing Cape Uivuk, the next major headland north of Hebron harbour, and, as Hettasch said, "nobody goes around Cape Uivuk in October." It was assumed that they drowned. The remainder of the crew were found later by Eskimo hunters. It appeared that they had taken pains not to reveal their position. At least, that was the local interpretation of canvas draped from the wings and much oily soot underneath the wings, though one might wonder if it was not makeshift shelter and oil fires within it. The great mystery was why they had stayed there to die. They knew where they were. Had they climbed the hill behind them they would have seen Hebron, and a fire or smoke on the ridge would have brought immediate investigation.

At Hebron we recruited an Eskimo pilot to aid us for the journey farther north, for this was beyond the usual range of the fishermen and not so familiar to The Skipper. We knew him as "Dick", and I now have no idea what his last name was, if I ever did know. In the event, he was not of much help to us. At Rowsell Harbour, he became ill with what we diagnosed as pneumonia, and GVD took him back to Hebron, leaving Nordau and I and our crews to continue the mapping on which we were engaged. At Hebron, Mr. Hettasch said that Dick, in his fatalistic way, had decided that he was about to die, and that he probably would. In the absence of sulfanilimide or penicillin, it was possible that Dick would die of pneumonia, fatalism or not, and he did just that.

When Douglas arrived back at Hebron with Dick, he found that the people there were very worried about their food supply. They had had no supplies since the previous autumn and were now down to a couple of days on some items, and to a week or so even on the most abundant. The first supplies of the new year were on the coastal mail boat, the Winifred Lee, which had come as far as Mugford Tickle and then returned to Hopedale. This the mission knew from their wireless network. There seemed to be no good reason why the Winifred Lee had turned, for we had passed through there with no trouble and, in any case, a simple wireless message would have brought small boats the few miles from Hebron to Mugford Tickle and relieved the food shortage. Douglas had to get back to his crew at Rowsell Harbour. An aircraft belonging to Norancon was expected at Hebron shortly, however, and he arranged with Hettasch that, if supplies had not then arrived, the aircraft would fly over Rowsell and we would then return to Hebron and share some of our supplies.

Douglas considered the action of the skipper of the Winifred Lee an appalling dereliction of duty, and he did something about it. When we arrived in St. John's at the end of the season, almost his first action was to arrange an interview with the governor, to whom he recited his tale and expressed his opinions. This was in the days of the "Commission of Government" before Newfoundland joined the Canadian confederation. When we arrived on the coast the next spring, the people of Hopedale could hardly believe what they had seen: A week after they had been crossing the harbour with dog teams, the Winifred Lee had arrived. The explanation was evident when they learned that the commissioner responsible for the coastal service was aboard as super-cargo, and Josh Winsor, the skipper, was not his usual easy-going self.

The last day we were at Hebron, Admiral Donald MacMillan came in with the schooner Bowdoin. MacMillan was 2 i/c to Peary on the expedition that first reached the North Pole. He gave Douglas an autographed copy of Reichel's chart of the coast, and I now have it framed in our hallway.

Hebron to Rowsell Harbour

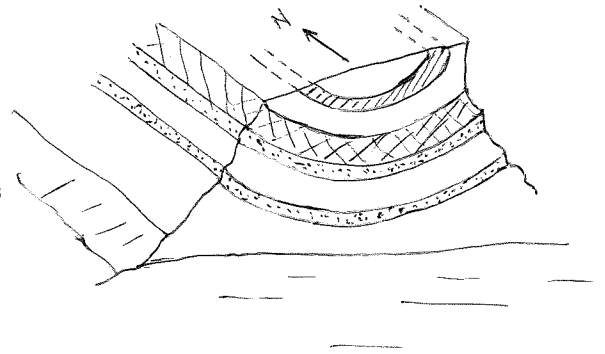
When Jayar worked for the Hydrographic Service, he spent considerable time at Saglek Bay. By that time there was an airport there. Someone had been careless with a valve and considerable oil had run out upon the ground and collected in hollows in the surface. From Jayar's recital, I gather that everyone between Ottawa and St. John's who could find an excuse, went to Saglek to examine this "disastrous oil spill" and watch Jayar and another man gather it up with portable pumps from their ship.

On the north side of Saglek Bay, and so some miles across the bay from where they were working, is a tall southward-facing cliff in which is a very large and prominent synclinal fold. In fact, it occupies the whole cliff.

When he took my class, I had properly instructed Jayar, of course, so no doubt he remembers that cliff and the fold in it. The fold is very prominent and photographs of it have been published by Forbes, and probably by others. Everyone had described it as a "synclinal fold in the Ramah Series" which is a group of sedimentary rocks that is well exposed to the north at Ramah Bay, and continues on through Rowsell Harbour to Nachvak Fjord.

This was, at Saglek, the most southerly exposure and our first chance to see the Ramah Series. The ice had forced us into the north side of Saglek Bay, so Goodman and I were sent to have a look at it and report back. It was a beautiful sunny afternoon, a Sunday I think, and we quite enjoyed our stroll northward up a valley at the west end of the cliff. Then we climbed up the east side of the valley so we could work our way upwards through the various beds of the Ramah Series.

The rocks had once been sediments but they were not the Ramah Series. They had been metamorphosed to very high grade, and were, for all practical purposes, a banded "granite". Evidently the previous explorers had passed by, jumped to the obvious conclusion, and continued on their way.



While we were at Saglek, we saw the Bowdoin going north and assumed that MacMillan was going on northward. He had a crew of tourists so there was no particular northern objective, and it was only later that we learned that he had gone only a short distance beyond Saglek and then turned and proceeded southward, because of the heavy ice.

Bear's Gut: A few miles north of Saglek there is a long, narrow, westward-trending fjord called the Bear's Gut, and that was our next stop, again because we were forced in by the ice. At its westward end it cuts into a glacial valley that extends both north and south.

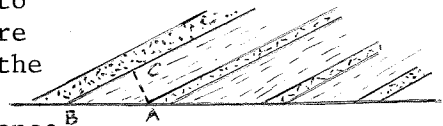
In the customary allocation of three areas I drew the northern valley and my crew spent the day exploring that. It is a typical glacial valley. That is, the valley is U-shaped in cross section, the valley walls are nearly vertical and the valley floor is nearly flat. We did not try to measure the height of the valley walls, even by any very crude method, but I guessed them to be over 1000 feet.

There are small streams on the plateau above and they produce some small, but beautiful, waterfalls when they discharge over the edge of such cliffs. One, especially, sticks in my memory because the rocks beneath it were hardly damp. The water, as it fell, broke up into a band of white spray, so it resembled a very long narrow veil on a bride's back, but very little of the water reached the ground. Gusts of wind kept hitting the cliff, blowing the "veil" upward, and dispersing it against the cliff, so the "veil" only rarely made the 1000-foot drop to the ground.

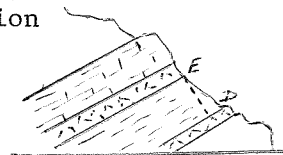
Ramah Bay: Our next objective was Rowsell Harbour, but our next stop was the abandoned mission station at Ramah Bay, again because of the ice. This is also a fjord with the mountains rising as steep slopes and cliffs on either side to heights of 2500 feet. There is a wide glaciated valley extending southward from the west end of the bay but, unlike the Bear's Gut, Ramah has a couple of tributary bays on its south side, of which Little Ramah Bay is the largest. The mission station was on the north side of the fjord, on a flat sandy space a few feet above sea level and about an acre or a little more in area. Three wooden buildings remained, and one was more or less weather-tight. Just to the west of this, and close to the north side of the fjord, is the anchorage. Skipper John had been told by Claude Howse that he would have nothing to do but sit on the deck and watch us climbing about on the hills. This was the first of the few places where he was able to do that for more than a few hours at a time, for we were at Ramah for seven days. Usually he had to keep the deck from 0400 to about 1800 and, on occasion, 2200 hrs. and only now do I appreciate what a strain that must have been for a man who was 64 years old.

The Ramah Series had been described before, in general terms, by R.A.Daly, and by A. P. Coleman, during their brief visits, but nobody had dealt with the units within it, and that was our job on this occasion. That is, we were to make a brief description of each unit, e.g. a quartzite or a slate, or a limestone, and measure its thickness..

The measurements are not usually done directly with a yardstick, if for no other reason than the problem of access. Instead the thickness of the rock is calculated indirectly. The beds dip to the west at Ramah and the dip is very regular where we were working. It was no problem to work along the shore and measure the distance from A to B, from which a very simple bit of geometry gave the distance AC, the thickness of that bed. When there was no shore, because the cliff



ended in the water, one followed the bed to the top of the cliff and carried on from there, as from D to E in the sketch. The geometry is slightly more complicated, but not much. It does require, however, that you know where you are, and at what elevation so our surveyors had a great workout in Ramah Cirque, where some Pleistocene glacier had carved out a great bowl and produced excellent exposures for us.



At this distance I have forgotten much of the detail about the surveying. I remember we started on the shoreline, where the Ramah sediments lie upon the granite gneiss beneath, and that we went up the steeply sloping bank to the mouth of the cirque. I suppose that our two survey crews were working alongside each other to cover as much ground as possible in the time available. I do remember that my gang then spent much of a day on the north half of the cirque, while GVD was exploring to the summit and beyond; from time to time we heard him halooing from some point on its edge where he had found something of interest, and we would "shoot him in" to locate his position. I suppose Nordau and his gang were doing the same thing on the south half of the cirque. Someone must have carried the survey to the cairn on the summit, but I don't remember who. Contouring the headwall, from the elevations we would have, is a job requiring a good eye for ground, and I think Nordau did most of that; he had had much more experience at that than any of the rest of us. The whole job took four working days, and included considerable "descriptive geometry" on the schooner in the evenings. Of the other three days, we were ice-bound for two, and the third was the fiftieth day of the trip, and officially a holiday.

Nordau spotted an unusual greenish-blue mineral on the cliff on the south side of the cirque. GVD thought it should be identified, so he sat on Pat's legs while Pat hung, head downward, over the edge of the cliff and eventually collected a sample. Nordau was the newly-elected Rhodes scholar, who would be off to Oxford to study mineralogy when the expedition ended, and he proceeded to identify the mineral. On the basis of such tests as he could make on the ship, and the determinative tables in Dana's Manual, he identified it as vesuvianite. This was hardly definitive, and the next winter the specimen was given to Jean Nofle, a chemistry student, to identify in lieu of her Geology I essay. She did all the usual physical tests and agreed that it was vesuvianite. She also did a quantitative chemical analysis to confirm it. Prof. Roy Foran, who supervised the analysis, was not greatly impressed by all the fuss; he described the sample as "the prettiest piece of gull shit I ever saw!"

On the way up from the shore to the mouth of the cirque we passed a large flat-topped boulder. In the grass around it was a considerable depth of fragments of chert, which is very like flint. There is a layer of chert about 13 feet thick in the Ramah Series, and these chips of chert obviously came from that layer. It did not require much imagination to picture an Eskimo sitting on that convenient boulder and flaking off chips of the chert as he fashioned harpoon heads, arrow points, and cutting and scraping knives. The waste, of course, collected around his feet and the boulder.

Evidence that this is the same as the one in the sketch. See also the sketch in the book, p. 165.

You will occasionally see statements by anthropologists that this chert from Ramah was traded as far south as northern New England. It is true that such a thick and extensive band of chert is unusual, but one chert layer is much like another. The Eskimo and the Indians are reputed to have had something less than friendly relations and while there may have been some trading between them, I should think something more than similar appearance will be necessary before chert artifacts from Maine are identified as coming from Ramah.

In the Ramah Series there is a layer of massive pyrite just under the chert band, and the pyrite averages about six feet thick. The chert outcrops over a distance of five and a half miles, so there is an enormous tonnage of pyrite above sea level. Pyrite is iron sulphide. When roasted it gives off sulphur dioxide (SO_2) gas, which combines with water to give sulphuric acid (H_2SO_4), and that acid is the basic industrial chemical used in the manufacture of many other chemical products. Pyrite was the prime source of sulphur for acid making until sulphur came to be obtained from the salt domes of the southern states and from the "sour" natural gas. This huge deposit was therefore a potential ore body. To map its extent and thickness was the main reason for our visit to Rowsell Harbour, the next fjord north of Ramah Bay.

The most readily accessible part of the pyrite forms a broad stripe on the cliff on the south side of Rowsell Harbour. Nordau and company went to work to map, measure and sample it. The band continues on the north side of the harbour at its west end and I followed it there for a short distance, but most of our time was spent on the Ramah units themselves, where I couldn't do much harm.

The pyrite is a potential ore body, and may some day be of use, but it was obvious, even then, that it would be many years before that day came. Rowsell is an excellent harbour, well protected and deep; one could literally float the Queen Mary within a hundred yards of the south shore exposures of the pyrite. But the shipping season is short, because of the southward flow of the ice from Baffin Bay which makes a field of broken ice and occasional bergs many miles wide till late in the summer. Furthermore, Forbes found, when he was mapping northern Labrador from the air, that the best Admiralty charts had the coast line as much as 27 miles out of position in some places. You can imagine that, for a ship coming in from the Atlantic, all this would be a worry for its captain. In fact, because the insurance on the ship would be so expensive as to make the voyage worthless, no one would bother to attempt to ship the pyrite.

At Rowsell Harbour we had a tent camp on a sand beach at the head of the harbour. This beach was below a cliff about a thousand feet high, and extended northward as a sand spit that almost closed the west end of the harbour. This camp had the complete treatment: two men per tent, a proper cook tent, and so on. Because we could get back to camp from our field work in a reasonable time, we were frequently able to come to camp for the noon meal.



The Skipper working ice, on approach to Rowsell Harbour. Mount Dalhousie behind him.

The sea trout came into the harbour at this time, in pursuit of the capelin I think. They were easy to see in the shallow water in front of the camp and we set a short net there to get some trout for the table. When Andrew Mullet found that we liked sea trout, he proceeded to serve sea trout three times a day. Yes, it is possible to get sick and tired of trout, even though these were very good.



Rowsell Harbour and Mount Quartzite in the background. Our tents show as tiny white specks at the head of the harbour.

It was at Rowsell that "Dick", our Eskimo pilot, became ill and he was taken back to Hebron. We were left, with our two dories for transportation, to carry on with our mapping, while the schooner fought the ice en route to Hebron. That ice was extensive. From Cirque Peak, at an elevation of 2534 feet, there was ice all the way to the horizon, which was 58 miles away. I'm told that the ice reflects the light up into the sky as "ice blink" and that beyond the ice the sky is the normal colour. We could see no sign of open water sky beyond the horizon, so the ice field must have been well in excess of sixty miles wide.

While the schooner was returning Dick to Hebron, we had a gale at Rowsell Harbour. Nordau's diary says it started during the evening of 1 August. We had been doing our usual mapping that day and I recall that the wind was picking up as we came back to camp at the end of the day. By late evening it was blowing from the west force 8, about 65 kilometres per hour. That certainly eased the mosquito problem; it also blew coarse sand and tiny pebbles off the top of the cliff behind the camp and they landed on the tents like hailstones.

The tents did not react well to the wind, and shortly after everyone had retired they began to collapse. The wind was warm and, dressed in pyjamas and mukluks, we re-erected them. We re-erected some of them several times! Eventually, some stayed collapsed.

In the midst of all this, I noticed one of our two dories drifting away from the beach. My first thought was that someone had been careless and failed to haul it up the beach beyond the reach of the tide. The next thought was that those two dories were our only means of transportation to Hebron should that become necessary. Without further thought, I told Nordau that "one of the dories is drifting away"; we launched the second dory and went in pursuit of the runaway.

We quickly learned that rowing a banks dory in a gale takes some effort. With two of us rowing we made good progress, though we found the dory difficult to manage. A major effort by Goodman broke a thole pin, he went over backwards, and lost both his oars. Rowing in the after position, I was useless so I gave my oars and a thole pin to Nordau. (From here my memory and Nordau's diary differ slightly as to details, mainly on which oar did what.) We agree that he had great difficulty keeping on the track of the runaway, because the dory was determined to get broadside to the wind. We agree that, in that broadside position, the dory drifted over his lee oar and wrenched it out of his hand. (He says his left hand; I remember his right.) We agree, however, that we could hear the oar bumping underneath as the dory drifted over it, and that it was a natural thing for me to reach down and retrieve it as it popped up on the windward side. Once again equipped with two oars, Nordau resumed rowing. Once again the dory turned broadside and drifted over his lee oar. This time he was determined not to lose it; he brought in the

other oar, grabbed the lee oar in both hands, braced his knees on the gunwale, and hung on. He does not record this in his diary, but I remember it clearly, because the gunwale went about an inch under water before an easing of the wind or a shifting of weight brought it up again, and at that point I began to get scared. Nordau records that the wind caught the blade of what must have been the windward oar, lifted it up and banged him on the head with it.

We eventually caught the runaway; evidently much more by good luck than good management. Because it had drifted off the beach, we expected to find two pairs of oars in it, and were surprised to find none. We tied it on behind, and towed it toward shore. This meant we were heading south, so the tendency of the dory to turn broadside to the westerly wind was no longer such a problem, but we continued to drift quite smartly to leeward.

We reached shore on the south side of the harbour about a mile from camp. This would be at the base of the cliff there. We pulled the dories well up on the shore -- no more of this drifting away on the rising tide! I remember that the wind got under the side of the dory and lifted it up so it was lying on its side. Nordau records that I thought he had done it and protested that he didn't need to go to that length. He also records that the wind caught it again, turned it over twice, and nearly caught me when it did so. I don't remember that but I do remember that we put the painter of one dory around a boulder that must have weighed a couple of tons. We put that of the other dory around a small outcrop, so we had the dory tied to the mountain. I also have a vague recollection of solemnly asking Nordau if he thought that would be adequate.

We walked back to camp, to the great relief of Andrew Mullet, the old fisherman, who had seen us departing and shouted to us not to go. He was the only one who realized the risk we were taking. When we got back to camp and to bed, we had time to realize that, had we not recovered that oar as the dory drifted over it, we probably would have drifted out of the harbour and into the Atlantic, with Iceland or Scotland as the next stop. I recall one of us asking the other: "Are you scared?" and the reply: "Terrified!"

In a summer of not very clever actions, this must rate as the most stupid and thoughtless action of the lot. It is shattering to realize that I could probably have caught the runaway as I saw it leave the beach, if I had waded after it in water up to my knees; certainly if in water up to my waist! We risked our own lives and, worse, risked leaving the others stranded and without transportation.

Next morning we found, on the beach where the runaway dory had been, the two pairs of oars and the thwarts that should have been in it. In the dory, itself, the thole pins on one side had been broken. Evidently the boys had pulled the dory well up on the beach as they should have done, but the wind had rolled it over and it had landed on its bottom in enough water to float it.

I do not now recall what took someone to Cirque Peak the next day, but no ice was visible, nor was ice blink visible in the sky beyond. A field of ice more than sixty miles wide had vanished! The first guess was that it had blown offshore. If so, it had gone so far that the ice blink was not visible. When the schooner arrived back from Hebron a few days later

The Skipper said this was not unusual; "the ice'founders." There's a little something amiss with the physics of that! I told this story to Rube Hornstein on my return to Halifax, and he sent my enquiry to the head office of the Meteorological Service in Toronto. The relevant portion of the reply is below.

"Regarding your section 5, I wish that your Capt. Milligan had given some estimate of the thickness and hardness of the ice pack which he noticed off the coast in late July. This could scarcely have been Arctic pack since that does not usually appear on the Labrador coast until November. It could have been more likely North Atlantic pack. This had formed during the previous winter and contained a large percentage of salt and was therefore quite soft. Since the beginning of winter this year there had been a persistent flow of cold air from the North and Northeast of the continent. On the other hand in western Canada the winter was fairly mild and the summer rainy from which we may conclude that the Arctic outbursts from the western portion of our Arctic ocean have been weak for a long period. We will need a longer time to analyse conditions thoroughly, but it appears now that we should have expected the north Atlantic pack of soft salty ice to drive in close to the Labrador coast and to appear unusually late far to the south. You might ask Capt. Milligan if he noticed behind the ice blink on the clouds far to the east, that there was a dark strip of sky on the horizon. If so, there was open water about 50 miles beyond his horizon. In that case a steady west wind at the end of July attaining force eight would drive the soft ice out towards Mid-Atlantic. So far as I know, in this case the salty ice disintegrates and, therefore, Capt. Milligan's second suggestion is probably correct.

Andrew Thompson
Acting Controller"

The clearance of the ice by the gale had made the return journey from Hebron easy for the schooner. They had had to fight the ice on the way to Hebron and had not been able to get there. Instead, they had anchored in a small bay and carried Dick overland to Hebron. The schooner arrived back at Rowsell Harbour on 3 August.

Despite the loss of Dick, GVD persuaded The Skipper to continue to Cape Chidley. After three very long days of marking out the geology, GVD, Nordau, Pat and I left the boys to do the business of surveying and locating the marks on the map, and we sailed for Cape Chidley. The first day, the 7 August, was beautiful weather and we were like tourists cruising past the Torngat Mountains with their pocket glaciers and patches of snow. We reached Ryan's Bay that evening.



3600'

Mount Razorback and a pocket glacier.



Four Peaks

At Ryan's Bay we were fog-bound for three days. That was followed by one day when we sailed through patches of fog between Ryan's Bay and Clark's Harbour, where we had two more days of fog. Clambering around on the rocks at Clark's Harbour we came upon a pile of boulders that had apparently been arranged as a grave. In it we found a skull, all that remained of the deceased, whom we promptly named Joe Mukkluk. (Mukkluk is a sealskin boot.) Douglas took the skull back to Halifax and gave it to the Medical School at Dalhousie. Some months later, Dr. Saunders, the professor of Anatomy, reported that he had measured the skull; no doubt it was that of an Eskimo, but there had been a Caucasian somewhere in his ancestry.



In his impatience to get away from Clark's Harbour, GVD decided to try Milligan again, despite his poor performance as a single-observer forecaster at Paradise River. Douglas volunteered to read the barometer every hour and I could plot this to see what was going on. We did that, and added wind direction and speed; there was no other weather element we could use, because all we could see was fog. I plotted the hourly observations and separated them by the amount and direction suggested by the wind speed; this was more or less assuming we were in the warm sector of a depression and moving the centre of the depression at a rate equal to that of the wind on the warm sector. Whatever other mental gymnastics I went through, I have now forgotten, but I told GVD that the fog would probably clear by morning. It did, and he thought I was a fine forecaster. I had concluded we were in a weak depression with its centre north of us. When we returned to Halifax, I told this story to Rube Hornstein and he was kind enough to dig the appropriate chart out of his files. Sure enough, there was an occluding depression north

of Labrador. My memory says I had guessed an occluding depression when at Clark's Harbour, but there is no logical process by which I could have done that and it's very probable my memory added the occlusion after I had seen Rube's chart. More realistically still, it's probable that I was just damn lucky!

Cape Chidley: When we finally arrived there, Cape Chidley was a bit of an anticlimax. Barren, dark gray hills rising steeply out of the sea and separated by bays in which the schooner looked like a toy, when seen from the hill tops. We had left the trees behind at Nain, but there were still weather-beaten dwarf willows and arctic plants at Rowsell Harbour. My memory of Chidley is of bare rocks, but I suppose there must have been lichens and other plants in the crevices and sheltered hollows; as everyone knows, I am not likely to notice a plant unless it has a big colourful flower on it.

We did find one geological oddity. The rocks are granitic gneisses cut by diabase dykes. GVD found a dyke that had in it a diabase inclusion that had in it a diabase dyke. That is, he had diabase dykes of three different ages in a single specimen.

In 1927 the Privy Council in London settled the boundary between Canada and what was then the Dominion of Newfoundland. The boundary was defined as following the height of land from Cape Chidley south to latitude $52^{\circ} 30'$ and thence along that parallel to a point north of Blanc Sablon, whence it went south to a point just east of Blanc Sablon. The Dominion of Newfoundland had gone bankrupt in 1933 and its administration had been taken over by a Commission of Government appointed by the Colonial Office. We were working for that commission, and Newfoundland was not yet a part of Canada. At Chidley we were able to take a picture of GVD and Pat sitting on a hill top, one in Canada and the other in Newfoundland.

I note, however, that on a recent map the boundary is not on Cape Chidley but on Killinek Island, some miles to the south, so we were mistaken.

We had reached our declared objective at Cape Chidley on 13 August, but had really seen very little geology between there and Rowsell Harbour. We now hastened back to Rowsell where our boys had been continuing the topographic survey, and we saw little more on the way south than we had on our northward journey.



Martin Sturges and GCM at Chidley



Thomas and Robert between islands at Cape Chidley
13 August, 1946

Mount Dalhousie: On the north side of Rowsell Harbour, a respectable mountain rises sheer out of the sea, and we had decided we should name it Mount Dalhousie. No doubt the Eskimo already had a name for it, but to the Board on Geographical Names that was unknown. In the course of their surveying, some of our boys had already been to the summit, but GVD was very enthusiastic about the idea of "officially" naming the mountain by climbing it and depositing on its summit an "official" name. So, on that great day we inscribed on a sheet of paper: "We, the undersigned, hereby declare the name of this mountain to be Mount Dalhousie." It was signed by everyone on the expedition, except Toby, ---all eighteen of us. We were very careful to write in pencil (graphite does not fade with time) and to seal the paper in a glass bottle. Though he was not well that day, GVD made the climb to the summit along with Pat, Nordau and I, and he carefully placed the bottle in a stone cairn on the summit. On our return to Halifax, Douglas applied to the Canadian Board on Geographical Names and, so far as I know, it was approved. Looking back now, I don't suppose it makes much difference, but at that time I doubt that the Canadian board had any more authority in Newfoundland than they had in New Zealand.

Stone cairns we regularly used to mark important reference points in our survey work, because they can be readily recognized from a great distance. While we were away at Cape Chidley, Don Dunlop and his survey crew assigned his station number (D110) to a cairn on the summit of Mount Dalhousie, and put a flag on it. I have Don's field notes and it appears that he accepted it as a known point, i.e. it must have been located by triangulation from a base line we had measured on the beach at the west end of the harbour. That implies there had been a cairn there previously and that it had been used as a sighting mark for the triangulation. A photo shows that Dunlop must have re-built it after he occupied that station, for it is much taller than a man. It is, in fact, visible to the naked eye from Cirque Peak at Ramah, six and a half miles away.

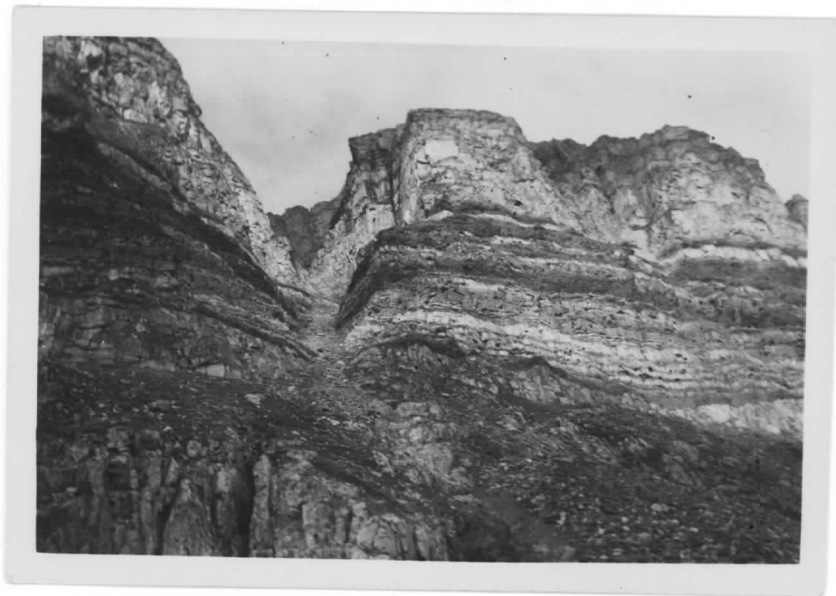
Such cairns have been erected on every hill top and headland along the coast, and are known on the coast as "American Men." We were not able to get a lucid explanation of the name, nor was I ever able to get a clear explanation of their use, except that they were used by the Eskimo as markers when travelling. Even Zacharias Ikkusik, in 1947, whose explanations were usually very clear, just smiled and shrugged his shoulders. I was left with the impression that he considered it a stupid question, and to him it may have been. How do you explain how you use the street marker at the corner of Barrington and Spring Garden to decide where to go next? Zach seemed to imply that once you saw an "American Man" you would know where you were and where to go from there, and apparently you identified them from familiarity, in the same way one recognizes friends.



MOUNT DALHOUSIE



On the summit of Mount Dalhousie



Torngat's Castle. A cliff on Mount Dalhousie.

Rowsell Harbour to Cartwright

From Rowsell Harbour we made an overnight stop at Saglek on 15 August, and then went on to Hebron. Again Siegfried Hettasch gave us the use of the schoolroom and we spent that day and half of the next on working up our maps. We learned that Dick had died. From Hebron we went back to our old anchorage at Anchorstock, which is reached via Mugford Tickle.



Hebron, from the anchorage

Between Hebron and Mugford Tickle, we passed to seaward of the Kaumajet Mountains, which include Mount Brave and the Bishop's Mitre. In Forbes' party that explored the northern coast for the American Geographical Society in 1931, was N. E. Odell, a geologist and mountaineer, who climbed both peaks of the Bishop's Mitre on 21 August of that year. He found the eastern peak to be 3750 feet high, and the western 3700. He estimated Mt. Brave to be 4200 feet. The cleft between the two peaks of the Bishop's Mitre is due to erosion of a basic dyke and is 300 feet deep. In his description in the Geographical Journal, in 1933, Odell commented that "the view from the gap down a continuous 3000-foot icy couloir to the sea was as impressive a sight as the writer can recall." This is a remarkable comment from a man who, in 1924, had been at 28,000 feet on Everest!

As we approached Mugford Tickle, The Skipper was feeling relaxed and reminiscent; he told me of one of his experiences there many years before. Off the north end of the tickle is Nennoktok (White Bear) Island, which The Skipper called "Nannytuck." As a young skipper, he was on his way south in the fall with his summer's catch of fish, and he stopped for the night with many other schooners in the small harbour on "Nannytuck". As The Skipper described it: "I had a feeling we were going to get a blow, so I spread



Bishop's Mitre to left, Mt. Brave to the right.

both anchors and put two lines ashore from the stern." During the night it blew. At dawn, his was one of half a dozen schooners still afloat. The Skipper said they spent the next ten days searching up and down the coast. They found wreckage for a hundred miles or more, but very few survivors. As I remember his story, about a hundred vessels were wrecked.

That a hundred vessels should be wrecked in one storm seemed to me to be a bit dubious, and I have good reason to know that my memory is not reliable, so I had doubts about that figure. From what we saw on the coast in 1946, that number would probably represent more than half the fleet. In casual conversation with John Samson, however, he mentioned that in earlier days, and even when he was on the Labrador in the 1930's, as many as 5000 vessels would be on the coast during the fishing season. In that case, the loss of 100 vessels concentrated in a relatively small area does not seem to be so unlikely.

My weather report for 1800 GMT (1430 Nfld Time) puts us on the east side of Okkak Islands and Nordau's diary says we arrived at Cutthroat Harbour at 1630, so that harbour must be nearby. For us its claim to fame is that an Eskimo had shot a walrus that day. Of course, we had never seen a walrus before, and we were impressed by tusks 18 inches long and by the size of the animal. Estimates by the locals ran from 900 pounds to "a ton". Walrus apparently are sufficiently rare that this was a major event in the harbour. I quote Nordau about the harbour's other claim to fame: "This is the northern Cut Throat and is famous as the village of the red-headed Eskimos."



Fishing fleet anchored at Cutthroat

Nordau's diary also reminds me of the exasperation of the Moravians at Nain over the ignorance of the people in St. John's. At Nain, many of the dogs had died of an ailment resembling distemper. This was a very serious matter for the dogs were winter transportation, and Dr. Hettasch appealed to St. John's for guidance about treatment. The advice he got was: "Clean the kennels, isolate the sick dogs, and wash the dishes each time the dogs are fed." In reality, the dogs sleep in the snow in winter and in the open in the summer, and feeding involves throwing to them frozen fish or meat in winter and whatever is handy in summer.

Nordau records that, between Nain and Hopedale, The Skipper gave us a test; Nordau was to splice an eye and I was to do a short splice in a piece of one-inch rope. I don't think this was new to either of us, and we surprised, and pleased, him by doing a reasonable job. I do remember, however, that either that day or later, he gave us the job of a long splice in a rope about three inches in diameter, and composed of seven strands. What to do with the seventh strand in the core of the rope?? We married one end of it into the other in some clumsy way, and then dealt with the remaining six in the usual fashion. The Skipper examined the result, nodded, and seemed to approve, but I noticed that the next time he needed a large rope he did NOT use that one!

At Hopedale we took on fuel oil and then sailed for Aillik. By 2030 the weather was miserable, and getting worse. The Skipper suddenly

decided he had had enough and that we should spend the night at Turnavik. A 90° change of course and we headed straight for what appeared to be a sheer cliff. As we approached, however, a narrow channel came into view and we slid through it into a small enclosed basin. In Nordau's photograph, the entrance channel looks respectable, but in my memory it is hardly wider than the Thomas and Robert. Nordau records that the whole village came aboard--all five of them.



Turnavik

At Cape Strawberry, we spent 23 and 24 August mapping the geology. The weather was sunny and, Nordau says, "hot". (The 0830 temperature was 52.8° F.) At the end of this pleasant day, Nordau and I did one of our regular observations of the sun to determine the amount of magnetic declination. (The mice have since chewed up my notebook, so I don't know the result.)

At Strawberry also we had what is probably the briefest swim on record. Near where we were doing the solar observation was a hollow in the nearly horizontal surface of the granite, and water had collected in it to form a pool a few inches deep. After this "hot" sunny day the water in the pool was warm and so were we. After we finished our solar measurements, we stripped, got into the pool, and lathered ourselves up. It was wonderful! The quick way to remove the soap was to jump into the sea, which was only a few feet away. Nordau went first, dived in, emerged a few yards from shore, swam quickly back -- it required only a half-dozen strokes--- and climbed out. I did the same thing. As The Skipper would have said: "Lard Jasmus, b'y, it was cold!!" I doubt that either of us was in the water more than ten seconds. We had been busy with the sun and had not noticed a great iceberg about a half mile away. (Our sea thermometer had been broken long before, so I have no record of the water temperature.)



Bathing on the T & R

At Strawberry The Skipper got back to fishing. He sent Martin Sturges, the mate, off with a dory and a cod jigger, and when we returned to the schooner in the evening, he had a splitting table rigged and was busy splitting "feesh", with Martin and Pat Douglas to help him. He was as pleased as if someone had added ten years to his life. I don't remember where he found the salt for the fish, but as we went south they were spread to dry each day on the roof of the cabin and the wheelhouse.

Cartwright to St. John's

We still had to see that mica prospect on Paradise River, but this time we did not mess about with blind exploration. At Cartwright was a "livyere" who knew where it is and he agree to lead us to it. I have an impression that he was, in fact, one of the owners of the prospect. The party consisted of our guide, Douglas, Goodman and I with two canoes.

The black flies were still out, though this was 27 August, and they are my most vivid memory of this episode. Nordau says our guide's name was



Pat, The Skipper and Martin splitting fish.

Lethbridge, and he carried one canoe over the two-mile portage from where we left the schooner. We had all our boys to carry the other canoe, motor, gas, etc., etc. Before we started, we were all anointing ourselves with insect repellent but, when we offered it, Lethbridge refused. His comment was: "I've tried them all. None are any good." He picked up his canoe, put it on his shoulders, and marched off, leading the whole party. He carried the canoe for two miles across the muskeg without a pause, no mean feat in itself. En route, from brushing against small bushes, his shirt had come open down his front. When he put the canoe down and turned around, he presented a sight I have never seen again; his chest was literally dripping blood from the insect bites. I must say this gave a different sense to the entry in one of Logan's reports from Gaspé in 1843, where he remarked that: "We washed off the blood and then had breakfast." (He had already travelled several miles to examine a hilltop.)

According to Nordau, we left the schooner after noon, and were across the portage by 3:00 p.m. Our outboard drove one canoe and towed the other, while we spent the next four hours travelling along the length of a narrow lake. Four hours suggests we travelled at least 16 or 18 miles.

The examination of the deposit took only a few minutes. The books of mica were about the minimum size that would be of interest commercially; one must be able to punch a 2-inch disc out of the mica. Most such mica is used for electrical insulation and must be muscovite. This mica was biotite and useless in the electrical industry. Some ground biotite is used in pipeline enamels and other special products, but this deposit was much too far from any such market.

After deciding the deposit was presently useless, we started back to the ship. Darkness overtook us after a couple of miles and we camped for the night. This amounted to sleeping on the sand alongside a fire. Several times during the night, I woke to see GVD sitting alongside the fire; apparently he was not feeling well. I suggest he may also have been exhausted. For nearly three months he had been working from 0400 to about 2200 hrs each day, and carrying responsibility for the actions and lives of such as I. Nordau says it was a clear night with brilliant northern lights.

Nordau also says we slept in till 0600, and were at the end of the portage by 1000, before our crew from the ship had arrived.

This led to some discussion with GVD. We started across the portage, of course, and GVD insisted on carrying the canoe. After 50 years and some similar experiences, I suspect he insisted because neither Nordau nor I knew how to do it. At the time, however, we thought he was following his usual routine of taking the lion's share of whatever work had to be done. When he started to stagger, it was clear that something was wrong, and when he insisted on carrying on, we thought he was just being pig-headed. After some argument, during which Nordau threatened to hit him with a paddle, he agreed to lighten his load. The boys met us about half-way across the portage and took over the loads.

That evening, in Cartwright, we were again guests of Dr. Forsythe. The boys put on an impromptu skit about our trip. I remember only that they had composed a song about the "Newfoundland-Dalhousie-Labrador-Survey" which they sang to the tune of the "Chatanooga Choo-Choo," and that they had fun imitating GVD, Nordau and I.

The next geological event that stands out in my mind was a visit to Sacred Bay, near Quirpon, on the northern tip of Newfoundland. Andrew Mullet had told us about how you could see gold nuggets sticking out of the rocks there, and we agreed to go and examine this deposit. Andrew was illiterate but not stupid, and I have a memory that he had, by now, learned that geologists are a sceptical lot, and that his presentation of this gold deposit was a little more restrained than is usual for promoters. The gold turned out to be pyrite nodules about one or two inches in diameter, in the slates and lying loose on the beach. Some were as much as four inches, and we collected a number of the "Mullet nuggets". Several of the very large ones were around the Geology Department at Dalhousie for years.

From Quirpon we went down the east coast of Newfoundland, with a stop at Twillingate so the chief could visit his family, and a couple more stops when we had to heave to and wait for the fog to clear.

Early in the morning of 3 September, we were crossing Bonavista Bay when the engine ran wild; it really shook the whole vessel. The chief had assigned to one man in each watch the job of checking the engine, lubricating oil, etc. every hour, and I suppose it was whoever was then on watch who shut the engine down. The chief started it up again, but we were going nowhere for we had lost our propellor. We raised sail but there was little wind.

Shortly after dawn, GVD, Nordau, Pat Douglas and Don Dunlop started for shore in the dory. It was a calm day and land was about 12 miles away. En route they found a fishing boat and organized a tow into Bonavista Harbour. They found a vessel called the Earle and Fred discharging Sydney coal and bound for St. John's, and arranged for a tow into St. John's. Meanwhile, the Thomas and Robert sat offshore in the sun. I was concerned about what would happen if our calm gave way to some real wind, but The Skipper was not. In response to my enquiry, he said: "I'll just hoist a bit of sail and heave to. We'll stay within a mile or two of where we are now."

The Earle and Fred arrived and by 0200 we were on tow and under way for St. John's. After some shouted discussion with the captain of the Earle and Fred, The Skipper had produced three pieces of 2 x 6 from somewhere, we had constructed from them a trough on the port rail near the stem, the tow rope was lying in that and was then tied around the foremast. Though the distance to the foremast could not have been more than 20 feet, I was much impressed by how the rope stretched in that distance and by how it slid back and forth in The Skipper's improvised trough.

The Earle and Fred was powerful and, under tow, the Thomas and Robert moved faster than she ever did under her own power. In 12 hours from Bonavista we were tied up in St. John's.



The Skipper



Splitting fish, Cape Strawberry



Two views of the *Thomas and Robert*



Mt. Dalhousie from Cirque Peak, 18 July, 1946



An Eskimo in a seal-skin kyak at Ramah

1 9 4 7

Planning

Because we had been through it once before, planning for 1947 required much less time and much less discussion than had been the case for the previous year. A check over the equipment lists ensured that nothing would be missed accidentally, and it was a simple matter to add such additional instruments or equipment as would be needed and to delete items that the new season's work would not require.

One of the objectives of 1946 had been to choose areas that merited further investigation, and three were chosen: Charlie Smith was to examine the seaward end of the Benedict Mountains; Douglas proposed to do a river traverse up the Cainairiktok River; and I was to continue the mapping of the Ramah Series, with its big pyrite deposit.

Douglas had first to attend some family function in Ireland-- a wedding, I think-- so he would be delayed. That meant that Charlie and I would take the crew north in a schooner, those who were to go with Douglas would be dropped at the Benedicts with Charlie, and GVD would pick them up later. The schooner would take me to Ramah and there be discharged. So Charlie could get about, and so Douglas could get to Ramah to check on me, there was also a boat and its operator, Bob Young, who had previously worked with Douglas in Newfoundland. So I would have transport at Ramah, we had there Zacharias Ikkusik and his boat, from Nain.

Food and other consumable supplies were arranged in St. John's, as in 1946. This was no great problem, because Nordau had produced, as part of the 1946 report, an elaborate list, after the fashion of the army ration scale. I still have a copy, and it proved to be a very handy reference during the many years when I was ordering food for my crew in northern Manitoba. Here are a few items from the list:

meats, tinned,	8 oz./man/day
bacon, tinned,	2 " " "
eggs, dried,	2 " " "
fruit, dried,	3 " " "
lime juice, unsweetened,	50 bottles
vegetables, dehydrated,	205 tins

Equipment, other than some surveying instruments and a few other minor items, was provided from St. John's, as in 1946. All the arrangements for charter of the schooner, and for fuel for the schooner and for our boats were made by Claude Howse and his staff there.

Transport The schooner was called E M A Frampton, and she arrived in Halifax at 0630 on 7 June, 1947. This time we had something larger than the Thomas and Robert, and somewhat more comfortable. She was a "banker", built in 1935, 105 feet long, 133 tons gross, and with a draft of 12 feet. She had about four inches of greenheart sheathing for work in the ice, something Skipper John would have loved to have, no doubt. For power we had two engines: 120 HP amidships,

and driving a propellor in the usual way. Another 60 HP driving a propellor on the port side. On the run eastward from Halifax to Scatari we averaged about 6.5 knots; about 12 hours of that was against a force 5 head wind.

The crew consisted of Capt. George Douglas, with his son John as mate; Ralph Brown as ordinary seaman, and Ralph Tucker as engineer. Herman Masters was the cook. The owner, Capt. Daniel Frampton, came with the schooner to Halifax, saw to any necessary arrangements, gave me some good advice, and left us at St. John's. He also arranged for an "ice pilot", who was an old fisherman, experienced on the Labrador. I remember him as "Uncle John", but I have no record of his last name. I don't recall that Frampton ever discussed the ice pilot with me, but it later became clear why he had employed him. Douglas was from Grand Bank, had done his sailing on the open ocean, and had no experience with the Labrador or its ice.

Many years later I learned that Frampton had also done much of his sailing on the Atlantic. As with Douglas, this generally involved a load of salt fish to Spain, Portugal, or the Mediterranean, thence general cargo to the Carribean -- say Barbados or Turks Island-- and back to Newfoundland with salt, rum and sugar. (Small wonder that the tinned fruit in our supplies was all tropical products!) It seems that, when he was about 23, Frampton lost his first command in mid-Atlantic; she burned to the water line. I don't recall how he saved his crew, but obviously someone must have picked them up.

The triangular transatlantic trip could produce its moments. In the course of our trip, Capt. Douglas remarked about making some repairs to the rigging of his schooner on one occasion in mid-ocean. I would have thought it complicated enough to require the facilities of a shipyard, but he described how he did the job, and seemed to think it was nothing out of the ordinary. The most impressive story, however, came from John Douglas, the mate. He described, one evening, how he was on a schooner with a load of fish, about 200 miles off the Portugese coast, in the Bay of Biscay, when a German submarine surfaced near them. Torpedoes are much too expensive to waste on a mere Newfoundland schooner, so they were given a few minutes to get off in their dory and then the schooner was shelled and sunk. The German commander insisted on giving them a tow towards the Portugese coast. "As soon as he got under way", John said, "I outs with my knife and I cuts that tow line!" I asked: "Why did you do that?" He replied: "I could just imagine a bomber coming along, and him doing a crash dive with me on the end of that tow line!" When I asked what happened then, his answer was: "Oh, we rowed in to the Tagus, and the British embassy in Lisbon sent us home as shipwrecked seamen." Rowing 200 miles probably did not really impress him. When we were in St. John's in September, 1946, two fishermen in a dory on the banks became separated from their schooner in the fog and rowed 130 miles to shore. That story rated about three column inches in the St. John's newspaper, though it did mention that one of the men had developed blisters on his hands.

Signing On

Just as in 1946, we were signed on as members of the schooner's

crew, and perhaps this is a good place to list them. Apart from Charlie Smith and I, there were:

Going to Ramah:

H. M. Anderson, Instrumentman	W. L. Davison,	Rodman
R. A. Cameron	"	"

Harlow W. Fielding, cook

Going to the Benedicts:

Fred. H. Whidden Instrumentman	R. H. Hill,	"
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J.E.A. MacDonald	"	R. M. Slipp	"
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Max Marshall	"	R. W. Roome	"
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D. S. Templeton	"	L. Lamont	"
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Paul Harding, cock

Because my journal deals primarily with Ramah, I must confess that I am not certain how the crew was eventually distributed between the Benedicts and the river survey.

Just as in 1946 also, this large "crew" was assigned to ship's watches. My notes are too brief. They say "Charlie Smith and Frampton, 12 to 4", and I now suppose that this means that Charlie and his crew were on watch with Frampton. Similarly for myself with Ralph Brown, 8 to 12. But the notes also say "Anderson and Douglas, 4 to 8". Presumably this means that Anderson was responsible for a group also. He had had some pre-war experience on lake boats, so he would have known something about what was required.

Departure from Halifax

Frampton had arrived on Saturday, 7 June, expecting to load us and our few items, and get clearance that day. The shipping office closed at 1300 on Saturdays and, because of delay in forwarding the documents for our tobacco and other bonded stores, we could not get clearance before the office closed that day. The planned departure on Monday morning was then not possible because Monday was a holiday, the King's Birthday, and the office would not be open. As it turned out, the ship's cook took sick, I had Dr. Green to see him on Sunday and Monday, but by Tuesday morning he was in sufficient pain to cause nausea. Frampton then called Dr. Siniewicz, who took him to the Infirmary, X-rayed him, and finally admitted him to hospital. So we made our Monday morning departure at 1700 on Tuesday. The routine was much as it had been the previous year.

Wireless

There was one important change from 1946-- we had a wireless transmitter. In the previous year we had not had, in fact, a situation where a transmitter would have been an absolute necessity, but there had been many occasions when it would have been useful, and it was only too easy to imagine circumstances where it would be a life saver. So we insisted that we should have wireless communication. I was especially concerned about what would be going to Ramah, and it now appears that I must have paid little attention to the others, for I have no clear recollection of what they had, if anything. But I find a note in my journal that says: "Had transmitters demonstrated and took delivery" in St. John's. So they must have had the short range sets that Howse had produced.

Claude Howse had someone in St. John's design and build small portable sets, and he sent one to Halifax so we could see it. I took it to Ralph Fraser, an old classmate, who had operated VE1HJ for years. He looked at the circuits and thought we might be able to reach Sydney from Halifax, if we were lucky. When he hooked it onto his antenna, he did manage to raise a man in New York; when he described the circuit to the New Yorker, there was surprise that he had heard us.

Radio of insufficient power was of no use, so I had to find something else. Consensus of the local "hams" was that the No. 19 set used by the army was the most readily available unit of sufficient power. I tried unsuccessfully to rent or buy one from one of the "hams", but finally managed to persuade the army that, for such an exploring expedition, they should loan me one. This set was originally designed for use in tanks but, produced in large numbers, it was eventually used by nearly every one. It was powered by 6-volt storage batteries, so that meant we had to scurry around and find a 6-volt generator, and a "Chore-horse" motor to drive it, so we could charge them. When the schooner arrived we installed the set in our quarters and hooked it onto the ship's batteries. One of the local "hams" came down on the Monday holiday and helped us rig the antenna between the masts. This got grudging approval from the skipper, who was not enthusiastic about wires strung through his rigging where they might be in the way. I was fortunate also that Andy Anderson had been a wireless operator/air gunner in the Air Force, and Lloyd Davison had been in Signals in the Army, so I had two operators at Ramah who could send and receive Morse. That was necessary, because we had to work over long distances. In fact, Lloyd became the operator and each evening he reported the weather to the Met Office, via one of the amateur stations in Halifax, although he sometimes had to use one in Goose Bay as a relay.

Halifax to St. John's

We left Halifax on the evening of 10 June and arrived in St. John's at 0130 on the 14th.

There was a certain amount of adjustment and settling into our quarters. As in 1946, our accommodation had been carved out of the forward part of the hold, but we quickly found this space was cool when the hatch was off and poorly ventilated when the hatch was on. We really needed a ventilator cowl, but by the second day we had contrived a temporary ventilator that helped, but which had to be removed in bad weather.

We had arranged with Frampton that everyone would eat in the fore-castle, instead of having two separate messes as in the Thomas and Robert. The cooks were having trouble locating the food, however, because no one knew where or what was in the hold. Possibly the ship's cook did, but he was in hospital in Halifax. That means that our two lads, Harding and Fielding, had to feed the whole gang in his absence. They did a sufficiently good job that I did not remember the absence of their professional(?) guide till just now, when I read my old journal.

The cooks worked under some difficulty, in addition to their lack of experience. Most of our party were a bit under the weather the first and second days, and one was, for a time, at the stage where he was afraid he was NOT going to die. The cooks were not immune. I noted with some admiration, on the second day, how Harlow Fielding, who was cooking breakfast, came on deck, threw the contents of his stomach over the rail, and returned immediately to his work below. The hot fat from the bacon he was cooking could not have done much to settle his stomach, but he prepared breakfast for us and served it.

Navigation

During the passage across Cabot Strait, we had a demonstration of how Drake would have done his navigating. About noon on 13 June, when we would have been south of St. Pierre somewhere, the skipper produced his sextant. We surveyors, of course, were goggle-eyed to see him determine his position. We even proposed getting the time signal from WWV on the radio for him, so he would have accurate time for getting his longitude. He brushed that aside. About every five minutes, as noon approached, he measured the altitude of the sun. When the altitude began to decrease again, he knew that noon, and the maximum altitude of the sun, had passed. Then 90° -max. altitude gave him the zenith distance for the sun, he added the sun's declination, from the Nautical Almanac, and he had his latitude. He didn't bother with corrections for refraction, etc. It took a while for us to realize that the skipper wanted to know only that he was still far enough south to clear Cape Race, so he could sail due east and clear it. Just exactly where he was on the ocean did not concern him. Drake would have had a cross(?) staff or astrolab to measure the sun's altitude. I don't know what he would have used in place of the Nautical Almanac, if anything. Going to the Caribbean, Drake would, in principle, have done exactly as the skipper had done: Go south till the sun was sufficiently high in the sky, and then sail west.

Admin. Arrangements

We had arrived in St. John's shortly after midnight and after reporting to the customs officers, who came aboard at 0800, we went about arranging the various outstanding details with Howse. We got such air photos and base maps as were available, our short-range radio transmitters and the licenses therefor, and a new cook for the ship. There were also details, such as pay arrangements, and replacement for a canoe. This latter arose because, when moving away from the oil dock, the ship touched the pier and stove in the bows of GVD's own canoe, lashed across the stern. There was no replacement available, and eventually two rubber dinghies were substituted for it. Fortunately, I was several hundred miles away, at Ramah, when GVD arrived to start his explorations on the Cainairiktok River!

The customs office accused us of trying to smuggle things into Newfoundland. This included not only tobacco and spirits, for which we had provided the invoices from Halifax and which were still in a locker with the Canadian customs seals still intact, but also all supplies and equipment that we were bringing in. We were not notified of this till late Saturday afternoon and, just as in Halifax, we were delayed till Monday evening while the

customs people stamped packages of cigarettes and Howse arranged to pay the other charges. Some of us paid the duty on cigarettes so we could continue to get our nicotine fix; others could not, or would not, so customs held them in bond for our return. Eventually they were destroyed. The delay cost the Survey about \$400; customs collected about \$200.

St. John's to Hopedale

Our instructions from Howse were to deliver our parties to their respective locations as quickly as possible, and then discharge the ship. This year there would be no short stops at numerous places, and I am now (1999) quite impressed with how quickly we moved in 1947, compared to the exploratory regime of 1946.

We sailed from St. John's at 1640 on Monday, 16 June, in drizzle and poor visibility, and we had drizzle and fog most of the way to the Strait of Belle Isle. Our first stop was at Herring Neck, which is near Fogo Island, and it was interesting to see the skipper feeling his way in in the fog. He finally knew where he was when the mate pronounced a glow in the fog to be the "light on Change Island end," though there seemed to be nothing to distinguish that glow from several others. The skipper had a daughter living at Herring Neck, so he and the mate had a chance to visit her. My journal says: "The desire to stop was evident, though they did not suggest it, and probably would have been prepared to stand on through the night." But there was ice in Notre Dame Bay. We stopped the next night (18 June) in Conche Harbour, and the following night at Quirpon, where in 1946 we had stopped to see the "Mullet nuggets."

We arrived at Battle Harbour at 1030 on 20 June, and stopped there to top up our fuel supply, because this was the last place on the coast where we could do so. We took on 945 gallons and, with 25 drums in the hold, we had a total of about 2000 gallons.

At this time the codfish were just putting in an appearance. At Conche Harbour they had arrived three or four days before we did; at Quirpon they arrived on the 19th, and there were a few at Battle Harbour on the 20th. Apparently the salmon arrive earlier, for my journal notes that Baine Johnson (the merchant company at Battle Harbour) "received 4500 pounds of salmon today."

Bob Young, who was to be the boatman for Douglas and for Charlie Smith, joined us at Battle Harbour. His boat I remember only as roomy and nicely equipped, and with twin propellers. In my memory, it was essentially an extra large Cape Islander, but I suppose that, in lines and detail, it differed from the Cape Islander to accommodate any special needs of a boat operating on the east coast of Newfoundland. Evidently it was satisfactory, for, in due course, it took GVD all the way to Ramah with no difficulty.

We spent the night of 21 June at Grady Harbour, which is on the south side of Hamilton Inlet, and the next day crossed the Inlet and stopped

for the night of the 22nd at Henley Harbour, on the west side of Brig Harbour Island. We encountered a strip of ice about three-quarters of a mile wide, east of George Island, and went around that. Last year it took several hours to work our way through ice into Indian Harbour. This year we "encountered another belt of ice off Indian Harbour about 1300 hrs. Loose. Worked through with no difficulty."

I find in my journal an entry that must have been intended as a comment on the chief: "Broken valve spring, main engine. Repaired in 20 mins."

On 23rd June we sailed from Brig Harbour Island at 0500, and cleared Cape Harrison about 1500, and ran in for Double Island and Tuchialic Bay, where we were to leave Charlie Smith and GVD's crew. There was a U. S. Army Air Force station in the bay and Bob Young, with a boat from the station, came out to pilot us in, for the water in the bay and approaches is shallow. We arrived there about 1630 and started unloading after supper. We had three loads ashore when the wind came up and put an end to that. It must have been fairly breezy, for the skipper put two anchors out and two Yanks from the base, who were visiting, had to spend the night aboard. We had a dory go adrift from the beach, but this time it was because the party ashore pitching tents had left it untied, with the tide rising. A "livyere" (i.e. a person who lives here) coming up the bay picked it up and returned it.

The next morning we were unloading again by 0530, and completed unloading food and supplies by about 1300. It took another couple of hours to unload the barrels of gas for Bob Young. It was about a six-mile pull for a dory to get water for the ship, but we had done that, got out the galley supplies, and re-stowed the hold by 1800. In the evening we met the staff of the station, "including both CO's ", a journal comment that I cannot now explain. We arranged to contact them by wireless and we hoped to be able to use them as a relay station. (In fact, however, we eventually used a "ham" station at Goose Bay, an arrangement organized by our radio friends in Halifax.) We finished about midnight; it was a long day.

We left Tuchialic Bay at 0520 the next morning, 25 June. There was some loose ice a few miles outside the bay but we "worked through rapidly, though we rode over a submerged point of ice in dodging one pan." Sheathing and power make a difference! We travelled inside the main islands in company with another schooner and, by the time we reached Pomiadluk Point, it had developed into a bit of a competition between the engineers to coax a little bit of extra speed out of the engines. We arrived in Hopedale about 1720, but were held there all the next day by ice and fog.

Hopedale to Nain

On 27 June the fog cleared about 0800, and we got under way immediately, but then began a long delay. The ice was hard up against Cape Harrigan so we anchored in Windy Tickle at 1430, in company with eight other schooners. Late the next morning the fog cleared, but we went only about ten miles before we were stopped by ice, with no sign of open water ahead, and had to return to Cape Harrigan. For the next six days we sat there; we didn't get away till the afternoon of 5 July.

To get something useful out of this enforced delay, we did some practice surveying and I went around beating on the rocks as if I knew what I was doing. Andy Anderson and Lloyd Davison set up a triangulation scheme and measured it; Bob Cameron and Don Harris went plane tabling. Both jobs went slowly, with numerous errors, and probably were a useful exercise, because we were learning in what would otherwise have been wasted time. When we arrived at Ramah, Andy and Lloyd were able to pitch right into the triangulation there, and Bob and Don had already adjusted their thinking to the scale of our maps and the large vertical interval used for contouring.

We did have one departure from routine. When the boys were ashore for water in Windy Tickle on Friday, the 27th, they shot four hares. So we had a big feed of baked hare for Sunday dinner, and a big sleep. The fog, ice and drizzle made anything else impossible.

Tempers get a little short when everything is held up. The skipper and "Uncle John", the ice pilot, went ashore every morning to climb a hill and examine the ice and, of course, were no more pleased than we to find ice as far as they could see. On Tuesday, 1 July, the skipper blew up at the suggestion that we should try to get to Davis Inlet and find a local pilot to take us to Nain via an inside passage through the islands. I was informed in no uncertain terms that he "had no intention to bate her bottom out on the rocks", most of which were not on the chart, and in waters he had never seen before.

But we must give the skipper his due. The next day, when the Winifred Lee, southbound, (See p. 31) passed by and reported she had dropped a pilot at Davis Inlet, the skipper hired a trap boat from a nearby schooner and went to Davis Inlet to fetch the pilot. It was a rough trip for him. The wind came around and by evening visibility was down to 500 yards, the ice was driving on shore, and we even had numerous pans in the harbour. The skipper and the pilot had to spend the night on a rock somewhere in the bay, and were then forced about seven miles into the bay by the ice. They arrived back on the schooner about 1030 the next morning, cold, wet, and hungry.

We now had a pilot, but we also had ice driven into the harbour. The next day, 4 July, the ice seemed to slack off a little with the ebb tide in the afternoon and we tried it. We got outside the harbour to find the ice packed solid and not a lead to be seen, so we were forced to return. The harbour was full of ice the next morning, so we went ashore to continue our practice survey. When we came back to the ship at noon, the skipper had the anchor up short, and we got away about 1300. The ice had moved off as far as Umiavik Island, and we were able to slip inside it and thence to Davis Inlet, which is protected from the ice by a large island to seaward. There we anchored to wait for high tide.

There has recently been much publicity about Davis Inlet, but my journal is of no help. It says there was only one livyere family, named Lane,

but says nothing about Eskimo or Indians. There was a trader, named Budgell, so I suppose there must have been some people with whom to trade, but I rather think this was before the time when the Montagnais were moved there and housing built for them. Mrs. Budgell was from Sussex, England; another war bride who got a shock comparable to that of Mrs. Sark on Lennox Island?

We left Davis Inlet by 1745, and continued on till 2130, when the pilot asked that we anchor for the night because he did not want to run the next section in darkness. We had come via a very tortuous channel, with numerous tide rips, that was very narrow in many places. This produced from John Douglas the disgusted comment that "when I signed on this spring, I was expecting to go to sea; I didn't expect to go to the lumber woods!"

We were under way the next morning at 0445, but ran into fog and scattered ice about two hours later. It was 0730 before we were in water shallow enough to anchor and by that time all the pilot's marks were obliterated in the fog. It began lifting about 1350 and we were under way again. We arrived at Nain at 1730, and then went the rounds to get the news of the coast from the Ranger and Rev. Peacock, and to make a courtesy call on Dr. Hettasch and Haynes, the post manager or trader.

At Nain on Monday, 7 July, the big deal was Zach and his boat. The previous year he had kept his engine running with safety pins and string. That would not do this year, so we had a new Bruce Stewart engine for him. First thing in the morning we put off his engine and parts, so he could get it installed in his boat. He had the job finished the next day.

There arose the question of an assistant for Zach. This took me by surprise, but consulting with Haynes, Hettasch, et al it became clear that this probably was wise, or even necessary. One man in the boat, except on rare occasions, is considered bad form, and, in the event of difficulties, one Eskimo with a gang of "kablunaks" would have his hands very full. We were going to be 60 miles north of Hebron, the last settlement, without transport other than Zach's boat so this was a possibility that needed consideration. Furthermore, it appeared that one Eskimo among whites was considered to be at a grave disadvantage. So Isaac Rich came along as Zach's assistant for \$3 per day. On Haynes' recommendation we had paid the pilot \$15 for bringing us from Cape Harrigan.

We spent the afternoon across the harbour, cutting poles to hold up our tents and radio antenna.

We had a bit of excitement about 0130 the next morning, when a squall hit and the schooner dragged her anchor for about a mile. We were back to our position, the fouled anchor cleared, and riding to both anchors by 0300.

By noon on Tuesday, 8 July, Zach had his engine installed and we used his boat to collect firewood, tent poles, etc. It was a bit too windy to

do it conveniently with dories. As a courtesy to the mission, we took aboard some barrels and eight balks of timber that were going to Hebron.

About 2130 arrived Admiral MacMillan and the Bowdoin. They received the complete welcoming treatment, including the village's brass band circling the anchored Bowdoin in a boat. There is nothing in my journal, but my memory says that, over the years, MacMillan had earned his welcome by supporting the local school. As had been the case the previous year, he had aboard his wife and a crew of working tourists; their destination was Etah, Greenland.

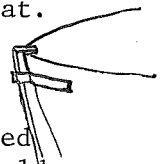
Nain to Ramah

We left Nain at 0530 on 9 July, with Zach's boat in tow. That proved to be a mistake. We soon discovered, as we towed it along, that the propellor of his boat was driving the engine which, of course, was not being lubricated. We put Zach aboard long enough to lash the flywheel in position and then continued. In the evening a more serious problem arose. The wind came up as we crossed the relatively open approach to Mugford, and with it enough of a sea to cause Zach's boat to pitch about. The tow rope started her stem, and she was pounding out the calking around her fore foot. The skipper agreed that this could not go on, so we stopped and took the boat on deck. It was brought alongside, slings rigged under it, and it was hoisted aboard. This was not a dory that was being handled, and the whole process took about two hours. We got the boat aboard without doing any damage, but there were a couple of times when her planking was at risk.

Our wireless got for us, from Nutak, a copy of a message telling us that GVD had arrived at Goose Bay, and we sent one to MacMillan, at Nain, describing the little ice we had encountered.

We got away from Moses Harbour at 0430 on 10 July, hit head winds in Mugford Tickle, and arrived at Hebron at 1430. On this last part of the journey, Zach was acting as pilot. As we approached Hebron he was on the fore deck and obviously concerned about something. When I enquired he said: "There's a big rock around here somewhere, but I don't see it." About five minutes later his face lit up with a big smile: "Well, we've passed it!" When I asked how many times he had been in Hebron before, his answer was: "Once."

At Hebron, Rev. Sigfried Hettasch gave us a strip of iron and the use of his anvil to fashion a strap to reinforce the bow of Zach's boat. Apparently in the belief that heredity could substitute for knowledge, I made the strap, but I cracked it when giving it a final bend and we had to abandon that. Even I knew that heredity did not encompass a weld. Re-nailing the planking to the stem appeared to cure the problem, but it was obvious that the original strength could not be there and that Zach would need to be cautious in heavy weather. With this matter settled, we sailed at 1030 on 11 July. The Hettasch family must have enjoyed hearing me pounding on the anvil at 0600!





Ramah

We arrived at Ramah that evening at 2000, along with the Bowdoin. We launched Zach's boat and put tent poles and such ashore. Bowdoin had on board Dr. William Powers, a geologist from Northwestern, and Arthur Boucot, from Harvard, so we spent an hour or two examining the cliffs on the north side of the harbour. Eighteen months later I was with Boucot in Larsen's petrology class at Harvard. He went on to build a considerable reputation as a paleontologist.

Saturday, 12 July, we were finally ashore at our destination, 32 days after leaving Halifax. We began unloading at 0630. By midnight we were unloaded, tents up, and stores under cover in one of the three buildings still remaining from the former Moravian mission station-- now abandoned. This included unloading fuel oil and gas for Zach and for Bob Young.

This was my first experience of cargo handling as done by a crew accustomed to handling freight in these schooners. We had something the T & R had not possessed: a 5-HP stationary engine on deck to drive the winch. From the niggerhead on the winch a line ran through snatch blocks to a gaff rigged above the hatch, and thence dropped into the hold. Ralph Brown took a couple of turns of the line around the niggerhead, boxes and bags in a sling came out of the hold, the gaff was pulled around, and the sling dropped into the dory alongside. We enthusiastic "seamen," down in the hold, gathered up the boxes and organized them into slings, under the more or less tolerant eye of John Douglas, the mate. Douglas said nothing, though I suspect he was amused, when he saw us carefully passing boxes from the after end of the hold to a point beneath the hatch so they could be lifted out. When we started trying to manhandle 45-gallon drums of oil, however, he stepped in. He produced a loop of chain on which were two steel hooks about four inches across. These went under the rim of the oil drum, one at either end, and the hoisting line was hooked into the loop of chain. The harder the hoist pulled, the more firmly the hooks were pulled against the rim of the drum. We had a whole layer of such drums lying on the ceiling at the bottom of the hold and, of course, continuing up the turn of the bilge. When he hooked onto the drum at the top of this layer, and at the after end of the hold, I expressed some doubt. His comment: "How in Hell do you think I get a puncheon of molasses out of here? Stand back!" The hoist line tightened and stretched a bit and, like a cork, the drum popped out of its place in the layer. It was dragged across the hold and, as it began to lift toward the hatch, it swung with a crash against the temporary bulkhead separating our quarters from the hold. Time expended: about 15 seconds.



The schooner departed at 0200 on Sunday, 13 July, but we slept in after the previous day's exertions. We then spent the day in tidying the camp, getting things arranged so they could be found, erecting radio masts, and so on. The former mission site is a flat sandy spit a few feet above sea level, so it made a fine camp ground, and there is a 30-foot waterfall on the east side, so the water supply was convenient for the cook. By evening, the camp was presentable. The only fly in the ointment was our battery charger; it didn't charge and we couldn't see why.

Our cook was a remarkably capable amateur. Though he had no experience, he was so very anxious to come on the expedition that he agreed to come as cook, and promised to have his mother instruct him during the time between the end of his spring examinations and our departure from Halifax. When sailing time came, he arrived aboard with his cook book, oven mitts and aprons. During the next month, on our way north, he had a chance to learn how to cook in quantity and in confined quarters. I have already mentioned how, in the beginning, he did that while fighting sea sickness.

His mother must have been a good instructor; he made the best loaf bread I have ever eaten, and the others shared my opinion. When we were working, noon meals were always eaten on the mountain, of course. Instead of sandwiches he provided bread, a tin of butter and another of meat, etc. We burned antler moss to boil the billy can, while we constructed our lunch from these ingredients. Many times the comment: "It's my turn to get the heel of the loaf today", would be met with: "Like Hell it is! You had it yesterday!" I mention another example of his approach: One afternoon, from the hilltop, I saw Isaac and Zach in his boat alongside an ice floe in the bay and wondered what they were doing. That evening, after the main course at dinner, Harlow produced peach melba. The peaches, of course, came out of a can. So, too, did the condensed milk out of which he had made a reasonably good ice cream.

Triangulation

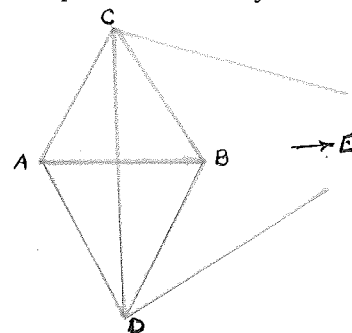
The wind is one of our vivid memories of Ramah, and Monday, 14 July was typical. It was too windy for plane tabling, so we put in the base line for our triangulation system. We did a second measurement on it the next day, and settled for a length of 4507.3 feet. Everyone in the family has, at one time or another, helped with plane tabling and knows the procedure, at least. This is a good place to explain why we needed a triangulation scheme and what it is.

In order to detect and remove errors, the surveyor makes his measurements in a circuit that closes back on his starting point. That is, he sets up his table at some convenient "station" and makes the measurements he needs there. He then moves his table to another "station", the direction and distance to which he has measured carefully, and makes the further measurements he needs in that vicinity. This process is repeated, eventually coming back to the beginning station. Its position, so determined, should be the same as in the beginning, of course; if not there is an error somewhere in the circuit. If one were to cover a large area before closing and then found the work in error, it might well be practically impossible to locate the error, or errors, that would be present. We were mapping about 15 square miles.

We needed to have a number of points, scattered over the area, for which the positions were accurately known. We could then use them as control points and run our survey circuits between them, thus limiting the number of places where errors could accumulate. In fact, with an adequate number of control points, we could set up the plane table anywhere and, by a technique

called resection, using three of the points, locate where we were. We could then proceed on our way and at the end of the day, or at any time when we had a need, locate ourselves again by resection, and see if we had made any blunders.

At that time the only practical way to locate such points was by triangulation. If one knows three of the six parts of a triangle, the other three can be calculated. If we were to measure the distance A-B, and the angles at A and B, we could calculate the distances A-C and B-C, and so locate C. Because it is the beginning from which all else depends, A-B is called the base line. In the same way we could locate D by measurement from A-B. If we now measure the angles DCE and CDE, we can locate E; and so on. Gradually one opens up this network of triangles until all the needed points are located. The primary survey control for the whole country is done by this method by the Geodetic Survey of Canada. They use triangles 50 to 75 miles on a side, and take immense care to ensure accuracy. We were measuring angles, by repetition on our transit, to 10 seconds of arc, and were being very careful within the limits of time and our equipment but, compared to first order triangulation, our work was laughably crude.

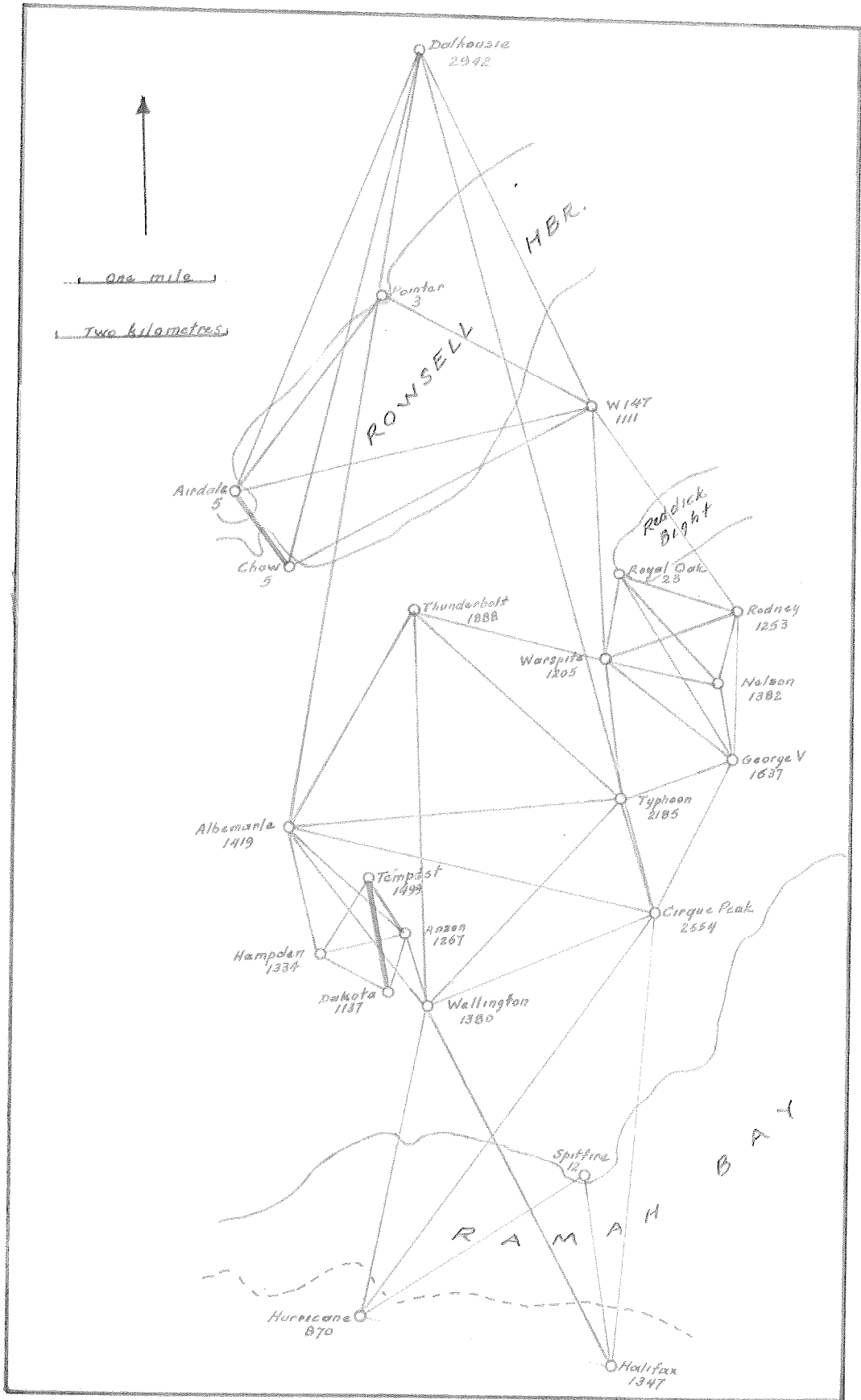


I have copied from our maps the triangulation we used (p. 71). Andy Anderson and Lloyd Davison took eight and a half working days to measure all the angles, calculate all the triangles, and produce the north and east coordinates for each station. Andy had been in the Air Force, so it is not surprising that he named the main stations after aircraft. When we needed secondary stations to get down into Reddick Bight, he named them after battleships. In a less military way, in 1946, Lester Chapman had named his stations at Rowsell Harbour after dogs. John R. worked on similar triangulation for the Hydrographic Survey, and will immediately recognize, no doubt, the weakness in this network.

Station Spitfire was included to tell us where we were on the face of the earth. It is a bronze plug in a big boulder and had been placed there by the Geodetic Survey in 1941. Its position, determined astronomically at that time, is $58^{\circ} 52' 08''\text{N}$ and $63^{\circ} 14' 25.7''\text{W}$.

The Actual Surveying

While Andy and Lloyd were doing their triangles, Bob Cameron and Don Harris were not sitting waiting, of course. On 15 July, our second working day, they started traversing westward along the north shore of Ramah Bay. This was the same sort of thing that Geof, Colin, Thomas and I did at Jeddore, but not in such detail. The scale was 1000 feet to the inch, and the contour interval 100 feet. (For comparison, Jeddore was 20 feet to the inch, and the contour interval was 2 feet.) At first they were following the shore line and reaching up the slope toward the cliff that forms the north side of the bay.



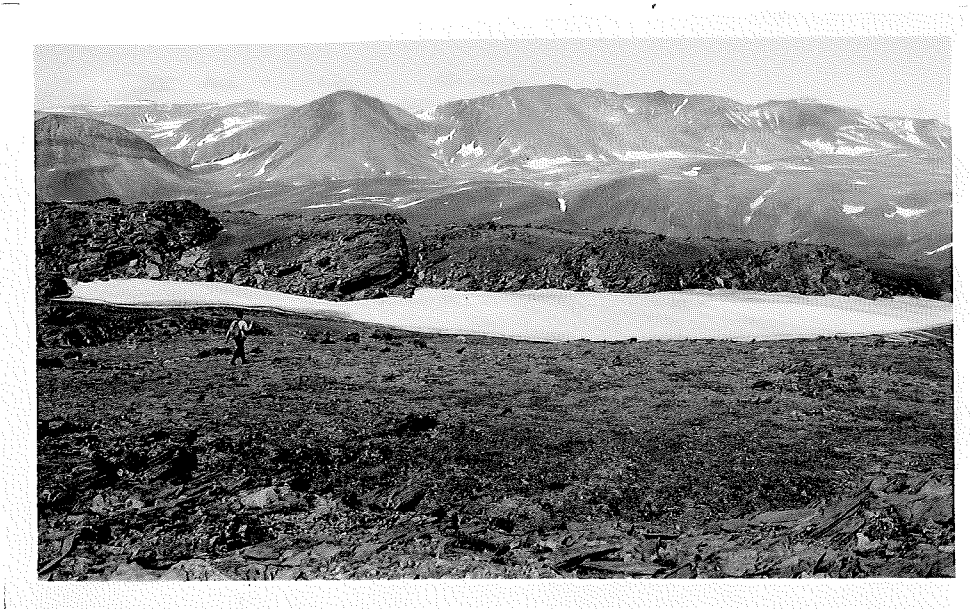


Valley leading south from the west end of Ramah Bay. This may go as far as Bear's Gut.



Cliff on N. side Ramah Bay.
To find Anderson, look for the
white band on his hat.

In the first two days they went west about three miles, and covering that slope gave the rodman lots of exercise. Then they moved up onto the plateau and continued there.



Quartzite Mtn. and the plateau in front of it.
The rodman is Don Harris.

At first, also, Bob was working without the results of Andy's triangulation. The stations were marked by stone cairns and flags, and all those of immediate concern to Bob were installed quickly. He could locate them on his map as he came to them, but he had to hope that his work was good and that he would not find that he had large errors of closure when their positions were finally known. It appears that he must have been both careful and fortunate; my journal complains of many things but not about his errors of closure.

Plane tabling beyond the tree line is much easier than in the woods of Nova Scotia. The reason is that, provided a mountain does not get in the way, one can see forever. The biggest tree we saw was a dwarf willow about six inches high. We were using a 10-foot stadia rod and, by using half the interval between the cross-hairs in the telescope, we could have a stadia shot 2000 feet long, at least in theory. I see in my journal a note that, in a traverse between Reddick Bight and Cirque Peak, there was one leg that was 1900 feet long, and apparently Bob got away with it. Sights up to 1000 feet on either side of him meant that an instrument man could map a band nearly half a mile wide as he moved across the country. After the triangulation was finished, we ran the two instruments side by side on some days, and so covered a wide band as we moved across the plateau. Much time was spent, of course, in just getting the details of the topography, and working our way in and out of the "dead ground" in the hollows.

Where did the geology fit into all this? Essentially the problem was to trace the outcrop of selected rock units and mark the boundaries between the units. There were no trees to get in the way. But there was severe frost action and, over most of the plateau area, one was mapping frost-heaved boulders rather than outcrop. Once the individual rock units were recognized, this was not a problem and one generally knew fairly closely where he was in the sequence.

It was not practical to have an instrument man sitting idle while I sorted out the rocks. Instead, I tried to work a day or two ahead of him so I could solve my problems before I held him up.

The points I wanted recorded I marked on the ground and he picked them up as he came along while doing the topography. I carried kindling-sized bits of wood from old packing cases, and scraps of cotton cloth. From these I made small flags, wrote my station number on the wooden shaft, and stuck them in the ground at the appropriate point. The rodman picked up the flags and gave the number to the instrument man, who recorded it as a point on his map. When the map was compiled in the "office", I could recover from my notebook the significance of each point.

Shouting station numbers for a thousand feet on a windy day is impossible. To save time, the boys modified the Morse code. The little flag held out on one side of the body represented a dot; on the other side of the body, a dash. Andy and Lloyd were old signallers, so transmitting numbers was no problem. The numbers in Morse are a simple system, so Bob and Don quickly adopted the same scheme, and it worked very well.

With such unobstructed vision, one can see and map a large area from any station; the only real problem is getting to see into valleys and around corners. To get into the valleys that notch the edge of the plateau, Bob set up his table on the ends of the spurs between the valleys. He could then see his rodman in the bottom of the valley and on its opposite side. This proved to be quick and efficient, but it led to an incident that still haunts me, and Bob also I suspect.

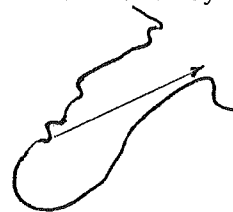
The wind was always a problem. It became almost automatic to put a chunk of rock on each corner of the table to hold it down, if not to reduce the vibration. On 3 August I decided we couldn't muck about with the wind, and should push ahead. Near Cirque Peak, Andy had his table blown over by the wind, but he caught the alidade with one hand and the table with the other. Bob was held up most of that afternoon on the narrow end of the spur above our camp. While he was moving around the table, a squall caught him off balance and he was blown off the edge of the cliff. Fortunately, he landed on a narrow ledge and was able to scramble back. I have just checked on the map; had he missed that ledge he would have fallen at least 700 feet before he stopped.

Lost Time

Lost time was a serious problem, because we hoped to cover a large area and the season was short. The problems with wind of force 5 and 6, I have just illustrated. We tried to get around that by working in valleys, and other more or less sheltered areas, when exposed areas were impossible. Rain and fog produced impossible conditions, and we lost 10 of the first 25 days because of rain, fog and wind. We also lost time through travel. What I have called the "plateau" between Ramah and Rowsell is about 1500 to 2000 feet above sea level, and that meant that each morning we had a climb of about an hour before we could begin work. You can see why we quickly learned to leave tripod legs and alidades on the hilltop at night.

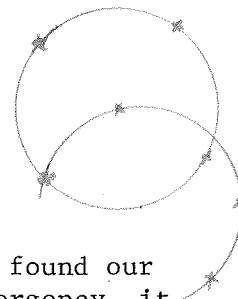
To save some time we had a fly camp at Reddick Bight from 21 to 24 July, and another at Rowsell from 10 to 14 August. Zach and his boat came in handy here, because he delivered everything needed directly to the camp sites. The one at Reddick removed the need to climb over Cirque Peak before one could start the day's work between there and the Bight. Rowsell was intended to eliminate the long walk back to Ramah; we worked north to Rowsell one day, spent the night there, and worked south to Ramah the next day.

Zach took us home from Rowsell on 14 August, though the visibility was only about 200 yards. From the north side of the harbour at the foot of Mt. Dalhousie, it is about two miles across the harbour mouth to the cliff on the south side. Zach headed the boat out as if he could see where he was going, but after a few moments it seemed to me that he was swinging to the left and out to sea. I put my compass on the seat beside me, glanced back at Zach, who simply grinned; he had seen what I did. It was true that, whatever course he was following, he was holding to a constant direction. In due course, the cliff appeared about 100 yards away, just where it was supposed to be. I still would like to know how he decided his direction in the first place.



Long hours are possible in this latitude in mid-summer, and the boys were willing. One evening Andy and Bob came with a proposal: They could see that we were not going to finish the job we had assigned ourselves. They had noticed that the mist from the bay rose as the sun heated the air. If we were to climb to work as the mist was rising, we would be ready to go as soon as the visibility was good enough for surveying, and we could thus get a few more hours in each day, because they had observed that the mist cleared the hill tops about 0630. I objected that, if we were to climb for an hour and a half to be on the hill top at 0630, we had to leave camp at 0500. To do that, breakfast would have to be at 0415 or 0430, and the cook would have to be at work around 0300 or 0330. I had no intention of asking Harlow to start that early. Said they: "We have already asked him." --"And what was his answer?" ---"Oh, sure!" He was willing to start then." My journal doesn't say when this began, but after 23 July there are several entries that say "under way at 0700 hrs." I have never again had a crew that went out of their way to increase already long working hours.

On page 70 I mentioned the technique of resection to locate a point. John will recall the technique from his days as a surveyor, and I include the following for his interest. On 13 August, with the Winifred Lee due in five days, we were doing our best to cover ground rapidly and, at least, produce a presentable map. Bob got up somewhere east of Anson (I think) and did a resection to locate himself. He was delighted that his three resection lines met at a point on his first try. But the check on a fourth station was wildly in error. It took some time before he suspected that he had the indeterminate resection problem, and considerably more time before he confirmed it, using bits of string to draw circles. He then picked three more stations, got a perfect resection on his first try -- and again no check on the fourth station. For the uninitiated I explain that resection does not work if you happen to be on the circle that passes through the three stations you are using. This is the only time I have ever seen anyone get the indeterminate solution to the three-point problem, and Bob got it twice, hand running! It cost him over half a day's work.



Radio

When we moved our radio ashore at Ramah (page 68) we found our charger did not work. In case we needed our radio for a real emergency, it seemed wise to save our batteries until we could locate the cause of the trouble. We didn't get the charger going till 19 July, so we had been off the air for seven days.

Then we got an impressive lesson from the "hams" in Halifax. We called at the scheduled time, 1900 hrs, and got a reply: "Where in Hell have you been? " We explained. Then we learned that there had been confusion in Halifax. It happened that, on 12 July, when we came ashore, the HBC's ship, Nascopie, had been wrecked on the east side of Hudson Bay. Somehow our absence from the air had been confused with the loss of the Nascopie. The people in Halifax assumed we were in distress and would call as soon as we were able. The local radio amateurs club had organized themselves so that they took turns to maintain a 24-hour listening watch, and for seven days they had called every hour, on the hour, in case we could hear them!

Despite the trouble we had caused them, they provided a very helpful rear link for us, although sometimes we had to use another amateur in Goose Bay as a relay. Usually the traffic was nothing more than checking that we were well and functioning, and I think perhaps we sent an occasional weather report. But we were able to pass messages to our families, learn about a screw-up in Andy's pay, and , via Hebron, contact Howse in St. John's. We were even able to enquire from Goose if unexplained shots we heard one day were from missing aircraft. And we heard when GVD passed through Goose Bay on his way to join Charlie Smith and the southern party.

Visitors

One hardly expects to have visitors in a place like Ramah, but we did. The day after we arrived, a family of Eskimo from Hebron, arrived to

to fish trout, but they didn't stay long. Then, on 31 July, arrived an Eskimo and his young son from Nachvak, the large fjord about 12 miles north of Rowsell Harbour. He had a few samples of slate and pyrite and a few skins for trading. They had spent the previous night on the hills in a snowstorm. Evidently the word about the "rock men" had spread. He did his bartering, got some tobacco and tea and a couple of square meals, and was off again before noon of the next day. Four days later, on the night of 5 August, another wandered in from Nachvak to trade. I got from him the white bear skin that Betty Ann and Marlene will remember. The Newfoundland Ranger from Hebron spent the night of 9-10 August with us. He and his skipper departed about 0530 on the tenth, we left at 0730 to go over the hill to Rowsell, where we spent the night and so missed the arrival of GVD at Ramah that evening. He had brought John MacDonald along with him, and John was promptly put to work surveying.

Douglas also brought the news that the Winifred Lee would pick us up on 18 August --- only 8 days away!

Departure from Ramah

During those eight days we scrambled to fill in the gaps on our map and to extend it as far west as possible. On 10 August we had connected up with outcrops above Rowsell that Mike Waterfield had mapped the year before, but there were still gaps and patches to be filled in. We made good time on the 12th, but Bob lost half a day with his resection problem on the 13th. We had fog down to sea level on the 14th and rain all day on the 15th. The next day we had rain and snow showers, but everyone was out and working. That was the end, and as the boys came in that evening they brought their instruments down off the hill. On Sunday, the 17th, Andy and Harlow went to Cirque Peak to fetch the transit. This was probably the only chance Harlow had to experience the daily climb and to have a look at the mountains from on high.

We had noted that the charts showed the old mission station at Ramah, but did not say that it had been abandoned. Douglas knew of cases where sailors in distress had struggled to reach similar places, only to find nothing. We had some surplus food, so we put a couple of cases each of tinned meat, milk, biscuits, etc. in the mission building that was in reasonably good repair, and wrapped them carefully in canvas. In English and French we labelled the cache "For Emergency Use Only" and Zach did the same in the Eskimo syllabics. When I asked what his sign said, he explained: "This food is not to be eaten. But if you are very hungry, you may eat some." I wonder what happened to it.

The Winifred Lee arrived on Monday, the 18th, at 1000 hrs, much earlier than expected, so there was frenzied packing and striking of camp, but we finished that by 1300. Rain started just after we got aboard, but our canvas was reasonably dry. We spent that night in Hebron.

Zach wanted to sail his own boat back to Nain, so we put a couple of drums of gas and some food aboard and left him and Isaac to make the journey in their own time. Bob Young's boat had to be re-fuelled also, of course.

Ramah to Hopedale

The next morning, in Hebron, we visited the trader, the Ranger, and the Mission to thank them for their help and to say our farewells. We did this while the Winifred Lee was discharging coal and taking aboard 100 barrels of trout. We left Hebron at noon, and spent the night at Nutak.

At Nutak I was invited ashore to visit with Budgell, the trader. (This was not the same Budgell who was at Davis Inlet.) The Grenfell Mission's ship, Marival, was also at Nutak, and so Dr. Paddon and Dr. Green were also guests that evening. Dr. Paddon is quite a raconteur and, with a little of Budgell's rum, he kept talking most of the night. My journal says that I got back aboard at 0445 and just got into bed at 0450 as the chief rolled his engines over. Years later, Paddon won a Royal Bank award for his services to the people of the coast, and a few years after that was the Lt. Governor of Newfoundland.

Only one of Paddon's stories sticks in my mind. During the war, he had been in the Navy in Esquimalt when the Queen Elizabeth came in for dry-docking --- in the only dry dock in the Pacific big enough for her. Despite his profession, Paddon had an interest in ships and in things mechanical and made a practice of visiting with the engineers of ships on which he worked. On the Queen Elizabeth, they explained that they had been in the south Pacific with a division (ca. 18 000) American troops aboard when, one morning, the dawn revealed a Japanese cruiser astern. The chief was called to the bridge, told about the cruiser's reputed speed, and invited to do what he could. He gradually got propellor revolutions up to what the engineers thought would be giving about 36 knots and, by dusk, the cruiser was hull down astern. They got rid of their troops and then headed for Esquimalt, where they were busy replacing the 3000 rivets she had shaken loose in her stern that day.

From Nutak we proceeded to Nain, calling at numerous fishing harbours en route. My journal says: "No fish."

On Thursday, 21 August, we went from Nain to Windy Tickle, Cape Harrigan, where we had spent so much frustrating time on our way north. It is an indication of subsequent inflation to note that I paid the trader at Nain \$2.00 for a pair of oars, and I left for Isaac Rich a cheque for \$129, for his time with us since 9 July at \$3.00 per day.

Dr. Hettasch, the superintendent of the Moravian mission, had retired and was leaving the Labrador to spend his retirement in "Pennsylvania Dutch" country -- at Bethlehem, I think. His son, Sigfried, continued to work on the coast and was still at Nain when John was there in 1977 with the Hydrographic Survey. The daughter, Katie, went with her parents, however, and years later I saw her in a TV program about the mission and the coast that was produced by the CBC. At this time the whole Hettasch family must have been travelling together, for my journal says we "have to move out of our bunks to make way for the Hettasch families proceeding to Hopedale....Boys stowed away all over the ship. Two in the hold, one in the galley, two with the doctor,

three in the mess room. Myself shared the skipper's cabin." The Hettasch's had been so kind to us for two seasons that this was no hardship.

We arrived at Hopedale at 1430 the next day, the Hettasch's moved ashore, and we went back to our cabin space. We had a week to wait for the Kyle, which arrived at 0300 on 29 August.

At Hopedale a prospector named William Mitchell brought in a number of specimens and took me to see an asbestos prospect. The asbestos fibre was less than half an inch long, however, and of no use. He also had some specimens with disseminated molybdenite. Fortunately for Mitchell, Douglas arrived on 27 August and was able to go and see two other items that Mitchell wanted to show. One turned out to be a patch of serpentine. Don Harris teases me that, if I had paid more attention to this prospector, Voisey's Bay nickel would have been discovered in 1947!

While we were waiting at Hopedale, some of us went "bird shooting" with a couple of the crew of the Winifred Lee. We got sixteen birds, but not much shooting. The birds were young gulls, still not able to fly, and the process was exactly the same as taking a chicken off the roost and wringing its neck. We had them for dinner the next day. You have heard me say I will eat almost anything except roast sea gull. This is the reason; it tasted as I imagine rotten fish would taste.

Douglas, of course, was travelling with Bob Young's boat, and when they arrived in Hopedale Bob Young complained loudly about the gas we had given him at Ramah: "The port engine is running rough and the starboard engine has no power" and, in general, nothing was working properly. There were two brands of gas and he had been very fussy that he should be supplied with one, called Esso as I remember. The other was called Acto, and that was what we had for Zach and his boat. Most of what Bob Young had been given at Ramah was Acto and he was very unhappy. He was so unhappy, and he kept on so long about it, that I asked Harlow about the difference between the two brands. Harlow had worked at the Imperoyal refinery the previous summer. He said they came out of the same storage tank at the refinery. One was intended for the farm trade and had a red dye to identify it. The other was for fishermen and had a green dye. The taxes on the two fuels were different and the dyes were to identify which fuel the consumer was using. Bob Young refused to believe it.

Hopedale to St. John's

From Hopedale to St. John's we were simply passengers on the Kyle and my journal is little more than a list of the places where we stopped. In fact, it ends at Battle Harbour. But there are one or two items that stick in my memory.

The Kyle was a 1000-ton coal-burning steamer. According to Lloyd's Register, she was 220 feet long, was built in Newcastle in 1913, and had the usual triple-expansion steam engine. She provided a coastal service from

St. John's to Hopedale, where she connected with the Winifred Lee. For us she provided very pleasant surroundings for the journey to St. John's.

This was the time when some fishermen were returning to Newfoundland and the Kyle was picking them up. My memory is confused here. I think they were taking their boats with them, but I recall harbours where there were half a dozen boats alongside and I don't think the Kyle could have found space for the accumulation from several harbours. I remember one occasion, at least, where the mate simply cut the painter of one boat whose occupant was clamoring to come aboard. So I'm not sure whether we had only passengers from the fishermen, or boats plus their owners, or a combination of both.

The fishermen certainly did not travel in luxury. I recall the smoke coming from the open hatches of the hold, where they were cooking on "boat kettles".

I did have a chat with one who was going home because he was ill. He had been part of the crew of a schooner on the coast, but had been unable to stay for the end of the season. When I asked if his captain would send his share when the catch was sold, he explained to me that he would get nothing for his summer's work. From the value of the catch would first be deducted the schooner's share, which paid for costs and the owner's share of the catch. The balance was then divided among the crew; there was an agreed scale of sharing, in which the skipper got somewhat more than the others. But this was conditional upon completing the whole voyage and, because he was leaving before the end of the season, this man was entitled to nothing. He said his shipmates might contribute a little from their shares, but they all had families, the shares would be small, and he didn't really expect anything. When I asked what he was going to do, he said: "I'll be alright. I can go to the pulp woods and at least I'll be fed there. But I don't know what I'll do about the wife and children." Years later, this explained to me why Joey Smallwood, the ex-union agent, would have nothing to do with an attempt to unionize the labour force in the pulp woods while he was premier of Newfoundland.

My journal ends on 1 September at Battle Harbour, but it would be two or three days later before we reached St. John's. There were many stops and much handling of cargo on the east coast of Newfoundland. We arrived back in Halifax on 6 September.



Mt. Quartzite and Cirque Mountain
from Cirque Peak, 18 July, 1946



Schooner Cove, on South Side, Ramah Bay
from near the mouth of Ramah Cirque.

ately an

Disguise Almost Causes Arrest

DARTMOUTH, Sept. 11.—Harlow Fielding, of 41 Elliott Street, was feeling a lot easier today after he had shaved off his beard and tucked away in mothballs the Eskimo garb that he brought back from a three months stay in Labrador with the Dalhousie geological survey party.

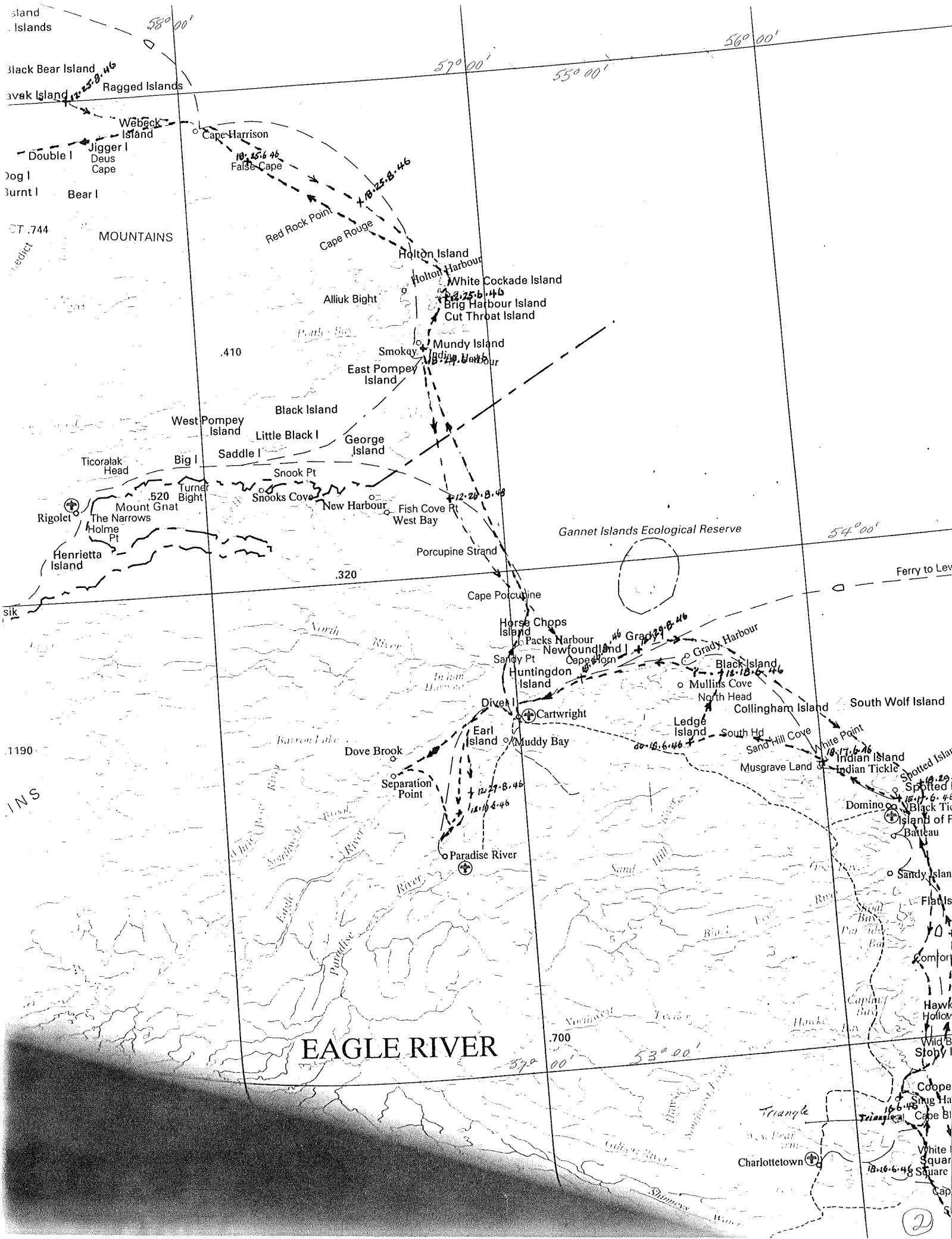
The whiskers, sealskin boots and Arctic parka—combined with a deep tan he got on his Labrador trip—almost landed him in the Dartmouth town jail as a suspected fugitive from the Nova Scotia hospital.

Fielding chanced a walk in the streets with his Eskimo outfit and chin crop last Sunday night after his return from the north. When children and adults gaped open-mouthed at him he greeted them with a grin and "at-tuni", Eskimo for "hello".

By the time he reached Portland Street his followers had grown into a mob, none of them knowing his true identity. Then somebody thought he had figured it out—it was an escaped patient from the Nova Scotia Hospital. The police were called and rushed to the scene. As soon as he was hauled into the police van, Fielding was able to explain all to the law but to carry the joke a little further, the police carted him off to the station, anyway. When the crowd had drifted away, Fielding started off again, walked to a well-known town rendezvous on Banook Lake and then headed for home with an evening of fun behind him.

"I still don't think anybody recognized me," Fielding said today. Even his best friends wouldn't have anything to do with him.

Club Players Waterville

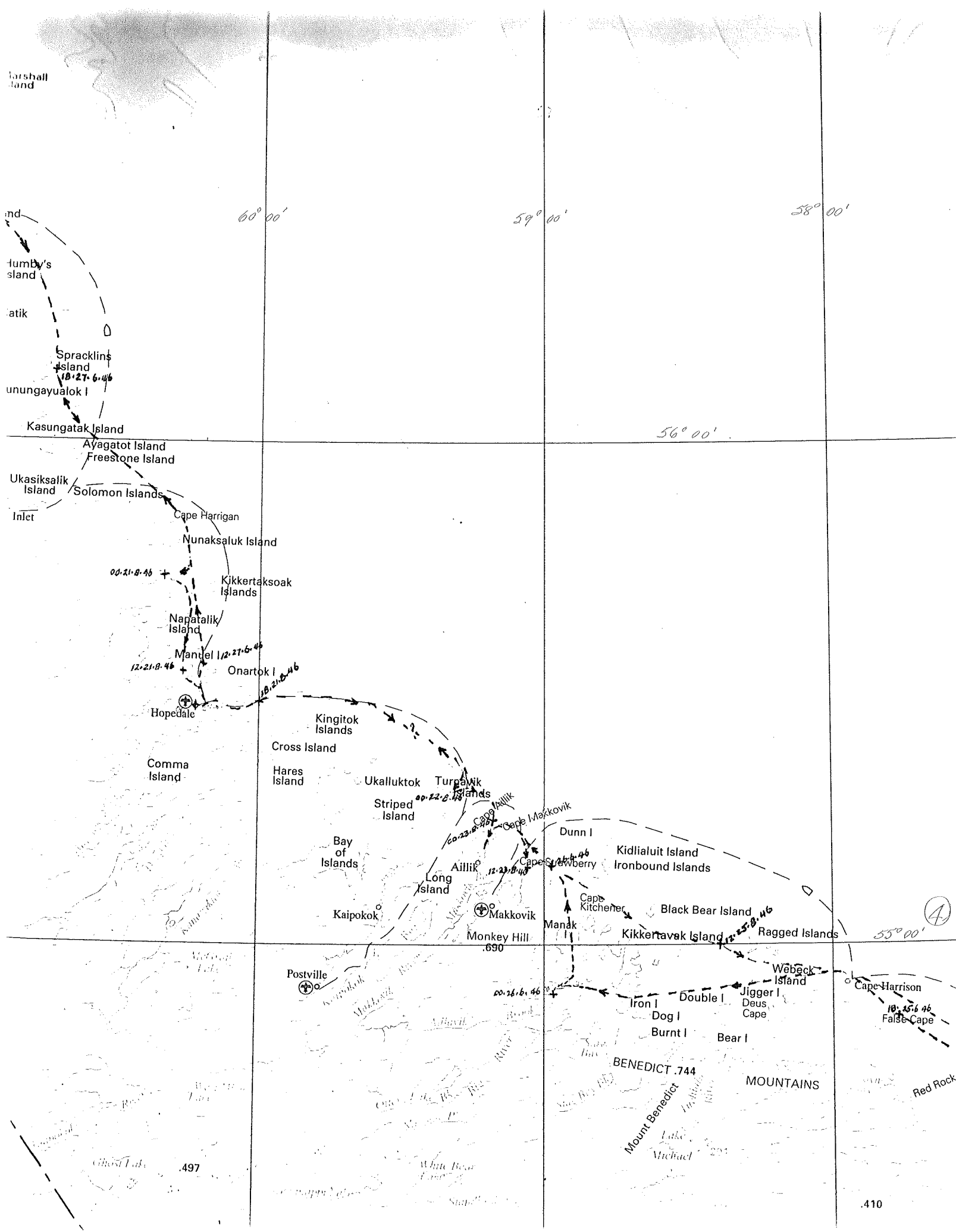


EAGLE RIVER



Gannet Islands Ecological Reserve

3



Marshall
Land

nd

Lundy's
Island

Latik

Spracklins
Island
18° 27' 6.46

Unungayualok I

Kasungatak Island

Ayagatot Island
Freestone Island

Ukasiksalik
Island
Solomon Islands

Inlet

Cape Harrigan

Nunaksaluk Island

00° 21' 8.46
Kikkertaksoak
Islands

Napatalik
Island

Mantel I 12° 27' 6.46
Onartok I

18° 21' 8.46
Hopedale

Kingitok
Islands

Cross Island

Hares
Island

Ukalluktok

Turpanik

00° 22' 6.46
Striped
Island

Bay of
Islands

Long
Island

Kaipokok

Aillik

12° 27' 6.46
Cape Makkovik

00° 23' 18.46
Cape Striberry

00° 23' 18.46
Cape Kitchener

Dunn I

Kidlialuit Island

Ironbound Islands

Black Bear Island

12° 25' 8.46
Kikkertavak Island

Ragged Islands

Webeck
Island

Jigger I

Deus
Cape

Iron I

Double I

Dog I

Burnt I

Bear I

Cape Harrison

18° 45' 6.46
False Cape

Red Rock I

BENEDICT 744

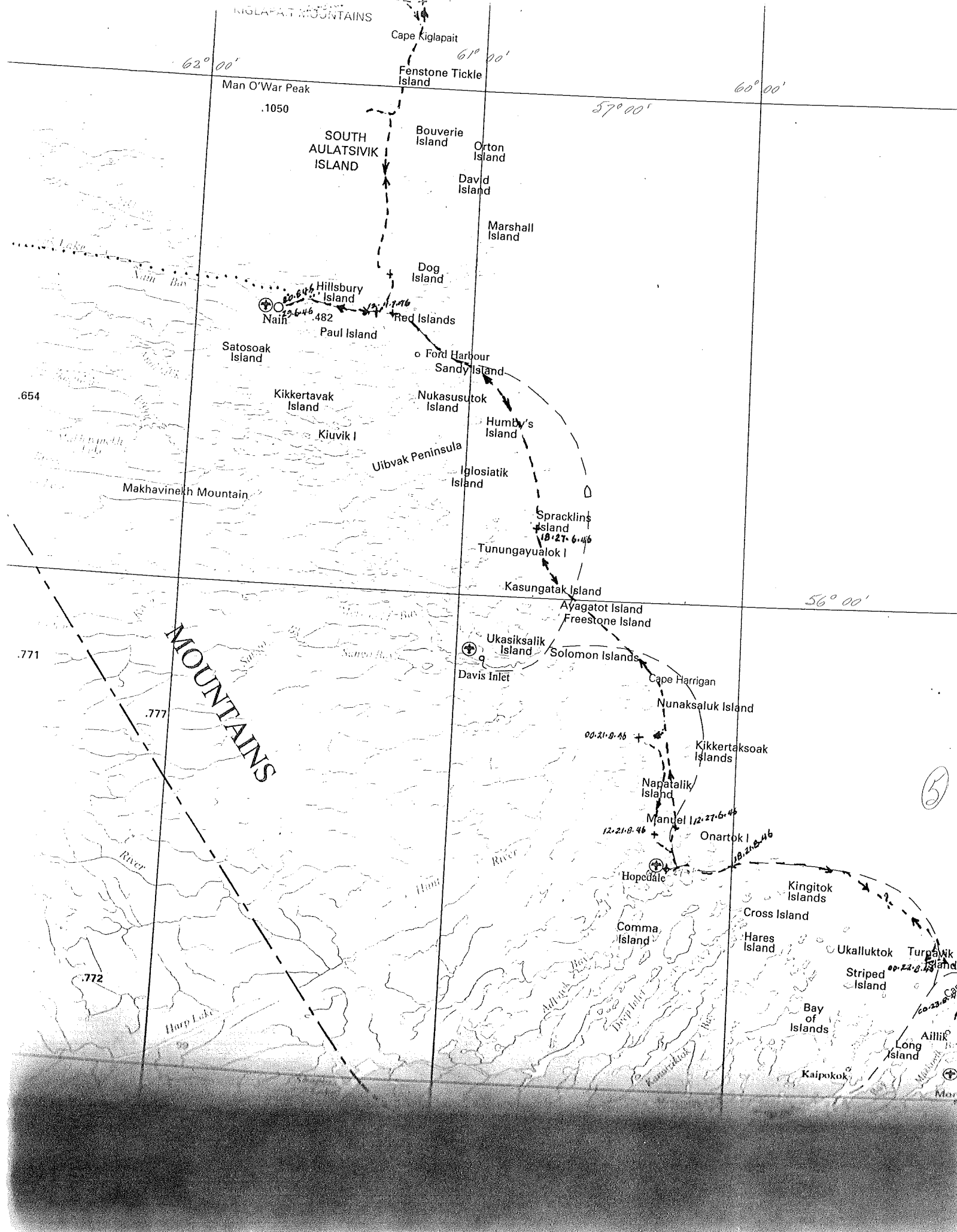
Mount Benedict

Lake
Michael

MOUNTAINS

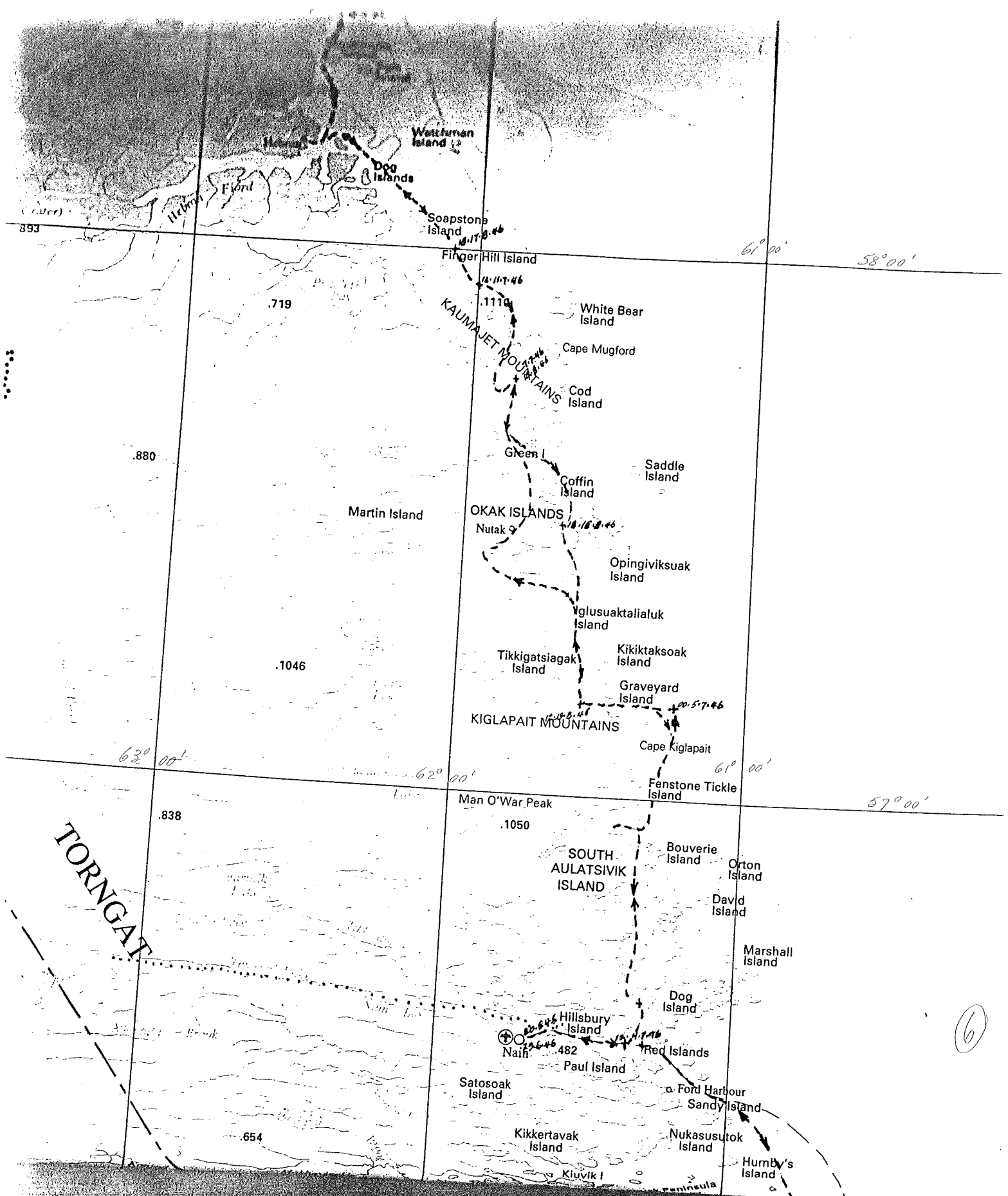
Ghost Lake
497

White Bear
Lake



MOUNTAINS

5



893

61° 00'

58° 00'

.880

.719

.1046

62° 00'

62° 00'

61° 00'

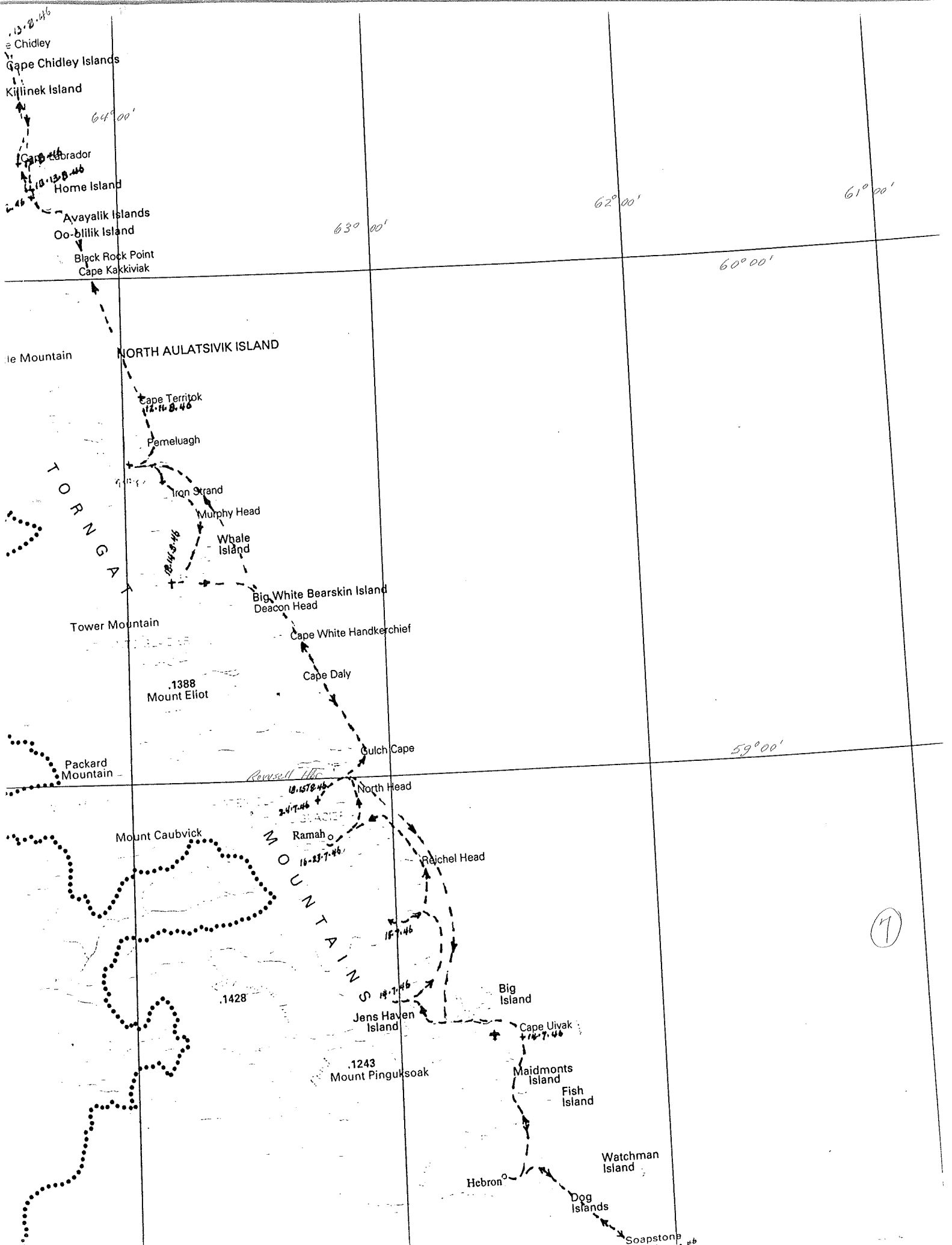
57° 00'

.838

TORNGAT

.654

6



13-8-46
 Chidley
 Cape Chidley Islands
 Killinek Island
 64° 00'
 Labrador
 Home Island
 Avayalik Islands
 Oo-billik Island
 Black Rock Point
 Cape Kakkiviak

le Mountain
 NORTH AULATSIVIK ISLAND
 Cape Territok
 12-14-46
 Pameluagh
 Iron Strand
 Murphy Head
 Whale Island
 18-44-46
 Big White Bearskin Island
 Deacon Head

TORNGAT
 Tower Mountain
 .1388
 Mount Eliot
 Cape White Handkerchief
 Cape Daly
 Gulch Cape

Packard Mountain
 Mount Caubvick
 MOUNTAIN
 Ramah
 16-23-7-46
 Rachel Head
 16-7-46
 Big Island
 Cape Uivak
 14-7-46

.1428
 Jens Haven Island
 .1243
 Mount Pinguoksoak
 Maidmonts Island
 Fish Island
 Watchman Island
 Hebron
 Dog Islands
 Soapstone

7



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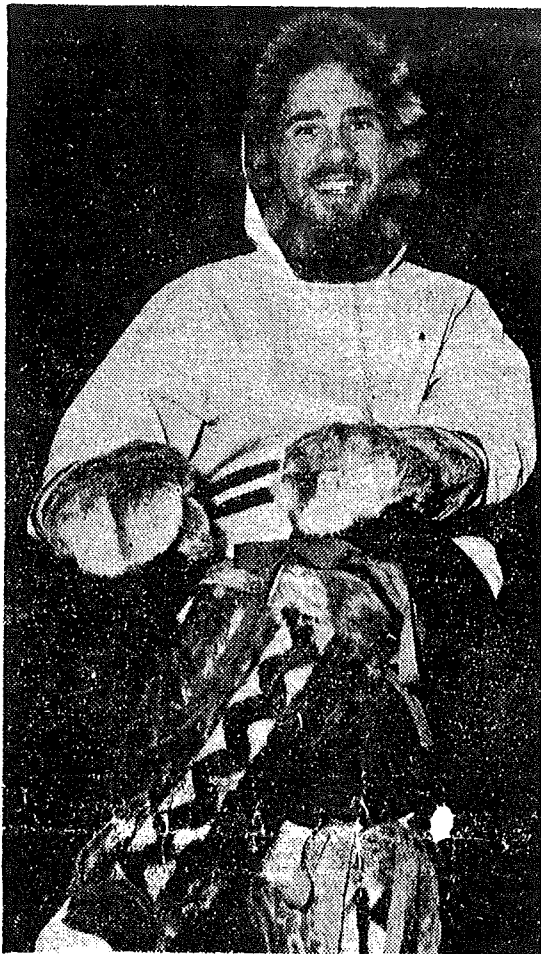
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* * * *

A band of 14 Halifax college students—some with shaggy beards and all with deep tans and memories of mosquitoes, black flies, Eskimos, granite hills and ice floes—are back home after a Summer spent along Labrador's rugged coastline and the forests stretching back into its remote hinterland.

They are part of the Dalhousie geological survey party that headed for the Arctic at the end of their studies three months ago to study rock formation, search for minerals and make surveys of undeveloped terrain. In charge of the group was Geology Professor G. Vibert Douglas, who with two of his students—Charles Smith of Dartmouth and Fred Whidden of Stillwater, Guysboro County—remained behind for a few extra days to complete assignments.

The others who came back by ship to St. John's, Newfoundland, and plane for the last leg of their trip home are Cliff Milligan, 91 Liverpool Street, Halifax, a geology instructor at Dalhousie and second-in-command of the party; Bob Cameron and Don Harris of Halifax; Harlow Fielding, Bob Roome and Lawrence Lamont of Dartmouth; John MacDonald and Max Marshall, Glace Bay; Dave Templeton, St.

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ending

Harrington - Belle Isle

Northwest R. V

Battle Abri - Cartwright

Hamilton - Hopdale V V V

Naskauppe? V V

Main - Nutek V V

Hebron - C. Terrotek V

Date	GMT	Lat	Long	
May 31	1900	44° 38'	62° 53'	
June 1	00	44 46	62 12	
	06	44 53	61 39	
	12	45 07	60 32	
	18	45 43	60 00	
2	00	46 02	59 38	
	12	47 05	59 19	
	18			} Port aux Basques
3	00			
3	12	47 47	59 25	off. C. Ray
	18	48 05	59 30	
4	00	48 33	59 20	
	06	49 04	58 41	
	12	49 10	58 20	Bay of Islands
5	12	49 10	58 20	Do.
	18	49 41	58 03	
6	v 06	50 18	57 50	
	v 12	51 25	57 08	
7	v 00	51 25	57 08	Blanc Sablon
	v 12	51 28	56 55	Forteau Bay
	v 18	51 28	56 55	
8	v 00	51 28	56 55	
8	v 12	51 37	56 38	off. C. Diabie
	v 18	51 41	56 29	Carad Cove

Date	G.M.T	Lat.	Long.	
June 9	18	51° 41' N	56° 29' W	
11	00	?	?	
	106 ✓	51° 39'	55 31	Approaching Co Bauld
12	12 ^N	51 33	55 21	Grounded bergs. off base of
	18 ^N	51 56	55 47	Chateau Bay
13	00 ↓	52 00	55 51	Stenley Hbr.
15	12	52 27	51 47	?
	18	52 27	51 58	?
16	12 ^N	52 19	55 33 ^N	off Ball's Har.
	18	52 27 ^N	55 48	Square Is.
17	12 ^N	53 12	55 39	
	18 ↓	53 24	56 00	Indian Hbr.
18	00 ↓	53 38	56 27	
	12 ↓	53 46	56 19	Nearing Cartwright
	18	53 46	56 25	?
19	00	53 26	57 13	at anch ^r Paradise R. air temp 40.0 Sea " 44.0
	12 ↓	53 31	57 14	Sandwich I. air temp 36.0 Sea " 43.0
21	12 ^N	53 31	57 14	" "
23	12 ^N ?	53 24	57 15	In drift ice
	↓ 18	54 27	57 11	Indian Hbr. air T. 33.0 Sea 35.0 In ice
24	↓ 12	54 27	57 11	In ice Sea temp 32.0
	↓ 18	54 27	57 11	Do.
25	↓ 12 ↓	54 34	57 08	(Brig Hbr)
	↓ 18 ↓	54 51	57 47	(SE C. Harrison)
26	↓ 00	54 55	58 57	(Adlavik Bay) note on base
	↓ 12	55 10	58 58	(off C. Strawberry)
	18	55 11	59 55	Thoi is on land!
27	↓ 00	55 28	60 13	Hopedale
	↓ 12	55 34	60 12	(N. Manuel Is. - N. of Hopedale)
	18	56 08	60 45	(Kibkertsak (Spratlings I))

from
Hopedale?

Date	Time	Lat	Long	Notes
Jun 28	100	56° 31' N	61° 19' W	(in Red Isls)
29	100	56° 52' N	61° 42' W	Main
	120			Night in in 3110°
July 4	1201	56° 32'	61 22	(N Paul Is.)
5	00 ✓	57° 10'	61 15	(off Beachy Is. Cape Kiglapait)
11	12 ✓	57° 57'	62 00	(N of) Cape Muzford
14	12 ✓	58 29	62 31	(Cape Uluk)
Aug 7	18	59 42 ^(32?)	63 43	
8	12 ✓	59 36	63 59	Ryan's Bay
	18 ✓	Do		
9	00	Do		Fog
10	12	Do		
	18	Do		
11	12 ✓	59 46	63 56	(C. Terrible)
	18 ✓	60 10	64 21	
12	00 ✓	60 14	64 23	
	12	Do		Fog
	18	Do		
13	12 ✓	60 27	64 27	scattered small bergs. Chilly
	18 ✓	60 11	64 21	
14	00	59 36	63 54	
	13 ✓	59 36	63 54	(outside) Ryan's Bay
	18 ✓	59 26	63 49	(on land? Probably at mouth of Kangalaksavik fjord)
15	18 ✓	59 51	63 17	Round Hbr. 59° of 'i' in wrong fjord.
17	18 ✓	58 00	62 05	Halfway Hebron & Muzford.
18	18 ✓	57 30	61 40	Okak Is.
19	12 ✓	57 09	61 35	Kiglapait

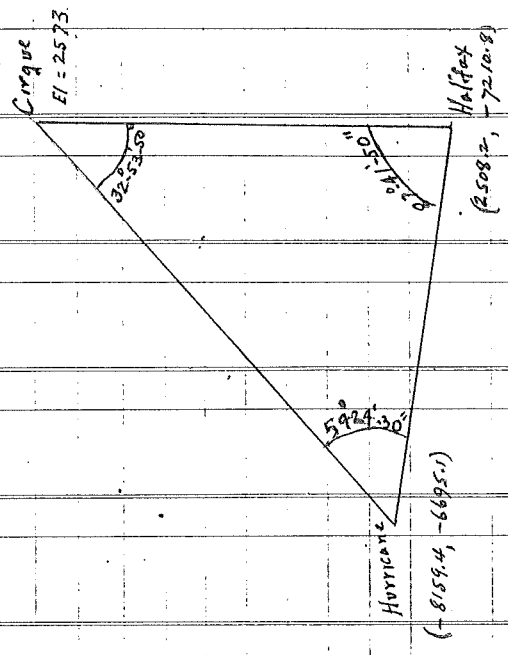
Date	GMT	Lat	Long	
Aug 19	18 ✓	56° 38'	61° 17'	
20	12 ✓	56 32	61 40	Main
	18 ✓			Main
21	00 ✓	55 43	60 21	(S. of Windy Tickle - C. Harrison)
	12 ✓	55 32	60 15	(Manned Is. - N of Hopdale)
	18	55 29	60 00	!!! We did not bypass Hopdale !!
22	00	55 15	59 20	W. Turnavik Hbr.
23	00	55° 15	59 12	P. Hike Hbr.
	12	55 08	59 03	(C. Strawberry)
25	12	55 00	58 24	(Between C. Strawberry + C. Harrison)
	18	54 46	57 25	(approaching Quaker Is.)
26	12	54 09	57 12	(N. Tumble down Dick Is. SE Hamlet Islets.)
	18	53 47	56 46	
27	12	53 24	57 10	
29	12	53 49	56 34	fog
	18	53 30	55 40	
30	18	53 15	55 30	
31	12	51 47	55 31	
Sept 1	06	51 10	55 09	
19	12	50 38	54 59	
	18	49 51	54 46	
2	12	49 33	54 00	
	18	49 37	53 45	

Triangle: Cirque-Halifax-Horricane Date: July 30, 1947

Observers: H.M. Anderson, W.L. Davison
 Calculated by

Form LO.7

L Read	L	L Adjusted	Log Sin L	Side	Length	Log Length	Bearing	Nt	S-	Et	Dep.
32°53'50"	Cirque	32°53'50"	T. 73490	Hal-Horr	10680	4.02857	N57°13'55"W	555.8			10668.5
87°41'50"	Halifax	87°41'40"	T. 99965	Horr-Cirque	19648	4.29332	N33°24'35"E	16410.0		108040	
59°24'30"	Horricane	59°24'30"	T. 93484	Cirque-Hal	16925	4.22851	50°27'45"W		169240		136.6
Hal-Hor = Ha-C = S-C	C-Hal	180°00'00"						16925.8	169240	108040	108051
Log	Horr-Cirque	4.25332	Horr-Cirque	4.29332	Lat	515.8	Horr-Cirque	Cirque-Hal			
+ Log Sin	C	T. 73490	Horr	T. 93484	Log Lat	2.71245	16410.0	169240			
- Log Sin	Hal	4.02857	Hal	4.22816	Log Cos Bear	2.68338	7.92180	9.99999			
Log	Hal-Horr	4.02857	Cirque-Hal	4.22851	Log Length	4.02857	4.29332	4.22851			
Coordinates	N	E			Log Sin Bear	7.99949	7.74028	3.90693			
Horricane	-66951	-81594			Log Dep.	4.02857	4.03360	2.13544			
	+ 16410.0	+ 108040			Log Dep.	10668.5	108040	136.6			
CIRQUE	+97149	+26446									
	-169240	-136.6									
HALIFAX	72089	25090									



Station	Coords	
	N	E
Spit Eric	105 000.0	53 000.0 ✓
Halfax	97838.9	55491.2 ✓
Hornsea	98350.2	44896.2 ✓
Cirque	114649.2	55627.2 ✓
Hampden	112980.5	42179.1 ✓
Albemarle	118074.0	41116.2 ✓
Thunderbolt	126583.0	46131.7 ✓
North Head	136522.0	60560.3 ✓
Anson	113787.6	45332.1 ✓
Typhaon	119010.7	54367.2 ✓
Wallington	110996.0	46591.6 ✓
Dunkirk	111435.3	44944.8 ✓
Tempest	115848.7	44021.4 ✓
Dalhousie	148681.0	46877.1 ✓
George	120690.9	58639.0 ✓

GMT NFLD.
 0600 = 0230
 1200 0830
 1800 1430
 0000 2030

Dp. Hfn	1000hrs.	31 May	Friday	
	2115	1 Jun	Sat.	Rounded Scatarin
	1115	2 "	Sun.	Cape Ray
	1430	"	"	Fort-au-Basques
Dp. A-B	0530	3 "	Mon.	Cleared Cape Ray at 0800
	1130	4 "	Tues	at dock at Carling
Dp. Cornwbrk	0700	5 "	Wed.	
	0630	6 "	Th.	Sabine coast in sight
	1040	6 "	"	Blanc Sablon - unharmed. carb? 50 eq
Dp. B. Sablon	0730	7 "	Fri	
	0900	"	"	Forteau Bay.
Dp. Forteau B.	0645	8 "	Sat.	→ Capstan B → Carnoll's Cove.
	1200	8 "	"	Carnoll's Cove
	?	9 "	Sun.	off at 0515 N126 + 9 to examine "lion" deposit. sketch map
		9 "	"	→ Red Bay
		10 "	Mon.	At Red Bay. Trying to repair reverse gear on engine
	0400	11 "	Tue	→ St. Anthony. Arr ± 1200.
Dp. St. Anthony	0630	12 "	Wed.	Engine stopped. draft reduced by 2 trap boats.
		13 "	Thurs.	Rough weather. Res. Sab. → Henley Hbr.
		13 "	Thurs.	Henley Hbr (= Chateaufort) 0600 off to see mice dep. didn't find it
Dp. Henley Hbr.	0600	14 "	Fri	1030 am. Battle Hbr. Took fuel + H ₂ O
Dp. Battle Hbr.	0815	15 "	Sat.	across Lewis B. to Fox Hbr. when?
Dp. Fox Hbr.	0530	16 "	Sun.	Back to B. Hbr. for milk then → Trinity → Smug Hbr. when?
Dp. Smug Hbr.	0525	17 "	Mon.	Noon - anchored at Demino Run - then → Table Bay
Dp. Table B.	0445	18 "	Tues.	down Cartwright 1100hrs
Dp. Cartwright	1415	18 "	"	up Sandwich Bay to Paradise + Eagle River.
		19 "	Wed.	Paradise + Eagle.
		20 "	Thurs.	"
		21 "	Friday	"
0430 Dp. Paradise		22 "	Sat.	→ Eagle R. multi-boat back to TRB by 1200.
		23 "	Sunday	Mr. Indian Hbr "on time for dinner" 1200 any 1200?
0530 Dp. Cartwright		24 "	Monday	Indian Hbr + Sleep Cove (about 6 miles)
Dp. Sleep Cove	1010	25 "	Tues.	Sleep Cove → ? ad levite
0615 Dp. from ?		26 "	Wed.	1715 Arr. Hopedale.

150' anchor chain out
 by 0200 on Nfld side

Ch. poor weather

4/21/31

Before 0800 Dp. Hopedale ↓ 27.6.46. Thur. → Nain. Arr. after 2200.

28.6. Fri Nain - cutting firewood etc.

29.6. Sat. GVD at L. Tussisook.

0730 Dp. L. Tussisook 30.6. Sun. GVD returned at 1100 to T & R.

1.7. Mon. ca. noon → Tabot Isl. quarry.

2.7. Tues. to Bennett Isl. to see prep for Zack's boat

Dp. 0745 Zack's boat 3.7. Wed. to check on "C". Proved to be alternate

Dp. 0545 4.7. Thur. to Red Isl. to Port Manners Run to King (repair).
where? NE from 9th

5.7. Fri. Trimming in King's park.

Before noon Dp. King. 6.7. Sat. 1630 am. Nutaq.

0530 Dp. Nutaq 7.7. Sun. 0930 am. "Mugford" (Anchorstok)

8.7. Mon. Anchorstok

9.7. Tues. do.

10.7. Wed. do.

0700 Dp. Anchorstok 11.7. Thur. 1430 am. Hebron.

12.7. Fri. Hebron - plotting maps

13.7. Sat. do.

0700 Dp. Hebron 14.7. Sun. early afternoon Kangasiorvik & N. side Saqlok Bear's Gut

0500 Dp. Bear's Gut 15.7. Mon. Drives to "another bay on N. side Saqlok."
 This must be GVD's "northern Bear's Gut"

0600 Dp. " " 16.7. Tues. Rannak - in evening.

17.7. Wed. Rannak - doing the cirque section

18.7. Thur. "

19.7. Fri. " 50th day - official holiday.

20.7. Sat. "

21.7. Sun. " Mapping completed.

22.7. Mon. " Icebound.

23.7. Tues. " "

0700 Dp. Rannak 24.7. Wed. Rowseell. Raining → so a Sunday.

25.7. Th. Set up Rowseell Camp & base line

0600 26.7. Fri. Rowseell. Angles for D"

27.7. Sat. "

28.7. Sun. "

29.7. Mon. " Eskimo from Natchuk

30.7. Tues. " " " " depart.

N.R.G. seems to have missed a day here.

	31.8.46. Wed.	Rossell.	
	1.8.46. Thur.	"	The gale that night.
	2.8.46 Fri	"	Repair camp
	3.8.46 Sat	"	T.R. returned.
	4.8.46 Sun	"	
	5.8.46 Mon	"	
	6.8.46 Tues	"	
0900 dp. Rossell	7.8.46. Wed.		1800 arr. Ryan's Bay.
	8.8.46 Thur.		Ryan's Bay - fog.
	9.8.46 Fri		do.
	10.8.46 Sat		do.
0810 dp. Ryan's B.	11.8.46 Sun.	1600 Clark's Hbr.	Inc. overcast S. observe forecast.
	12.8.46 Mon.	do.	
0700 dp. Clark's H.	13.8.46 Tues.	0900 Cape Chidley	2235 Ryan's B.
0930 dp. Ryan.	14.8.46 Wed.	1917 arr. Rossell.	
1500 dp. Rossell	15.8.46. Thur.	Climb Mt. Dal.	2130 Arr. Saglak.
0400 dp. Saglak	16.8.46 Fri	0900 am. Hebron.	
1200+ " Hebron	17.8.46 Sat	Hebron → an. Anchorstock	2115
0600+ " Anchorstock	18.8.46 Sun.	Arr. Cutthroat	1630.
0620 " Cutthroat	19.8.46 Mon.	1930 arr. Nain.	
0900 " Nain	20.8.46 Tues.	Cape Harrigan	
0620 " C. Harrigan	21.8.46 Wed.	1030 arr. Hopdale.	1430 dp. Hopd. 20:30 Turnavik.
0740 " Turnavik	22.8.46 Thur.	0900 Aillik	
0700 " Aillik	23.8.46 Fri	0915 Strawberry Hbr.	
	24.8.46 Sat.	Strawberry	
0610 " Strawberry	25.8.46. Sun.	1920 Indian Hbr.	
0600 " Indian Hbr.	26.8.46 Mon.	1600 Cartwright.	
0800 " Cartwright	27.8.46 Tues.	1200 at mouth of Paradise	
	Paradise R.	28.8.46 Wed.	
0600 " Cartwright	29.8.46 Th.	2000 arr. Comfort Bight	
0520 " Comfort B.	30.8.46 Fri.	0930-1200 ¹⁵³⁰ Triangle ²³³⁰	2000 C. St. Charles.
0415 " C. St. Charles	31.8.46 Sat	1100 arr. Quirpon Dp.	2015. Where did we stop? Was Venus in Fickle T or did we?
	1.9.46 Sun.	1800 arr. Tivillingati	
0415 " Tivillingati	2.9.46 Mon	→ Bonavista Bay.	
	3.9.46 Tues.		
	4.9.46 Wed	Traced by Euler & Fred.	
	5.9.46 in St. John's.	7 th Sat → Hbr.	

1947.

- 7.6.47. Leamington arrived in AFx
8.6. Sunday
9.6. King's birthday
10.6. Sailed 1710 hrs Book admitted to hospital.
11.6. Lewisburg abeam at 2359.
12.6.
14.6. ~~13.6.~~ Arr. St. John's. 0130 hrs.
15.6. Sunday in St. John's.
16.6. Dp. St. John's. 1640 hrs. Banded Steve in.
17.6. Duc E. C. Bonarista, 0400 hrs. Herring Neck (Fogo-Baccalhao) 2230 hrs.
18.6. Dp 0600 Couch Hbr 2130.
19.6. Dp. Couch Hbr. 0600 Guispen at 1500. By-passed St. Anthony
20.6. Dp. Guispen 0330. Battle Hbr. 1030. Oil. Bob Young arr. 2230.
21.6. Dp. Battle Hbr. 0430. Off Staunton Hbr at 1200. Arr. Gready 2130.
Sunday 22.6. Dp. Gready 0440 6 mi. E. Georges Isl. Hamilton Inlet at 0830. → Rodney Munday. Off Indian Hbr
ca 1300. White Crocade ca 1430. Hemley Hbr. (W. side Brig Hbr. Isl.) 1530 (RCAF Sta.)
23.6. Dp. Brig Hbr. Isl. 0500. Cleared C. Harrigan ca. 1500. Double Isl. (USAAF Sta) 1630. (Sechiáluk Bay.)
24.6. Completed unloading CHS & Bob Young.
25.6. Dp 0520 - ^{before} Double Isl & Dog Isl. → Pomiáluk Pt → Hopdale ca 1730.
26.6. Held in Hopdale - Ice & fog.
27.6. Dp. Hopdale 0800 (Cape Harrigan blocked) Windy Tickle 1430. (with 8 other ships).
28.6. Dp. 1200. Returned to C. Harrigan.
29.6. Ice & fog bound C. Harrigan
30.6. Ice bound. C. Harrigan
1.7. Do
2.7. Do. Skipper & Davis Inlet for pilot ex. Winifreda.
3.7. Do.
4.7. Do.
5.7. Dp. C. Harrigan 1330. → Davis Inlet. Dp. 1745. Inisle passage till 2130.
6.7. Dp. 0445. Fog at 0730. Dp. 1350. Arr. Nain 1730.
7.7. Nain
8.7. Nain. Dropped anchor ca. 0130.
9.7. Dp Nain 0830. Arr. Moses Hbr. (rong fid) 1900. Hoist Zach's boat aboard.

Wilby

10.7. Dp. Moses Stn. 0430 - Truffed Tiedle - Arr. Hebron 1430.

11.7. Dp. Hebron 1030. Bell Isl - Saglek 1400 Arr. Ramah 2000.

12.7. Unloaded at Ramah.

13.7. Trampton dp. 0200.



BACK FROM NORTH—Two of the members of the Dalhousie University geological party which returned this week from a Summer survey and exploration assignment in Labrador are shown above with the souvenirs they brought back from the land of the Eskimos. At left is Harlow Fielding of Dartmouth, dressed in Eskimo garb and still wearing the beard he grew during his three months in the north. At right is Cliff Milligan, geology instructor at Dalhousie and second-in-command of the party with a polar bear skin and other souvenirs.

A band of 14 Halifax college students—some with shaggy beards and all with deep tans and memories of mosquitoes, black flies, Eskimos, granite hills and ice floes—are back home after a Summer spent along Labrador's rugged coastline and the forests stretching back into its remote hinterland.

They are part of the Dalhousie geological survey party that headed for the Arctic at the end of their studies three months ago to study rock formation, search for minerals and make surveys of undeveloped terrain. In charge of the group was Geology Professor G. Vibert Douglas, who with two of his students—Charles Smith of Dartmouth and Fred Whidden of Stillwater, Guysboro County—remained behind for a few extra days to complete assignments.

The others who came back by ship to St. John's, Newfoundland, and plane for the last leg of their trip home are Cliff Milligan, 91 Liverpool Street, Halifax, a geology instructor at Dalhousie and second-in-command of the party; Bob Cameron and Don Harris of Halifax; Harlow Fielding, Bob Roome and Lawrence Lamont of Dartmouth; John MacDonald and Max Marshall, Glace Bay; Dave Templeton, St.

**MORE ABOUT
Back From North**
Continued From Page 1

John's; Bob Slipp, Woodstock, N.B.; Dick Hill Lunenburg; Paul Harding, North Sydney; Andy Anderson, Annapolis; and Lloyd Davidson, Truro.

Mr. Mulligan said reports reaching his party were that one group still in Labrador had run across some stains of copper, but this could not be confirmed.

One party under Milligan covered the Romah Bay area on the northern tip of Labrador and for variety sake some members braved the 40-degree sub-Arctic waters, dotted with ice floes, for brief swims. A second party under Professor Douglas canoed up the Canairiktok River, trying to reach the Quebec border, but was held back to 30 miles by heavy rapids. The third party under Charles Smith of Dartmouth prospected over Mount Benedict and covered other portions of a 60-mile beat around Makovikk.

Not a single casualty was reported for the entire trip, although it was the first time in Labrador for all

except three of the group of 17. They all returned with extra weight and Harlow Fielding brought back a complete Eskimo outfit and a three months' growth of beard which he was still wearing today. Roome and Fred Whidden also returned home heavily bewhiskered, but lost no time in cutting their Summer crop.

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OUR ONLY PLACE OF BUSINESS

Lehigh and Bucks Counties over Democrat Phil H. Storch, president of the Lehigh Valley Newspaper Guild (C. I. O.).

The election was necessitated by the death of Representative Charles L. Gerlach, five-times Republican winner of the seat.

—Voters in Harmony Township are eyeing one another speculatively today.

In a special referendum vote yesterday on the question of liquor sales the drys won 101 to 100.

The wets had one consolation—there was no vote on the sale of beer, previously authorized in the township.

Four New Plants Are Closed

The rush of strikes in packing plants is spreading across the country this morning as another 1600 members of the United Packinghouse Workers of America walked out in Montreal. The strike—called at 6 o'clock this morning—affects the three Montreal plants, of Canada Packers, Modern Packers and Wilsil.

In Vancouver

About 320 employees of Canada Packers and Burns and Company plants in Vancouver stood ready to strike today to enforce demands for wage increases averaging 17 cents an hour.

Announcement late last night of the impending Vancouver walkouts came only a few hours after the United Packinghouse Workers of America (C. I. O.) had proposed that its wage differences with the companies be submitted to conciliation.

But almost simultaneously with the proposal, which suggested that Mr. Justice S. E. Richards of Winnipeg be appointed conciliator, word came from Edmonton that 400 workers at the Canada Packers' plant and 300 Burns workers there had voted in favor of a strike.

Some 3,500 union members have been on strike for two weeks at plants of Swift Canadian Company in Moncton, Toronto, St. Boniface, Edmonton, Moose Jaw and New Westminster.

Production Halted

MONTREAL, Sept. 10—(CP)—More than 1,500 employees of Canada Packers and Wilsil Limited went on strike here early today, halting production in Montreal's two major meat packing plants.

The strike action followed a vote taken last night among 400 to 500 members of the United Packinghouse Workers of America (C. I. O.). Canada Packers employs about 800 while Wilsil employs 700.

Spokesmen for both companies please Turn to Page 9, Column 7.

Ratify Pacts on Sept. 15

LONDON, Sept. 10—(AP)—The Foreign Office announced today the Allied peace treaties with the five former Axis satellite states would be ratified formally in Paris and Moscow Sept. 15.

The instruments of ratification of the Italian treaty will be deposited with the French Foreign Office in Paris. The instruments for Finland, Bulgaria, Romania and Hungary will be deposited in the Kremlin.