

landmarks for the mariner. The waters here are very shallow, in fact at ebb tide great mud flats appear between the main channel and the shores. It is therefore necessary for a vessel to stick closely to the channel. This is no easy matter particularly as it is continually changing its location. Great quantities of mud and silt are carried in suspension by the waters of the Nelson and deposited at its mouth. Huge cakes of ice are carried down the river following the spring break-up while others are blown in from the bay by storms or carried to and fro by the tide. The result is that the water's channel from the point where it first meets the tide until the open bay is reached is continually being filled in and gouged out in various places. Hydrographic surveys have determined this channel which is sufficiently deep to accommodate boats of considerable draft. It has been buoyed out and a careful pilot should experience no difficulty in following it. The ever shifting nature of the channel makes it necessary to replace these buoys from time to time while the heavy ice of the winter season prevents their permanent establishment from year to year. A few miles below Nelson the wreck of the *Allette*, grounded on these mud flats, looms up as a warning to the pilot to closely follow the buoys marking the channel.

With tide and current in our favour we quickly slipped out into the open bay and stood well out to sea in order to pass the Nelson shoals. For many miles after leaving Port Nelson the water is shallow and at low tide these shoals are exposed. Darkness prevented our seeing them but before retiring for the night we had rounded them and headed into a more northerly course. Our sleeping quarters below the forward deck were cramped and crowded. Descending by the narrow hatchway we found them warm and comfortable after the chilly breeze above and lost no time in settling down for the night.

Now a never-to-be-forgotten experience befell us in the shape of a howling gale from the northwest. The storm struck us about midnight and continued with unabated fury for about 24 hours. The velocity of the wind at times rose to between 60 and 80 miles an hour. The sea was lashed into exceeding roughness and our little tug was tossed about like a cork on the angry waves. There was no escape and the only course that remained was to keep her prow headed into the storm and battle against it with engines running at half speed. The hatchway was closed yet as wave after wave broke over the decks deluges of water found their way through various crevices and drenched our quarters most thoroughly. There was nothing for us to do but remain below and make the best of it. For my part I lay on my bunk and made a sort of canopy by stretching my camp canvas over me from head to foot. This warded off the heavier bursts of water but did not prevent me from getting thoroughly soaked.

One large wave breaking over the bow of the deck carried aft our barrel of drinking water and half a dozen sacks of coal. The remainder of the coal on the deck was thrown overboard to lighten the bow. Water found its way into the firemen's hold and at one time came within a few inches of reaching the fires beneath the boiler. By the most strenuous effort the pumps were able to hold it in check otherwise had it been necessary to draw the fires to avert an explosion the tug would have drifted to the mercy of the waves and everything would certainly have been lost.

The cook's galley was sadly wrecked. His stove was hurled from its stand, his cupboards were upset, his provisions tossed about and broken dishes scattered promiscuously in every direction. As no one thought of eating it mattered little at the time. The magnetic influence on the compass is sufficient on Hudson Bay to seriously interfere with its usefulness in navigation. The captains had this additional disadvantage to contend with and in this connection proved their mettle. In spite of the howling gale and blackness of night Capt. Kilman managed to catch a glimpse of Polaris through a temporary rift in the clouds. With his handy sextant an observation was obtained and due allowance for the error of compass was accordingly made.