us hopes that we should now see no more of this kind; while, although we had the prospect of being obliged to lie to for moderate weather, we considered this gale to be much in our favour.

After running under very little sail till midnight, at which time we had fetched from the furthest point of our progress in 1818 to the head of Prince Regent's inlet, in thirty-six hours, we brought to under the storm traysail and storm fore-staysail; the topsail having been previously handed, and the topgallant yard down.

It is now important to remark, on another subject, that while we were off Cape Yorke, and when the motion of the vessel became considerable, our compasses ceased to be of any use. Pope's, Gilbert's, and Alexander's, each of which had been used on the voyage, all ceased to traverse about the same time; and we were consequently obliged to shape our courses by means of astronomical bearings, deduced from the sun in the manner which I had practised in my first voyage. Thus, when we had ascertained the bearing of any object ahead, we steered for it without regard to the now useless needle; though when the weather became thick, and the sea heavy, this mode of proceeding either became difficult or required extreme caution.

The ice soon appeared to leeward in detached pieces, and the weather became thicker after midnight, but there was no appearance of any danger; so that Commander Ross and myself were enabled to take some rest, after the fatigues of the last forty-eight hours, leaving the charge of the vessel to our experienced and excellent mate, Blanky.

August 12. If we had ever doubted his care and ability, the event of this,

following, day fully justified our confidence in him. At two o'clock in the morning a heavy pack of ice, which had been concealed from us by the fog, suddenly made its appearance at only three cables' length under our lee, being then only recognised by the tremendous breakers that were surging over it. Deciding at once, that the only chance for us was, to weather the end next the land, he let fly the storm traysail sheet, and putting the helm up, gave us notice of the danger, immediately proceeding to hoist the storm jib and reefed boom-foresail, which had been kept in readiness for such an emergency.

We found it nevertheless impossible to keep clear of a piece of ice in wearing; yet, though it gave us a violent shock on the larboard bow, it assisted in bringing the ship's head the right way. It was still doubtful whether we could clear the end of the pack of ice which was now on our lee bow, with the sea breaking over it. We therefore set all the sail that we could carry, and at last weathered it only by the ship's length; finding suddenly the most delightful relief, in quitting a turbulent sea for one that was as smooth as glass; a quiet retreat in which we could venture to finish our night's rest. We were indeed perfectly sheltered from the gale by this great mass, which was hourly gaining in size and solidity, by attaching the smaller pieces that were floating near it.

At six the weather began to moderate; and, venturing to set the mainsail, we passed this ice and stood towards the land. In half an hour we saw the place where the Fury was wrecked, with the poles of the tents standing; but we could not discern the ship, though we were sometimes willing to think that she was distin-

guishable. To our great mortification, however, we could not reach the spot; and we now saw that a strong southerly current or tide was hurrying us away from this unlucky place. A thick fog obliged us to wear, and return to our shelter under the ice we had just quitted.

During the day, it being more moderate, with clearer weather, we made several tacks toward the land, but always found that we were losing ground. We therefore put on the steam at four o'clock; but, as the feeding pump went immediately out of order, it was to no purpose. At five, nevertheless, we had reached a point about five miles to leeward, or to the south of Fury point, at which time the wind and weather had both improved. Commander Ross immediately set out in the whale boat to look for an anchorage, and we followed, with the ship, now under steam and sail both, into the bay as it appeared to us, but inlet as it afterwards proved, which takes a direction due east from this part of the coast. He had found a place, as he judged, which would afford us security for the night; but we had discovered in the mean time that there was an eddy current setting along shore to the north-east, in the direction that we wished to go, and that there was a clear line of water inside the masses of ice, which seemed to be aground. We therefore stood towards this place, and found that we had just sufficient water to pass within musket-shot of the land.

The shore here was at first sloping; but, further to the northward, we found that the land rose from the sea in perpendicular cliffs from two to three hundred feet in height. We easily ascertained that they consisted of limestone, presenting the appearance of

a horizontal stratification; but as to any other details, our geological opportunities extended no further. A very large white bear came down to the beach, as if to gratify some curiosity respecting us; but it did not follow long, nor come within gunshot of the ship. It soon became quite calm; but between the eddy and the steam we were carried at the rate of two miles an hour.

It was quite clear to-day, and it was now we discovered that our supposed bay was an inlet. It appeared to be very deep, since we could see no land according to its direction, and we concluded that it proceeded far to the westward. As this chanced to be the birthday of the Duchess of Clarence, the bay, which constituted the first point of our discoveries in the present voyage, was named Adelaide bay, and the anchorage which Commander Ross had selected, Adelaide harbour. August 13.

At two o'clock we had made eight miles; when observing that the tide had changed, we made fast for the night, estimating that we were five or six miles from Fury point. Our ship was secure inside of some large pieces of ice which were in a state of decay, while that on the outside was setting fast to the southward. The more we saw of this coast, the higher the cliffs were found; while in some places projecting into horizontal shelves, and at others putting on an aspect of walls, castles, and turrets, with shapes even more fantastical, as is not uncommon in some of the deposits of this rock in other parts of the world. At short intervals also they were intersected by deep ravines, conveying streams of water, or showing the marks of former torrents.

At seven the wind appeared to come from the westward; and

the tide, which had fallen, rose with great rapidity, so as to carry off the ice which obstructed while it protected us; thus leaving an open passage to the northward. The land now began to trend in this direction, and we accordingly made sail; but had not proceeded above a quarter of a mile, when the wind and the current came against us, and we were obliged to make fast to a piece of ice which lay aground.

In the mean time the steam was got up; and the wind being light, we cast off a second time, but made little progress, owing to the feeble action of the engine, and the defects in the feeding pump, which we could not here take time to repair. In fact, the wheels could make but eight revolutions; giving us but a mile an hour. We therefore were obliged again to moor to a piece of ice.

On further examination of the working of the engine, I now however found that it was possible to procure as much steam in fifteen minutes as would keep the engine in action for about an equal period, and with thirteen or fourteen revolutions of the wheels; I therefore adopted a new plan for converting it to some use. A whale line was carried out as a warp about two cables' length ahead; when the engine being stopped so as to allow the steam to accumulate, the vessel was warped on by it; and this being done, the steam was again set on. Thus, alternately steaming and warping, we proceeded along shore against the wind and the current; though sometimes compelled by the ice to haul in so close, that we were within a pistol-shot of the beach, with only a few inches water to spare beyond our draught of seven feet six inches.

During all this period of extraordinary and laborious exertion, lasting from six in the morning till two in the afternoon, the utmost anxiety prevailed among the men throughout the space of five miles, and especially as we expected to turn the successive points which one after the other obstructed our view along the shore. Every one that could be spared from the work below was at the mast-head as soon as he could get there; and endless were the conjectures respecting the wreck of the Fury for which we were searching. At three, Commander Ross, who had then been her lieutenant, recognised a high projecting precipice, as being one which was about three miles to the northward of her place; and as we advanced, we saw at four, the tents themselves. One only seemed entire, and the rest, being common camp tents, displayed only their poles and ropes, with a few tattered remains dangling from their tops.

Commander Ross was then detached with a boat to seek for a safe anchorage, and soon returned with the welcome intelligence of an excellent harbour formed by a large iceberg and two small ones, situated about a quarter of a mile to the southward of the mound where the stores had been deposited. We therefore laboured with new spirit and energy, in spite of a new difficulty which obliged us to keep outside of the ice that was aground on Fury point. The water was so shallow within it as to be quite insufficient for us; the stones appearing above it within half the breadth of the ship, so as to show that there was a wall of rock here, by the side of which we were obliged to creep within a few yards, lest we should be swept away by the current, which, but a few fathoms

further out, ran very strong against us. Here we were also much perplexed by the floating pieces of ice which it was impossible to avoid. But this also served at last to show us the peculiar advantage of the construction devised for our paddles. By turning off the ice they escaped all damage; and, at half after eight, the ship was moored in the ice harbour, which had sixteen feet at low water.

CHAPTER VIII.

EXAMINATION OF THE FURY'S STORES—EMBARKATION OF THOSE WHICH WE INTENDED TO TAKE—DEPARTURE AND PROGRESS DOWN THIS SHORE—SEVERAL NEW DISCOVERIES MADE AND NAMED—OBSTRUCTED BY THE ICE, AND MOORED.

THE Victory being now securely moored in a good ice harbour, within a quarter of a mile of the place where the Fury's stores were landed, we were anxious to examine the spot; and having ordered the men a good meal, with the rest to which they were so well entitled, I landed at nine with Commander Ross, Mr. Thom, and the surgeon. We found the coast almost lined with coal; and it was with no common interest that we proceeded to the only tent which remained entire. This had been the mess tent of the Fury's officers; but it was too evident that the bears had been paying frequent visits. There had been a pocket near the door where Commander Ross had left his memorandum book and specimens of birds; but it was torn down, without leaving a fragment of what it contained. The sides of the tent were also in many places torn out of the ground, but it was in other respects entire.

Where the preserved meats and vegetables had been deposited, we found every thing entire. The canisters had been piled up in two heaps; but though quite exposed to all the chances of the climate, for four years, they had not suffered in the slightest degree. There had been no water to rust them, and the security of the joinings had prevented the bears from smelling their contents. Had they known what was within, not much of this provision would have come to our share, and they would have had more reason than we to be thankful for Mr. Donkin's patent. On examining the contents, they were not found frozen, nor did the taste of the several articles appear to have been in the least degree altered. This was indeed no small satisfaction; as it was not our luxury but our very existence and the prospect of success, which were implicated in this most gratifying discovery. The wine, spirits, sugar, bread, flour, and cocoa, were in equally good condition, with exception of a part of the latter which had been lodged in provision casks. The lime juice and the pickles had not suffered much; and even the sails, which had been well made up, were not only dry, but seemed as if they had never been wetted. It was remarkable, however, that while the spun yarn was bleached white, all appearance and smell of tar had vanished from it.

We proceeded now to the beach where the Fury had been abandoned, but not a trace of her hull was to be seen. There were many opinions; but all were equally at liberty to conjecture what had become of the wreck. Having often seen, however, what the moving masses of ice could do on this coast, it was not difficult to

guess in general what we could not explain in detail. She had been carried bodily off, or had been ground to atoms and floated away to add to the drift timber of these seas. At any rate, she was not to be found; we had seen no appearance of her during the ten miles that we had coasted within pistol-shot of the shore to the southward of this place, and we now examined it for two miles to the northward with no better success.

We therefore returned on board, and made preparations for embarking a sufficiency of stores and provisions to complete our equipment for two years and three months; being what we expected to want on the one hand, and to obtain on the other. I need not say that it was an occurrence not less novel than interesting, to find in this abandoned region of solitude and ice, and rocks, a ready market where we could supply all our wants, and, collected in one spot, all the materials for which we should have searched the warehouses of Wapping or Rotherhithe: all ready to be shipped when we chose, and all free of cost; since it was the certainty of this supply, and a well-grounded one it proved, that had formed the foundation of the present expedition.

A list of our wants was accordingly made out by Mr. Thom, who remained on board to receive the stores, together with the leading mate and a few hands. On shore, the rest of the crew were ready with the boats to receive and transport whatever was to be taken; and the steward together with the surgeon were employed in selecting whatever appeared to be of the best quality. Yet all that we could possibly stow away seemed scarcely to diminish the piles of canisters, of which we embarked whatever we could, together with

such flour, cocoa, and sugar, as we wanted; all that we took being in excellent condition.

August 14. We continued our embarkations this day, including ten tons of coals; and, after allowing the men some rest, we contrived to get these, together with all the provisions and a part of the stores, on board before dinner time. We had found the spare mizen top-mast of the Fury; and this was selected by the carpenter for a new boom, in place of the one that we had lost. We also got some anchors and hawsers, together with some boatswain's and carpenter's stores to make up our deficiencies. Some of the best of the sails were taken to make housings; having found that belonging to the Fury damaged from having been ill made up, and from having lain in a situation which prevented the melted snow from running off. A skreen lined with fearnought was also found in tolerable condition; but the bears had overset the harness cask, and devoured nearly the whole of the contents. We found that some of the candle boxes had been entered, either by ermines or mice; one of them being entirely emptied, and the others partially. Though bleached, and especially on the upper side, as I already remarked of the spun yarn; none of the ropes were rotten, the cables seemed perfect; and thence we concluded that the canvas of the tents had merely been blown away by the wind, after the bears had loosened the cloths at the foot, in attempting an entrance.

The chain cable and the carronades were more or less covered by the small stones on the beech, and except being slightly rusted, were just as they had been left. The powder magazine, detached from the rest of the store, was unroofed, and the waterproof cloth

of it in tatters; but the patent cases had kept the gunpowder itself perfectly dry. We selected from it what we thought we should require; and then, in compliance with Sir Edward Parry's request and our own sense of what was right, caused the remainder to be destroyed, lest it should prove a source of injury to any Esquimaux who might hereafter chance to visit this spot. And with this we ended our new outfit: storing ourselves, somewhat like Robinson Crusoe, with whatever could be of use to us in the wreck; yet if thus far greedy, having in view but the execution of our plan, and precluded by our limited means of stowage from encumbering ourselves with superfluities.

In the evening we obtained sights for the chronometers, and found that they gave a difference of 40′ in longitude from that which had been laid down in the chart. And as this was the first place of verification which we had obtained since leaving England, we carried on both sets of longitudes in our proceedings, till it should be ascertained by a series of observations which was nearest the truth.

The tides were found to be very irregular; but not so much at the time of low or high water as during the rise and fall. On the first night, the tide rose seven feet, the flood being all the while from the northward; but the following two were three feet less, though, in consequence of the approaching full moon, they ought to have increased. In the offing, both during the flood and the ebb, the stream took the direction of the wind. Several whales were seen this day, and shoals of the white whale were observed running up and down the coast.

It had been nearly calm for two days; but at eight in the afternoon a fresh breeze sprung up from the northward, and the ice harbour that we lay in began to break up. A dogkennel for which we had no use, was landed above high water-mark, and two bottles were left in it, containing an account of our proceedings up to that date. The boats were then hoisted up and secured, as was the Krusenstern in the usual manner; and casting off the ship from the ice we made sail for Cape Garry. It is true that the opening which we had seen leading to the westward held out the appearance of a passage, but it was less clear of ice, and had a much more
August 15. feeble current than that to the southward. It was this also which seemed likely to lead us soonest to the American continent; while, in addition to all these reasons, we had the temptation of a fair wind in this direction.

At midnight the weather became thick, and soon after it rained in torrents, when we lost sight of land. As I formerly remarked, our compasses had ceased to traverse whenever the ship had any motion; and, as we had no means therefore of ascertaining the true course, we steered by the wind, the direction of which we had observed before it became thick, and by the bearing of a stream of ice which we had noted: under which guidance, and using the pieces of ice as marks, we contrived to make Cape Garry very well. It was about four miles from us at eight o'clock in the morning; and, at nine, we sounded at about a quarter of a mile, in twelve fathoms water.

The land here was comparatively low, but apparently of the same limestone; and, as this was the furthest extremity of the coast which

had yet been discovered, our voyage now began to acquire its peculiar interest, since as yet we had seen nothing that was not more or less known. It had also been conjectured that there was an open sea between this point and the American continent: but this we soon found to be erroneous; since, after turning a little to the westward, the land, as far as we could judge, extended in a south-south-west direction, and appeared to be continuous.

At a quarter of a mile from the beach we found bottom from ten to twelve fathoms, and continued to run in this depth, and at the same distance from the shore, at the rate of three miles and a half in the hour, passing through many pieces of heavy ice, which, while they kept the sea smooth, assured us that the water continued sufficiently deep for our ship. The greatest danger therefore which we had to apprehend, was that of being suddenly embayed; and we therefore kept ourselves in readiness to haul off or to anchor as might prove to be necessary. Though the risk too was considerable, we could not afford to lose the fair wind while the sea was sufficiently open.

At ten we came to a fine bay; and, sailing round it, found it to be about a mile in length and in breadth; and as, by a singular coincidence, this proved to be the birthday of our worthy builder, Mr. Fearnall, I conferred his name on it, and those of two members of a family to whose kindnesses when fitting out we were much indebted, on the capes by which it was formed. Near the bottom of this bay, that, which at a distance appeared to be sand, proved to be limestone; and fragments of the same rock were also brought up by sounding. The land was here quite clear of snow and ice.

At eleven we passed the southern point, and, a little before noon, came to the entrance of a river discharging itself by a multitude of channels; exhibiting a deposit of alluvium which is far from common on these northern shores, and appearing to flow through a considerable space inland. It was named Lang river, after my friend of Woolwich yard who had so much exerted himself for our former expedition: after passing this, the land trended a point more to the westward. At two we passed another similar, but much smaller stream; and, two miles further, a remarkable peaked hill which I named Mount Oliver. The other names of this part will be found in the chart.

A point appeared shortly, jutting out here to the eastward, about which were collected a number of icebergs aground, indicating the presence of a shoal, extending about a mile off; and a narrow inlet opened to the northward of it, which appeared to be full of ice, and was probably shallow throughout, considering that there were but ten fathoms water on the outside. This opinion was confirmed by finding that there was here no appearance of any current, either into or out of it, though there was a very strong one running outside. I named this inlet Hazard inlet.

Round this point we found a very small island, to which I gave the name of Ditchburn, and the land within it Boothia, at the distance of a mile, appearing to be continuous in the general direction already visible. It now fell nearly calm; but, while the ice became thicker and heavier towards four in the afternoon, the fog cleared away, and there broke on our view a range of mountains

rising beyond the land that we had been coasting, which we now saw clearly to be a low and flat tract, continuous eastward with this elevated region, and consisting, not of an uninterrupted plain, but of a series of low grounds and islets, among which we could but ill discern what was a real island and what was connected by an isthmus with the shore.

Many whales of a light colour came close to us; appearing to be quite indifferent to the presence of the ships; and if this proved that they had no experience of the fishery, so was it evident that here the whalers might find an easy prey, if it could be expedient for them to make the trial, and such trials should be as successful as ours. The mainland now appeared quite blue as the sky continued to brighten, being as clear of snow as the lower grounds. Pursuing our course, we observed a low island surrounded by ice-bergs, and subsequently a low point, from the end of which several islets and rocks stretched out, appearing to cover a large bay formed in the high blue land and full of close-packed ice. A low tract was also visible to the southward of this; beyond which the mountain range extended, as far as the eye could reach, in a south-south-east direction as far as we could judge.

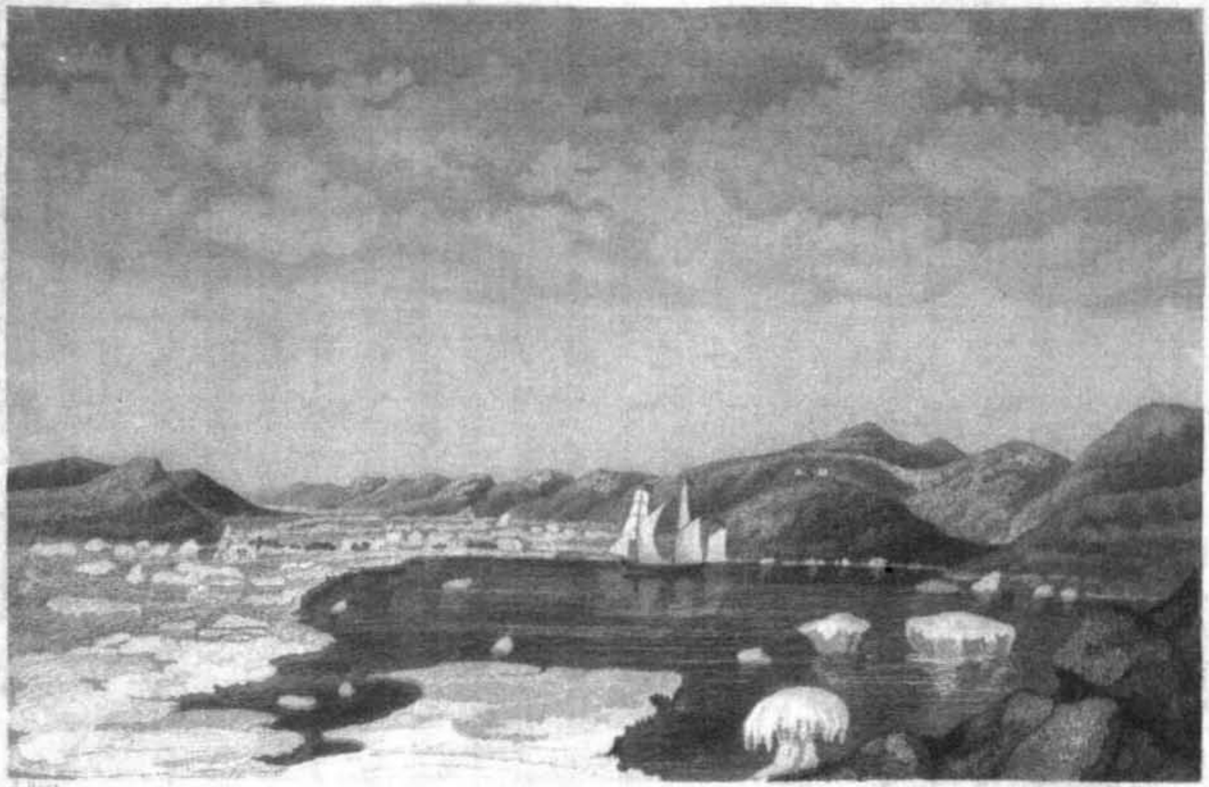
We could not here, however, approach nearer, on account of a tract of closely-packed ice, which formed a crescent extending from the shore round to the east and north-east. This was the first time that our progress had been entirely obstructed; and it was only now we found that we were still too early in the season to explore this passage; a discovery that consoled us for all our delays, in spite of which we were now convinced that we had made a greater

progress than we could originally have expected in a single season, as we should also have gained nothing by being earlier.

At eight in the evening the wind came fresh from the north-west, which gave us an opportunity of examining more minutely the possibility of penetrating further; but no opening was to be found, neither was there any clear water visible over the ice, in any direction south of the east or west. We were therefore obliged to haul off and beat the whole night among the drift ice, which was streaming from the north-west, out of the different bays and creeks. Our estimated distance was about thirty miles south of Cape Garry.

August 16. The wind continued about north-west, and we kept on beating to gain the weather shore, near the last point we had passed, which now bore north-west by west. At two in the morning we got near to the land, and made fast to an iceberg about musket-shot from the beach, in three and a half fathoms water, being at the common entrance of two beautiful little harbours. By the time we were secured and the sails furled, it was too late for the usual church service; and as the men had undergone great fatigue, they were allowed the hours for rest. I went on shore with all the officers, to take formal possession of the new-discovered land; and at one o'clock, being a few minutes after seven in London, the colours were displayed with the usual ceremony, and the health of the King drunk, together with that of the founder of our expedition, after whom the land was named.

On exploring this spot it was found to be the southern extremity of the low land that we had traced, and that it joined the hill tract



TAKING POSSESION.

by an isthmus. Though formed of limestone, it was covered by scattered blocks of granite, indicating the probable nature of the mountainous country beyond. On the east side the rock was quite bare, but the west displayed some vegetation, with plants in flower, that were collected for the *hortus siccus*. An old Esquimaux grave proved that it had been visited by some of this wandering tribe; and we found the bones of foxes, and teeth of the musk ox. A bird resembling a sand lark was the only living animal we saw.

From the highest part of this land, which was upwards of a hundred feet above the level of the sea, we obtained a good view of the bay and the adjoining shores, and had the satisfaction to find that the ice was in motion and fast clearing away. We therefore resolved to wait patiently till we could see an opening; and proceeded to the northern quarter of this spot to make some observations on the dip of the magnetic needle. Here we found two Esquimaux huts, but empty, together with a fox-trap, containing some of the bones of this animal; we went afterwards on board to survey the northernmost harbour, which was found to have sufficient water for us, and to be sheltered from both wind and current. The tide rose four feet in the day, and five and a half in the night; high water being at twelve o'clock on the second day after the full moon. Though the wind was unaltered, the clouds continued to cover the sun so as to prevent any observation. The sea abounded in small marine animals, of which some were added to our collection. To this place I gave the name, Brown island, after the amiable sister of Mr. Booth; the inlet was named Brentford bay, and the islands Grimble islands.

August 17. The sun appearing for the first time this morning, sights were obtained for the chronometers and the variation. The observations here made on the dip of the magnetic needle, gave 89°, being the greatest that had yet been observed, and an increase of one degree since we left the Fury's beach. As the variation also was westerly, we expected that we should find, or pass over the magnetic pole, which, under such a dip, could not be far distant.

Before noon we had a perfect view of the land, the point which we had next to pass being due south of our present anchorage; and it was a promising sight to observe that the ice still continued to separate and dissolve, so as to justify our attempting to work through it. The latitude observed at noon gave 71° 59′, and the longitude by chronometer, corrected to Fury point, 93° 32′; making the place where the flag was hoisted, exactly 73° N, and 93° 40′ W. We had here left a bottle containing an account of our proceedings, and had well secured it by means of a cairn of stones, on which was placed a post.

The tide having risen during the night, and floated the iceberg to which we were fast, we were obliged to cast off and let go our anchor in ten fathoms, about two cables' length nearer the point of the island than before. The steam was then got ready; and, there being a light air of wind, we took advantage of this and of the tide, weighed, and stood out for the opening that seemed to lead to the southern point, which was ten or twelve leagues distant. It soon, however, fell calm, and the engine acting very badly, we made little progress.

At six we were to the eastward of a large rock which seemed to

be part of a reef extending between the points of the inlet in view to the westward, and which was full of ice. Near this rock there were many whales, apparently feeding and enjoying themselves in perfect security, and one large one came very near the ship. Whenever also the paddles were in motion, the seals were roused up, and seemed to be very abundant.

At eight o'clock a breeze sprung up from the northward, enabling us to approach the land, which was tolerably clear of ice till midnight; but the engine working to little purpose it was stopped, and the paddle hoisted up. Unfortunately, the weather became thick at ten, so that we could only shape our course by the wind: a hazardous guide, as it might shift, without our being able to perceive it, for want of marks or compass, and thus lead us into peril. Still it was a risk worth venturing; since it was by working to the southward, that we might get hold of the land which we presumed to be the American continent.

We continued to run at the rate of three and a half miles in the hour, among pieces of heavy ice, against some of which we could not avoid striking; receiving many hard blows, but no damage. At four, however, it became so thick, and the ice so close, that we could penetrate no further, and therefore made fast to a floe which we supposed to be near the point in question, since we had run about twenty miles. The depth of water was at first twenty-two fathoms; but we soon increased it to thirty-three by drifting. There were sufficient indications that the wind had continued true north, and therefore that we had steered south and a little easterly. About ten the weather cleared, so as to enable us to see our way

August 18.

August 17. The sun appearing for the first time this morning, sights were obtained for the chronometers and the variation. The observations here made on the dip of the magnetic needle, gave 89°, being the greatest that had yet been observed, and an increase of one degree since we left the Fury's beach. As the variation also was westerly, we expected that we should find, or pass over the magnetic pole, which, under such a dip, could not be far distant.

Before noon we had a perfect view of the land, the point which we had next to pass being due south of our present anchorage; and it was a promising sight to observe that the ice still continued to separate and dissolve, so as to justify our attempting to work through it. The latitude observed at noon gave 71° 59′, and the longitude by chronometer, corrected to Fury point, 93° 32′; making the place where the flag was hoisted, exactly 73° N, and 93° 40′ W. We had here left a bottle containing an account of our proceedings, and had well secured it by means of a cairn of stones, on which was placed a post.

The tide having risen during the night, and floated the iceberg to which we were fast, we were obliged to cast off and let go our anchor in ten fathoms, about two cables' length nearer the point of the island than before. The steam was then got ready; and, there being a light air of wind, we took advantage of this and of the tide, weighed, and stood out for the opening that seemed to lead to the southern point, which was ten or twelve leagues distant. It soon, however, fell calm, and the engine acting very badly, we made little progress.

At six we were to the eastward of a large rock which seemed to

be part of a reef extending between the points of the inlet in view to the westward, and which was full of ice. Near this rock there were many whales, apparently feeding and enjoying themselves in perfect security, and one large one came very near the ship. Whenever also the paddles were in motion, the seals were roused up, and seemed to be very abundant.

At eight o'clock a breeze sprung up from the northward, enabling us to approach the land, which was tolerably clear of ice till midnight; but the engine working to little purpose it was stopped, and the paddle hoisted up. Unfortunately, the weather became thick at ten, so that we could only shape our course by the wind: a hazardous guide, as it might shift, without our being able to perceive it, for want of marks or compass, and thus lead us into peril. Still it was a risk worth venturing; since it was by working to the southward, that we might get hold of the land which we presumed to be the American continent.

We continued to run at the rate of three and a half miles in the hour, among pieces of heavy ice, against some of which we could not avoid striking; receiving many hard blows, but no damage. At four, however, it became so thick, and the ice so close, that we could penetrate no further, and therefore made fast to a floe which we supposed to be near the point in question, since we had run about twenty miles. The depth of water was at first twenty-two fathoms; but we soon increased it to thirty-three by drifting. There were sufficient indications that the wind had continued true north, and therefore that we had steered south and a little easterly. About ten the weather cleared, so as to enable us to see our way

August 18.

to the westward; and we cast off from the floe to which we had made fast when we had first stopped, since it still continued drifting to the north-east.

We then stood to the westward through ice which was often so thick as entirely to stop our progress; and, after much labour by warping, got within sight of the land, which was low and encumbered by a continuation of the reef of rocks which we had previously seen. As it was, however, possible that there might be a deep channel near the land, I determined to cross this reef, which we accordingly attempted in a depth of four fathoms, at first, which gradually shoaled into two, thus leaving us little more water than we could venture to stay in. Here we made fast to a floe, and sent the boat forward to sound; thus discovering that there was no passage near the land, and being compelled to return by the way that we had attempted.

We were favoured in this by the wind shifting a little more to the westward, and were enabled to reach the deep water by six o'clock. We could not, however, discover how far we had proceeded since yesterday, since we had no observations at noon. Holding on, nevertheless, we forced our way through the lanes of water and the loose ice before us; receiving many other severe rubs, but no damage either to the ship or the boat, and, before midnight, succeeded in getting into some clear water that seemed to lead along the land to the southward. Here the temperature of the sea was 32°, the wind being due north.

August 19. We continued to stand to the southward without interruption, till four o'clock on this morning, when, in attempting to pass

between two large pieces of ice, they suddenly closed, so as to give us a considerable squeeze, but without any injury; while we ultimately forced our way between them. Soon after this it was evident that the clear water was nearly at an end; and as the wind had freshened, we had no choice but to make fast for protection, to the largest piece we could find. This was done at five o'clock; and the weather becoming clear a little before eight, we found that the land bore from north-north-west to south by east, and the nearest point, which was about three miles off, west by north. There were now forty-five fathoms water; but we were closely beset by the ice, which, as it was drifting down on the piece to which we were fastened, carried this on the next to leeward. The Krusenstern was now cast off and placed in a natural dock near us; and towards noon we found that we had drifted several miles along the land to the southward.

We had here thirty fathoms; and the shore nearest us was a flat, smooth land, with a low cape, which I named Charlotte. Behind this was a range of hills, of no very great apparent height, but blue, and clear of snow, while extending further south than the lower land. The ice, too, seemed to be all drifting in that direction. Some sights obtained for the chronometer gave the longitude 94° 40′; but we were obliged to estimate the latitude at 71° 20′, as we could obtain no meridian altitude of the sun.

Before noon the ice, which was the heaviest we had yet seen, came down on us with great pressure, and the rudder was barely, yet but partially, unshipped in time to save it. We continued to

drift to the southward, pretty smoothly, together with the ice, until eight; when it slackened a little, so as to give us the means of entirely extricating the rudder, which was then hoisted up and laid across the stern. Not long after, some fresh masses of ice lifted the Krusenstern nearly out of the water, and turned our own head to the shore; but after this we lay quiet all night, in depths varying from fifty-five to thirty-two fathoms; while, by the marks on the land, we could see that we were drifting southward with the whole body of ice. At midnight the temperature of the air was 36°, and that of the water 30°; the nearest land being about four miles off.

August 20. The weather was more clear this morning than it had been since Sunday, and we had a good view of this newly-discovered land, which extended from north 25° west to south 20° east. We had been drifted so close to the low point nearest us, that carrying the characters of the preceding in our eye, we could see that this consisted of the same limestone. It was a smooth tract, as far as it was visible, which was over an extent of ten miles, without either depressions or rising grounds. That behind it offered, as it had done before, a complete contrast of character; having the ruggedness and irregularity of surface which marks the granite or analogous rocks, and the atmospheric colouring making it appear of a dark blue.

The coast was broken and hollowed into little bays, and skirted by rocks and small islands; one of which appeared about a mile in length, elevated at the western side, and terminating in a low point to the eastward; whence we concluded that such was

the general elevation and tendency of the limestone, flat as it might have appeared to us when seen in a different direction. The latitude observed here at noon was 78° 59′, and the longitude 93° 2′.

The ice still continued closely packed and drifting, with several lanes of water among it. Many whales were seen, together with some seals; but we could not contrive to take any of the latter. The soundings exhibited fragments of granite and limestone; and the temperature of the air and water were, respectively, 39° and 32°. We aired the small sails and the people's clothes; and several matters were done in the ship in the carpenter's department, and in that of the engineer; especially in clearing the pipes of the coke dust by which they were choked.

The wind was variable during the day; and, by the marks on the shore, we could see that we drifted, sometimes to the northward and at others to the southward, as the ice moved; invariably deepening the water in the latter direction, and finding it vary from 42 to 69 fathoms, with a calcareous muddy bottom and stones. The motion and state of the ice formed an anxious subject, to those especially to whom this region was new: we, who were experienced, were easily consoled for such detention as this, by recollecting how much further we had already penetrated than former expeditions, though under the many disadvantages by which we had been attended. There was not, indeed, any immediate prospect of a release; and even we who had acquired experience from other voyages in these regions, were somewhat disconcerted by finding that a formation of new ice was commencing on the holes near

the ship's side; the thermometer, for the first time, falling as low as 29° in the water, while the air was only 30°. Still we thought that the clear water near the land was increasing in dimensions, and the great packs of ice becoming slacker.

CHAPTER IX.

ATTEMPTS TO WORK ALONG SHORE—DISCOVERY OF PORT LOGAN—LAND THERE—TRACES OF ESQUIMAUX—LABOURING AMONG THE ICE—DISCOVERY OF ELIZABETH HARBOUR.

ON this day there was a great and sudden change of that threat- August 21.
ening temperature. It was again, to the feelings, like a summer day in England, and the thermometer rose to 38°, as that of the sea did to 31°; this change having commenced at four o'clock in the morning. Much of the new ice dissolved therefore, more sea appeared open, and we had an excellent view of the land; the atmosphere being as clear as the air was calm.

The shore still displayed the same flat features, forming a crescent of about sixteen miles in extent, and to the north of the point which the ship faced. At that place a small island was discernible, and the shore still seemed skirted by small rocky islands, which appeared to form many harbours and creeks. We were not more than four miles from the beach; but could not by the telescope discover any living creature except two large whales. At noon the observations showed that we were a mile and a half further south than on the day preceding, but we had no sights for the longitude.

The ship continued beset, and went on drifting with the ice, in all directions, as the wind chanced to vary, while the depth of the water increased to 87 fathoms. The men were employed, in their several departments, about the rigging and the engine, and in fitting a collar and bits for a new bowsprit. Towards the evening the slacking of the ice was more perceptible, and a lane of clear water to the south-east was discernible by the terrestrial refraction. The Krusenstern, which had continued raised on the ice, dropped into the water, and there was a considerable pool round the ship.

August 22. This day, being almost calm, the ice remained in the same state. The ship was warped round to the north side of the floe, where there was a larger extent of water; and it was in a better situation in case the ice should open. In the morning we were visited by a large whale, and after breakfast by a bear, which was wounded by a shot, but escaped on some of the loose ice, and then plunged into the water. Many seals were shot during the day, but they all sank, so that we obtained none. A second bear, in the evening, was similarly wounded, but escaped in the same manner.

At noon the latitude showed us that we had been drifted three-quarters of a mile to the north; as we found ourselves a mile off the shore, by the bearings of the land. Owing to the clearness of the day we had the best view of the coast that we had yet obtained; and as we could more certainly perceive a line of clear water near it, our incapacity to extricate ourselves from the ice was the more provoking. The temperature of the air rose to 40°, and that of the water to 35°: the land, in the evening, becoming very much ele-

vated by the refraction, so as to exhibit the open water along the shore with great distinctness.

Early this morning the wind came from the south-east, and rendered it necessary for us to cast off from the floe which had been our anchorage for so many days; when the ice having slacked, we were able to get half a mile nearer to the land. At nine, however, we were again obliged to make fast to a piece of ice which we could not pass. Being Sunday, divine service was performed. After dinner we got two miles nearer the land, by sailing and warping; but at six we were again obliged to bring up at a large floe, in fifty fathoms water. The temperature of the air varied from 35° to 37°, and that of the water was about 31°. It was altogether a beautiful day, with a clear sky and a light breeze. August 23.

We saw here some sea unicorns and many seals; and, during the evening, found ourselves drifting to the southward, though we had made some northing in the morning when under sail. No clear water was seen on this day except to the north-east; but the ice was apparently lighter, and it had not frozen during the preceding night. The ice being too unsteady for the artificial horizon, no observations were procured. The weather continued fine at midnight.

The morning, being calm, gave us some hopes of getting nearer to the land, especially as the ice seemed sufficiently opened to allow us to force the ship through it. The engine was therefore got ready, and we began to propel with the paddles and icepoles at seven o'clock; so that, although the engine acted very ill, we succeeded, by two, in getting hold of a large iceberg which lay aground August 24.

about a mile from the low point which bore south-west when we started. About noon, a breeze had however sprung up from the eastward, and thus checked our attempts to get further south at this time.

We were fortunate, nevertheless, in having secured ourselves to this immovable rock of ice; since, as the evening came on, the whole pack which we had quitted began to drift with great velocity to the northward, showing us what our own fate would have been had we remained with it. The ice to which we were fast was aground in seven fathoms; and after this the water rose above four feet; the tide beginning here to the southward, while that in the offing was running in the contrary direction. The weather being cloudy, no observations were made, but at midnight the air was at 32° and the water at 30°. Many seals were seen, and the lead brought up limestone. Our position was in the middle of a large bight, and we had closed in the island to the southward.

August 25. We had fully resolved to try the steam, but the wind freshened against us before long, to the exact degree, though no more, that would have rendered it useless, feeble as was all the power it could exert. On no occasion was this want of power more provoking; since if it could but have forced us two miles an hour, we should have been able to gain the most distant point in view, which was about sixteen miles off. We tried what we could do, but to no purpose; so that we were obliged to console ourselves in being at least quiet, and in a better place than the one that we had left; since it had now drifted many miles to the northward, while we

could see immense masses of ice passing over the very spot where we had been.

Although the tide both rose and fell with us this day, the current set steadily to the northward; in consequence of which there was no returning ice to annoy us. All that we wanted was a fair wind, as the passage along the land was clear; yet even this want was probably in our favour as matters were situated; since, by carrying the ice away from the quarter to which our views were directed, it would probably give us a still clearer sea in no long time.

Though the wind increased considerably towards evening, the weather became much warmer, and, to our great joy, there came on some rain, since we concluded that it would aid in thawing and breaking up the ice. At noon the observed latitude was 70° 54′, being rather more than four miles south of our last observation. One seal was killed, and proved excellent. At noon the air was at 36° and the water at 32°, with no variations afterward; and the tide continued to rise about four feet and a half.

At six o'clock this morning it became quite calm, and the ice being sufficiently open to the southward, the water smooth, and no current, the engine was put in action, but performed so badly that we made no more than one mile in the hour, not being able to obtain more than seven revolutions in a minute. We passed the low point near which we were moored, in seven fathoms water, at the distance of two miles from the beach, and then gradually dropped into eighteen, when we opened the entrance of a spacious bay exposed to the south-east. At the bottom of this there appeared to be a stream, and the land that we were approaching August 26.

was more rugged and lofty; consisting, in that part, of what again seemed to be granite, while, below, it appeared to be limestone, as before, with many loose fragments. Within a mile of the shore the water deepened to fifty fathoms; but even here we found that the large icebergs were aground, touching the rocks in many places.

About four o'clock a fog came on, but we were able to keep the land in sight by sailing within a quarter of a mile of it. At seven Commander Ross was sent to look for a harbour in the bay, and he was fortunate in finding a very good one, which I named Port Logan.

We entered it at eight, the water being shoaler, and the icebergs grounded at such a distance from the shore as to give us an excellent pier harbour within them, with twelve feet at low water, and our stern not above fifty fathoms from the rocks.

This was, however, a safe position, notwithstanding that proximity and the small depth of water, since the icebergs were immovable. We landed at nine to take possession, and walked three miles, up a valley of a much more pleasing character than the general aspect of the country had led us to expect. It was traversed by a river, through the channel of which a small stream was now running, but which bore the marks of being a considerable torrent during the melting of the snows. This river was named the Macdoual. We saw here the recent marks of deer and of the musk ox, and also shot a white hare.

August 27. This day was a continued calm, and though foggy in the morning, sights were obtained for the chronometers. I ascended

with Commander Ross to the precipice at which the ship was fast, which seemed about 200 feet high, but our view was obstructed by much higher land to the southward and westward. We saw no animals; but the traces of bears, deer, and ptarmigan were visible in many places. This hill was of granite, so as to confirm our conjectures respecting the higher lands at a greater distance, and was intersected by veins of quartz; and, at its foot, with granite fragments, there were also masses of whitish limestone, with shells imbedded in the slaty strata that accompanied it. There was very little vegetation, but the margins of two small lakes on the summit were surrounded by lichens and mosses.

This, and all the adjoining land was entirely clear of snow; and the water of the lakes stood at 38°, while the air was to-day as high as 42°. Obtaining here a meridian altitude of the sun, we found the latitude to be 70° 48′, and the longitude 93° 18′, giving 92° 48′ when corrected by that of Fury point. The dip of the magnetic needle was 89° 46′ west. After these needful observations, we took possession of this continuation of our discoveries, according to the usual forms, selecting another elevated spot for this purpose. At that part of this coast the land was undulated into hills and valleys; most of the latter containing lakes abounding in small fish about three inches long, not unlike trout, described among the other articles in natural history, hereafter. We obtained some dozens by means of our net; but it was too large in the meshes to secure as many as we might otherwise have taken.

We hence proceeded to a hill about 300 feet high, five miles

further to the southward, from the top of which we had a most satisfactory view. The land appeared to extend in a south-westerly direction from the island, and, to the eastward of south, all was water for a space of thirty miles; the ice being such as to give us every prospect of getting through whenever the wind should become fair, since it was vain to reckon on the assistance of the engine any longer. We here fell in with a covey of ptarmigan, and killed a brace; as we also shot the only other bird we saw, a snow bunting. From the furthermost point of the bay in which we lay, and at the distance of six miles, there appeared an inlet, or bay, about two miles deep: the point which was to the southward of it extending considerably to the eastward, while off its northern one there was an island which seemed, on its north side, to have a good harbour about half a mile in circumference, which I named Moltke bay, giving the name of Bjornstjerna to the inlet itself.

The narrow and low island lying to the eastward of this, appeared not more than a quarter of a mile long and twenty yards wide; being scarcely elevated above the water, and seeming to offer a passage between it and the shore. It was named Rosea Island. From its southern extremity the land trends to the south-south-east, presenting a succession of points and harbours which we had occasion to examine more particularly afterwards. Behind the southernmost point of the island mentioned on the 22d as bearing south 14° E, the land appeared to trend more to the westward; and we were now sure that the furthest point we saw was the same that bore south of us when lying at the floe on that day.

We returned at nine, after an interesting walk, but which had proved very laborious along the shore, in consequence of the fragments of ice and rocks. In the evening it was foggy; and towards midnight there was a breeze from the north-north-west. The tide rose three feet six inches, it being three days before full moon; but it was irregular, and we could not make out its velocity.

At the bottom of the bay, I must now add, we had found about twenty summer habitations of the Esquimaux, situated between two streams there flowing into the sea. They were of such recent erection as to mark no distant time during which they had been occupied. Near them we found a pair of reindeer's horns and some fox traps, as well as some of the graves of the natives.

Again the engineers were clearing the pipes, which were once more choked with coke dust; and we had more reason to-day than ever to regret the ill performance of this wretched machine, since we might easily have made thirty miles, with one of the most moderate power. At midnight the weather was thick and foggy.

Our hopes of proceeding on this day were disappointed by the wind coming to the eastward of north; so that, during the night, the ice was set in upon the land, and, among it, a large and heavy floe which impeded all passage. The thick weather which accompanied this change would indeed have been in itself a complete impediment, since, for want of the compass, all navigation is impossible under such circumstances. At one time the ice appeared to be floating against the wind, which was light, and towards the

August 28.

north; but as the breeze increased, it returned and floated to the southward.

The sails were however loosed, and warps laid out, in expectation that the weather might so far clear up as to enable us to discover some channel: but the fog continued so dense the whole day, that at eight we gave up all hopes, and furled the sails. The wind indeed now freshened so much, that we thought ourselves fortunate in not having started as we at first wished. We found it expedient in consequence to carry out some ropes, in order to secure the ship better to the bergs and the rocks.

The wind after this veered a little more to the north; and as it was to be new moon the following day, we began to fear lest the icebergs should float and carry us further up the bay, among the dangerous rocks and shoals which we had there seen. The tide rose three feet, the high water being exactly at noon and the ebb at six: the temperature of the air being 34°, and that of the water 32°. Nevertheless the ice seemed to be dissolving fast around us, though some heavy floes were drifted into the mouth of the bay; yet giving us no uneasiness, as we were well protected by the grounded icebergs.

As we would not venture on shore to-day, for fear of a change in our favour, it was employed in examining and preserving the specimens in natural history that had been collected the day before. A ready method of cleansing the seal skins was found, by putting them overboard, where they were rendered free of every particle of flesh and blubber by the shrimps, in the course of a very short time. The seal's flesh, as before, turned out good, with very

much of the flavour of the loons which we had shot in Davis's strait. We had the good fortune to recover a rifle which had fallen overboard last night; the clear water enabling us to see it at the bottom, in the eleven feet sounding where we lay.

It was high water this morning at two; being nearly at the change of the moon, which took place, at Greenwich time, at 9 A. M. The tide rose exactly six feet; having been but three feet six inches the preceding day, as, on the following, at half-past one, it was but twenty-two inches. This is a sufficient proof of the irregularity of the tides in this strait; preventing all possibility of anticipating their extent and nature. Whatever other circumstances may be among the causes of this uncertainty it seems plain that the northerly winds and currents make them come earlier and rise higher, and that the reverse happens in southerly winds.

The ice in the offing was seen, during the flood, to move up and down, or both ways, even when there was no wind at all. This causes some difficulty in judging of the direction of the tides; but I still think that the flood must come from the northward, because the motion was always greatest towards the south when the wind was in that direction; as it was also gradually later in proceeding to the southward.

At four in the morning the weather was so clear that there seemed a chance of a passage through the pack of ice which had been driven on the coast during the night. We therefore cast loose from the iceberg, and made sail; yet could find no passage through on reaching it, and were compelled to tack. But we had

run to the leeward so far, that we could not fetch any place of safety, and were therefore obliged to warp back to the place we had left, which we reached at seven o'clock.

Before noon it came to blow hard from the north-east, which set in the ice so thick on the shore, that not an interval of water could be seen. We therefore considered ourselves fortunate in having got back to our station; disappointed as we might be in having made no progress. Raining now once more, while it blew hard, we also once more hoped that the ice would feel the effects, to our speedy profit. Though no clear water could be seen from the ship, we, however, obtained a view of a considerable tract in the offing, by ascending some of the higher ground on the shore.

Seeing now that there was no chance of proceeding till the wind changed, an additional hawser was carried out to a rock for further security, in the evening; and another in the morning, after we had found that the tide had risen so high as to float the icebergs; lest we should be altogether drifted out, or at least be carried further up the bay. At sunset, however, the weather had a more settled appearance: yet this was of short duration. It soon afterwards became cloudy, with the wind from the east; and at midnight we had our first fall of snow. The gales became then very strong from the north-east, and the ice was packed close round the outside of the bay; but the icebergs still defended us from its pressure. The temperature of the air was 34°, and that of the water 32°.

August 30. During the night it blew a strong gale, but the tide rose only five feet six inches; and as the icebergs did not move, the ship lay in perfect security. As it was high water half an hour earlier than

on the preceding night, we had additional proof of the irregularity of the tides in this strait; caused, unquestionably, by the complicated action of the winds and the drifting ice. In the morning the hills were covered with snow; a sight which was very far from agreeable, though we had no reason to expect aught else. Yet we had not much reason to complain, though we should eventually have been stopped here; since we had already penetrated further, by a hundred and twenty miles, even during this very short summer of ours, than any previous expedition had done in two years. This being Sunday, was made a day of rest.

The gale continued from the north-east the whole day, accompanied by snow and sleet, the temperature of the air being at 34° and that of the sea at 32°. Both the ebb and the flood had so diminished, that the difference was scarcely two feet: and we could now see that our little harbour was the only secure place on the coast, all the rest being closely beset by ice. But we still expected that the wind would remove these fragments, and that we should be able to make some miles of progress before the winter should fairly set in.

This morning the land was entirely covered by snow, and there was no more of the usual blue colour to be seen. Once more the tide rose five feet and a half, and the ice was closely packed all round. As the day advanced the snow turned to sleet, and at length to a steady rain; the temperature of the air rising afterwards to 37°. With this, the snow on the hills began to melt and disappear. Going on shore, a lane of water was found to have made its appearance in the south, and another in the east, while August 31.

the ice began also to slacken both to the northward and southward of our harbour. The rivers were found much swollen, but no animals were seen. This day the water only rose two feet and a half.

Sept. 1. At four in the morning, as there appeared a possibility of working the ship into clear water, she was hauled out to an iceberg, and, by the aid of a north-north-west wind, we contrived to steer along the land in a south-east by south course. We passed outside the low island, and then bore up for the outermost point, though in constant doubt of our position, from the thickness of the weather and the frequent changes of course we were obliged to make in working through the ice. But it cleared at seven, so as to show us the land, bearing from south 88° east to south, and also from south to south-south-west. It was the island which we had seen on the twentieth, but its distance proved to be much greater than we had then imagined. It was named Alicia Island. We kept under sail as long as we could, but were at last compelled, by the closing of the ice, to make fast to a large piece of it, which happened to be at hand. This, with the whole pack, proved to be drifting to the southward, and thus brought us nearer to the islands, though we were beating in the opposite direction. Towards evening it became moderate, and the ice seemed to have stopped. The rudder was therefore unshipped, and the Krusenstern placed in a secure situation, in case we should become permanently beset, as now appeared inevitable; while I need not say that we were once more reduced to a state of utter helplessness. The temperature of the air was 36° in the day, but at night it fell to 34°. The depth of water was 52 fathoms, and the distance from the nearest land three miles; but as we

approached within two miles in drifting to the southward, it deepened to eighty fathoms. Some seals were seen, and an ivory gull was shot.

By this morning the ship had drifted abreast of the highest part of that island which had been so long in sight; which now, however, proved to be, not one island, as we had thought, but a rocky chain of islets extending in a south-east and north-west direction. The latitude was 70° 36′, and the longitude 92° 6′; whence we found that we had made eleven miles to the southward. After noon the current changed, and the whole pack began again to drift to the south-east: clear water was visible about three miles to the north, but in no other direction. The islands from which we were now only two miles distant, presented the most barren and repulsive tract which we had yet seen; displaying an entire surface of dark and rugged rocks, without the least trace of vegetation, or the presence of even a bird to enliven them. The clearness of the day allowed us to see some land which appeared to be about nine leagues off; and it was higher, as it seemed to us, than what we had passed before; while, in the intermediate space, were more of the rocky islands. Sept. 2.

The piece of ice to which we were now fast was about two acres in dimensions, and had a pond of fresh water, whence we replenished our stock; after which it was made a washing place for such articles as demanded this operation. Though the temperature of this day was only 40°, the dogs were panting with heat, and seeking such shade as they could find on the rough ice. It however fell to 31° before eight o'clock, and finally to 29°. The

depth of water was here ninety-five fathoms. Except a small whale, no living animals were seen about this place. The snow had disappeared from this part of the land, with exception of a small quantity on the mountains in the extreme distance. In the evening it was calm, and we continued fast beset, but drifting to the southward with the whole pack. At midnight we sounded in a hundred and twenty fathoms, with a muddy bottom.

Sept. 3. The weather was thick this morning, with light and variable winds, chiefly from the northward. The water shoaled to sixty-five fathoms, and then deepened to eighty. The ice was fast all round us, but appeared more slack towards the islands we had passed. In the afternoon the fog turned to small rain, the thermometer being at 36°; and some clear weather in the evening discovered to us that we had made three miles further south since yesterday. The sight of one bear and one seal was not enough to enliven this wearisome day.

It appeared to us, at this point of our progress, that the large island whose aspect had so often changed, consisted in reality of three, which formed part of a rocky chain extending along the coast as far as we could see, and which, by stopping the ice, caused the difficulty of the inshore navigation. Thus we again found use for our patience: while, by following this chain in the train of the ice, we trusted that we could always keep behind such heavy masses as would ground in time to prevent us from being wrecked or suffering any material injury. Heavy rain at midnight, with a shift of wind to the eastward, gave us some hopes of a change, though setting us on the shore.

As the wind had shifted, during the night, to the east-south-east, we found this morning that we had drifted two miles to the northward, approaching towards the shore at the same time. It rained hard till nine, and the wind increased to a gale; so that, by noon, we had drifted four miles further in the same direction, being fixed between two floes, but so as to sustain no injury. Thick weather coming on at three, we saw the land no more, but were convinced by the lead that we were continuing to drive; and after various changes of soundings, found ourselves, by the evening, in one hundred and twenty fathoms, which diminished to seventy-five at midnight. The shooting of a glaucous gull, and of a seal, were the only amusements of a provoking day, under which we were losing all the ground we had just been gaining, if not more. Sept. 4.

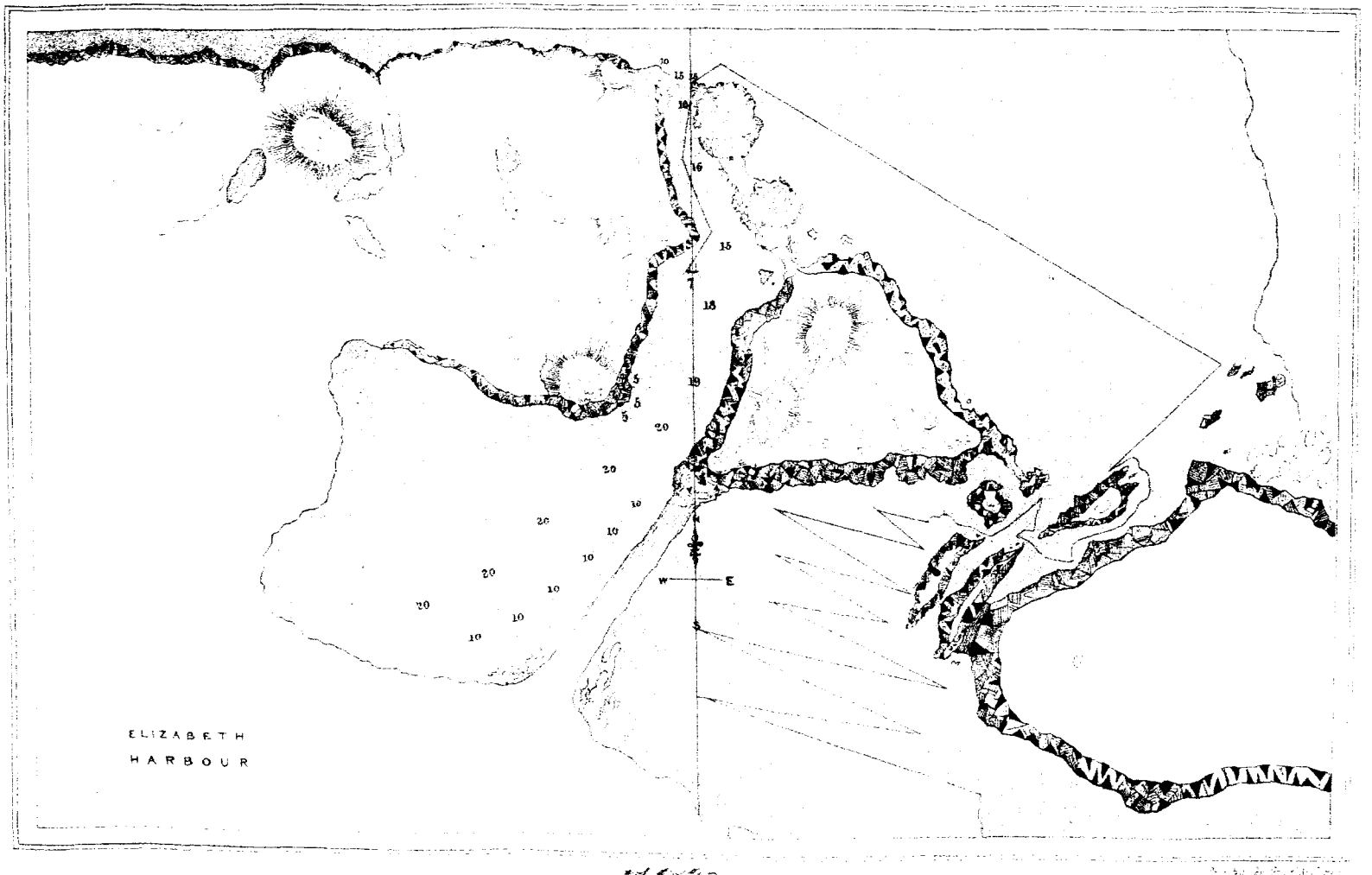
The gale continuing all night, with rain, the large floe separated from us very early in the morning; and, as it became clear, we found that we had drifted off the land. Perceiving then that the whole pack had considerably slackened, we attempted, in consequence, to force through it towards the land, in spite of many heavy blows, which fortunately did no mischief. We here found that our latitude was 70° 55′, and that we had lost nineteen miles in a northerly direction, together with fourteen miles in longitude, during the three hours which we had been driving with the ice. Sept. 5.

At five it cleared, and we saw, in the south-east, but at a greater distance, the never-ending island which, it almost seemed, we were destined not to quit. Forcing the ship through much heavy ice, we at last cleared the whole pack; when, the wind favouring us a

little, we made up all the way that we had lost, and having again got hold of the land, made fast, at ten o'clock, to an iceberg aground in five fathoms, and about five hundred yards from the shore. It rained hard till midnight, but was nearly calm. We saw two whales on this evening, with several seals; and the water was clear between the pack and the shore, while we were surrounded by large icebergs.

Sept. 6. The wind continued in the same quarter, with rainy weather, so that we could form no plan for proceeding. After divine service we went on shore to seek for a more secure harbour, as our present place was a very unsafe one. Entering an inlet with the boat, about a quarter of a mile wide, we sounded in fifteen fathoms; and, following it for a mile, we found it open into a spacious harbour, having twenty fathoms in the middle, and shoaling gradually to the sides. We here too ascertained that what we had taken for an island, the night before, was a peninsula. The harbour was named Elizabeth, in compliment to a sister of the patron of our expedition.

The country consisted of limestone and granite, resembling what we had formerly examined. A herd of reindeer passed at a sufficient distance to make us waste some shot, if not to tantalize us, as we proceeded to ascend the hill to the southward. Hence we had a perfect view of a harbour not exceeded by any in the world; before this, we had not been able to form a just estimate of its extent or nature. The pursuit of some hares which we saw, did not, however, tempt us to prolong our stay, since we could discover that the ice was drifting fast upon us.


ELIZABETH
HARBOUR
W
E

CHAPTER X.

ATTEMPT TO QUIT ELIZABETH HARBOUR—SLOW PROGRESS ALONG SHORE—CRITICAL POSITION OF THE SHIP AMONG THE ICE, AND ESCAPE THROUGH PERILOUS PASSAGE—DISCOVERY OF ECLIPSE HARBOUR—FURTHER DISCOVERIES—CAPE ST. CATHERINE, AND LAX HARBOUR.

HAVING returned on board by two o'clock, we made sail therefore from the iceberg, and entering into the harbour, moored the ship to a small one in seven fathoms, not far from the beach. A boat was then despatched to see if there was any exit on the southern or eastern side; but the result was, that we had entered by the only opening, as it was also found that it was separated from the strait without, by a narrow range of limestone about three miles long, level and straight. The boundary to the westward was of high land, and that to the north consisted of lower hills interspersed with lakes containing fish: the rocky point and peninsula where we had first taken possession forming its eastern side. The granite here presented many varieties, and was studded with garnets, probably in the veins, which we did not take sufficient care to distinguish at the time. I now indeed suspect, that on this and other occasions, what I have termed granite was gneiss; a mistake

which is often easily made by those who are not practised mineralogists; but as I could not collect specimens at every place that was visited, and as I could not bring home even all those which were collected, for future examination, this very unimportant error, if such it be, must remain.

In the evening, landing at the north side, and ascending the heights in that quarter, we obtained a still better view of this splendid harbour, in which the whole British navy might safely ride. Except at the edges, it was clear of ice, though a few icebergs seemed, like ourselves, to have taken refuge here; but we saw no marks of any shoals or rocks within it. In many parts there were five fathoms water close to rocks on the shore, where vessels might lie as at a pier, and where they might also heave down and repair damages; and, from marks on the margin, we judged that there were eight feet of rise at spring tides; the present, which was neap, rising but four.

Sept. 7. In the evening it blew hard from the northward, bringing the ice past the place which we had left, and packing up the whole channel to the southward. But we were safe, and quiet; with the security that if this ice should clear away, we could easily get out by aid of the tide, and take advantage of the opening. The temperature of the air was from 34° to 35°, and that of the water 32°. At midnight there was rain, the wind continuing fresh.

It rained heavily all the morning, and a good deal of small ice drifted into the harbour, proving that there was a considerable quantity moving along the strait with the current. We therefore proceeded in the boat, to examine into the condition of things out-

side, more particularly, and landed on the northern isthmus. We thus saw, that at the back of the great isthmus, the quantity of ice was much diminished since the preceding day, while there was a bay to the eastward quite clear; but, near the mainland, it was still closely packed. The west side of the southern islands, however, were also clear of ice. In this excursion we saw some rein-deer, and shot three white hares The air felt warm; but, on board, the thermometer was only 36°, the weather being calm, with a thick fog.

Though things remained in the same state till noon, we expected Sept. 8. a wind, and therefore left the harbour by means of the ebb and of towing; making fast to an iceberg at the entrance, that we might be ready. But the wind coming now from the south-south-east, we could proceed no further, and I therefore sent a party to examine the state of things along shore, in the whale boat, which was, however, obliged to stop after proceeding two miles. Being then hauled up, the party proceeded by land along the isthmus, and thus saw that the ice was closed up to a rock at its termination, so as to prevent all further passage in this direction. Two rocky islands and a good harbour were also seen in this quarter; as it was further ascertained, that while the shore was covered with heavy ice, the channel of moving ice and water lay between it and the heavy pack which was about three miles off.

The evening being calm, and the ice stationary, Commander Ross went on shore to take angles, and in his way found a dead deer, which we had wounded on our first landing. It was so large that they could only bring on board the head and horns, leaving it for the next day to remove a carcase too valuable to be lost. Men

were also sent to erect a cairn of stones to mark the entrance of the harbour, otherwise difficult to find, in case we should be obliged to return to it. Landing, myself, afterwards, I obtained a good view, from the north side, of the several places that we had passed, killing also two hares. At eight the wind was light, and southerly, with clear weather in the night, the temperature of the air from 34° to 36°, and that of the water 32°. Our fresh water was replenished, and many seals were seen.

The geological structure of this part of the coast exactly resembled what we had formerly examined, with perhaps more varieties of granite, or gneiss; the whitish shale of the limestone containing shells as before. The soundings were in clay so tough as to require great force to extract the lead from it. Some sandstone was also observed here; and in many of the small bays there were accumulations of white sand, which, however, might equally have been furnished by the granite. There was no wood: a heath, with stems about an inch thick, being the largest plant growing. Near the sea the land was generally bare; but, inland, there were plains and valleys of considerable extent, covered with vegetation; each of the latter containing a lake, of which the largest seemed about two miles long, as many of them were but large pools. These, as before, were full of fish, which we then had no means of taking. Many hares, far from shy, were concealed among the rocks, and tracks of reindeer were seen near the shore. On the north side the remains of Esquimaux summer habitations were numerous, together with fox-traps and bones of whales; but all of so old a date as to show that it was long since this part of the shore had been inhabited.

It was quite calm all this day, with an occasional light air from the southward, sufficient, with the current, to prevent us from making any progress. Notwithstanding this, we hauled still further out, to be in readiness in case of a favourable change. It froze so hard in the previous night, that the harbour was covered with bay ice; insomuch that the whale boat which had been sent for the deer could scarcely make her way through it. Towards evening, however, it was all dissolved, as was that which had been formed in the lakes. Even at three o'clock it was like a summer's day in England; and, though close to the iceberg, the temperature on board was 38°, while on shore it was 41°. This, indeed, had an unfortunate effect on our deer, which, though but three days killed, was only fit for the dogs. We here built a cairn on the highest hill on the north side of the harbour. Sept. 9.

A slight breeze coming from the north-west at daylight, we left the iceberg at half-past three, and stood out among the loose ice under all sail; steering through various lanes and openings which led towards the south-east. But at two o'clock the wind came directly against us; and it was with much difficulty we reached an iceberg which was aground about half a mile eastward of the islands described on the second of September, and about eight miles from our last station. After two hours, however, the ice set in with such rapidity, that we were obliged to cast off, when a more favourable breeze enabled us to reach a small harbour in the passage between the islands and the main, whence we were able to warp into a situation for the night. Sept. 10.

Thus we were enabled to land on the islands; and, having

ascended the highest summit near us, we had a good view of the state of the ice, which was such as to make us resolve to attempt a passage between the rocky islands and the point, so as to get hold of the mainland. The ship was therefore warped, with much toil and hazard, through a narrow and rocky sound leading to the channel, and made fast to an iceberg, and to the rocks, from which she was not more than half her length distant, in three fathoms water. It was not, however, a good place; since the ice set both ways, alternately, with great rapidity, so as to be in constant motion.

Angles were here taken from a cairn which we erected on the highest hill, being about three hundred feet, and sketches made. The furthest projecting land was an island bearing south-east, at a considerable distance from the point of the mainland. The outermost of the islands on which we were seemed about a mile long, and the land formed a great bay, in which we counted nine islands and some clusters of islets; together with two inlets, and some openings that seemed to constitute three good harbours. Here we also concluded that our best chance of proceeding appeared to be by the channel within these islands, and close to the mainland; as the ice was all broken up, though thick and heavy, and was likely to move with the first favourable wind.

The islands on which we now were, turned out to consist of gneiss, I presume, disposed in inclined beds with vertical fissures; and in two little valleys there was some vegetation, though the greater part of the surface was quite bare. The aspect of desolation was indeed extreme; nor did we see the trace of any living creature. The temperature of the air was 34°, and that of the water 31°

Our iceberg floated last night at half-past twelve; but we at last succeeded in mooring it, together with ourselves, to the rocks within a small bight on the side of the stream; while, as it drew more water than the ship, it kept us from grounding; allowing us to lie quiet all night within a few yards of the rocks, and in three fathoms water. After a foggy morning, there appeared, at one, some chance of moving, as there was a fresh breeze from the north-west. The attempt, however, was made in vain; and, after three hours of hard labour, we could neither proceed, nor extricate the ship, so that we were obliged to submit ourselves to the ice, which was now closely packed in the whole channel which it occupied. It was in vain that we attempted to disengage ourselves, even when it got into motion; labouring hard for this purpose till ten o'clock: but a calm occurring at midnight, we became comparatively tranquil and easy. Sept. 11.

Nevertheless it was a critical position, beset in the rapid current of a rocky channel, at the spring tides of the autumnal equinox; and, as the tide rose, the heavy masses of ice which were set afloat increased our danger, its action forcing them on us. We therefore thought ourselves lucky in getting hold of a grounded iceberg; though the points of rocks were appearing all around, and close by our ship. Unfortunately, however, a wind springing up from the westward, brought down an additional quantity of ice, before daylight, with a great increase of pressure; when the whole mass began to move to the eastward with frightful rapidity, carrying along with it our helpless ship, and amidst a collision and noise, from the breaking of the ice against the rocks, which was truly awful. Sept. 12.

The day had scarcely dawned when we found ourselves near to a point separating two channels; and it was for some time doubtful into which we should be hurried, or whether we might not rather be driven on the rocks which surrounded us on all sides, some below the water and some above it. But our good fortune prevailed; and the stream carried us into the northernmost and widest passage; though it was to the north-eastward, and therefore, otherwise, to our loss. And here, to complete our success, such as it was, the ice shortly opened, so as to allow us to extricate the ship, though by extraordinary exertions; on which, making her fast to a grounded iceberg, we found ourselves near the point on the north side of this channel, and felt ourselves thus secure for a time.

During the night, and especially when contesting our way to this spot, the ship had been repeatedly raised, and sometimes heeled over, by the pressure; while the Krusenstern was once thrown out of the water, on the ice. But neither received any injury. We had reason to be surprised: but every new adventure of this kind had the good effect of increasing our confidence, in the case of future and similar emergencies; of which, it was but too certain, there were many yet before us.

At nine, the change of tide, and that a rapid one, setting to the westward, drove us from our place of refuge; and we were carried within three yards of some rocks which were just under water, at the narrowest part of the point. Believing that we might succeed in rounding this place, and thus getting into what seemed to be still water, we laboured hard by warping; there being a small creek immediately beyond it which held out a promise of security. This,

most unluckily, proved to be a whirlpool: and having been turned round by it many times, for more than an hour, we were obliged to leave it, and trust ourselves once more to the confusion without. Thus situated, no resource was left but to attach ourselves to a mass of ice which was floating along in the middle of the stream; hoping thus to escape a repetition of what we had just been enduring.

We were thus at length extricated, but not without undergoing heavy pressure; our iceberg carrying us to the westward, even against a strong wind. The tide, however, diminished in force as we proceeded; and as the smaller pieces of ice now sailing with us did not drift so fast as that to which we were attached, the whole became at length so slack that we were able to make sail before noon, and at last got into clear water.

The danger, however, was not yet over; since we were subject to be carried back by the next tide, unless we could get out of its influence before the change. But the wind was right against us, and we could expect to make little progress with our sails, and such a vessel, by plying to windward; while, to anchor in a tideway like this, was out of the question. Thus we soon found that we were losing ground; but at four o'clock we began to gain considerably, when it fell suddenly calm. A harbour now appearing not far off, in the nearest land, we contrived to warp into it by means of the boats, and found good shelter behind a reef of rocks, lined by icebergs, within a cable's length of the shore; making fast to two of these masses which were aground in four fathoms water.

More than I among us had witnessed similar scenes, and, in some manner or other, we had been extricated: but, with all this,

we could not but feel astonishment, as well as gratitude, at our having escaped here without material damage. For readers, it is unfortunate that no description can convey an idea of a scene of this nature: and, as to the pencil, it cannot represent motion, or noise. And to those who have not seen a northern ocean in winter—who have not seen it, I should say, in a winter's storm—the term ice, exciting but the recollection of what they only know at rest, in an inland lake or canal, conveys no ideas of what it is the fate of an arctic navigator to witness and to feel. But let them remember that ice is stone; a floating rock in the stream, a promontory or an island when aground, not less solid than if it were a land of granite. Then let them imagine, if they can, these mountains of crystal hurled through a narrow strait by a rapid tide; meeting, as mountains in motion would meet, with the noise of thunder, breaking from each other's precipices huge fragments, or rending each other asunder, till, losing their former equilibrium, they fall over headlong, lifting the sea around in breakers, and whirling it in eddies; while the flatter fields of ice, forced against these masses, or against the rocks, by the wind and the stream, rise out of the sea till they fall back on themselves, adding to the indescribable commotion and noise which attend these occurrences.

It is not a little, too, to know and to feel our utter helplessness in these cases. There is not a moment in which it can be conjectured what will happen in the next: there is not one which may not be the last; and yet that next moment may bring rescue and safety. It is a strange, as it is an anxious position; and, if fearful, often giving no time for fear, so unexpected is every event, and so quick the

transitions. If the noise, and the motion, and the hurry in every thing around, are distracting, if the attention is troubled to fix on any thing amid such confusion, still must it be alive, that it may seize on the single moment of help or escape which may occur. Yet with all this, and it is the hardest task of all, there is nothing to be acted, no effort to be made: and though the very sight of the movement around inclines the seaman to be himself busy, while we can scarcely repress the instinct that directs us to help ourselves in cases of danger, he must be patient, as if he were unconcerned or careless; waiting as he best can for the fate, be it what it may, which he cannot influence or avoid.

But I must not here forget the debts we owed to our ship on this as on other occasions before and afterwards. Her light draught of water was of the greatest advantage; and still more the admirable manner in which she had been strengthened. It is plain that either of the ships employed on the former expeditions must have been here lost, from their mere draught of water, since they would have struck on the rocks over which we were hurried by the ice; while, however fortified, they would have been crushed like a nutshell, in consequence of their shape.

Our position, after this adventure, was on the mainland, seven miles from the cairn which we had erected on the tenth; being not far from two harbours, one on each side of us; which I named.

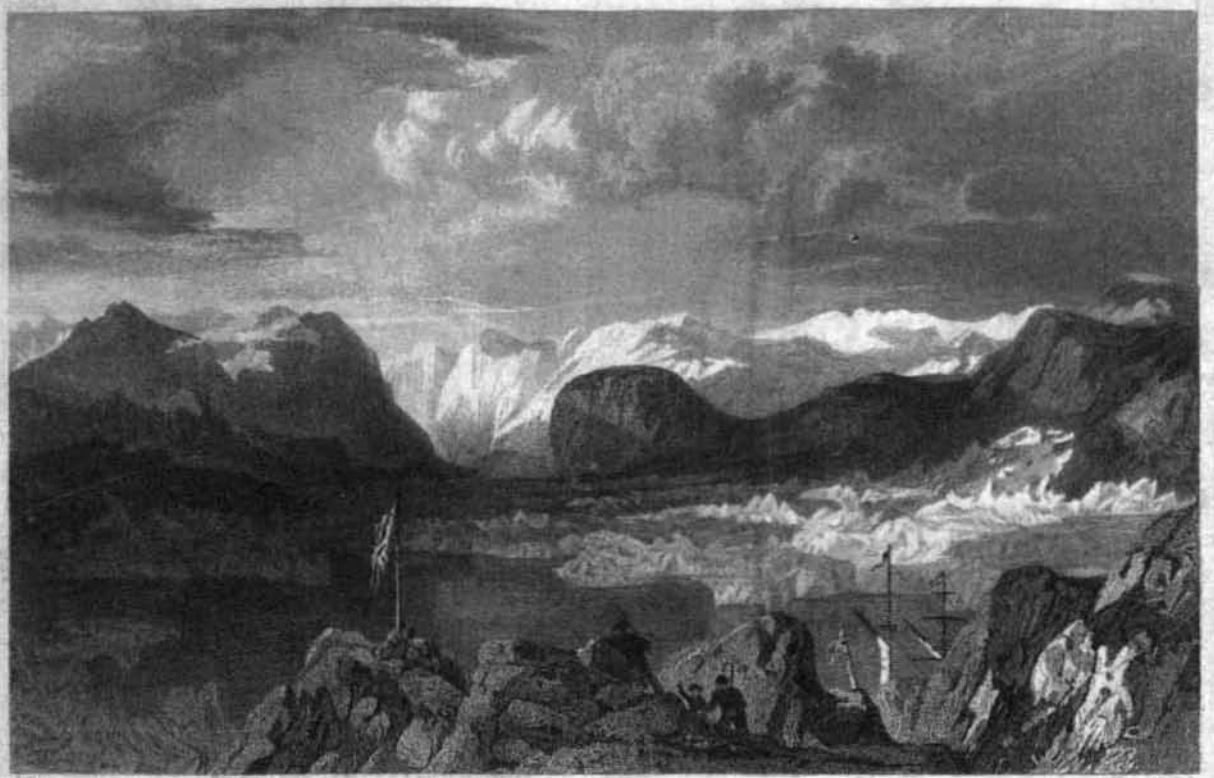
The night was clear, and it began to freeze at eleven. At midnight there was a visible eclipse of the moon, but the weather did not permit of any observations. I named the place Eclipse

harbour; and we found high water, with a rise of seven feet, at a quarter before three, at full moon.

Sept. 13. Early in the morning I ascended the high land near the shore, by which I found that it was possible to proceed a few miles along the coast: and, after building a cairn and taking some angles, I returned on board, and we got under way at nine with a westerly breeze. We steered to the southward through new ice which offered little resistance; and, as we proceeded, the heavy masses became more slack. Passing a rugged point, with icebergs aground, it received the name of Cape Allington, being the boundary here, of the spacious harbour just mentioned by the name of Eclipse Harbour.

We very soon rounded a cluster of islets, which, as equally new, I named Grace; and, passing them, we saw a round island, now also named Louisa. Within these, such channel as there seemed, was full of ice; and therefore, passing to the eastward, we approached, at three o'clock, a smooth rocky island about two miles in circumference. It being calm, we attempted to tow the ship between it and the preceding ones; when the tide changed, and we were glad to secure ourselves for the night to an iceberg that was aground near it, which formed a snug harbour with an islet with which it was in contact.

This island was three miles from Eclipse harbour, and seven from the extremity of the land to the southward. On inspection, we found it a solid mass of granite intersected by veins; and we also observed fragments of limestone and of yellow sandstone. Here we built a cairn, with a pole on which was fastened the ship's name, and the date, engraved on copper. The prospect was such as to



CHRISTIAN'S MONUMENT.

Hamilton Bay and Island.

London Published 1824 by Captain J. Ross R.N.

show us that a fair wind might carry us clear of the ice as far as that point which seemed seven miles off: but beyond this we could barely discern that the land did not trend to the eastward. An island was seen, open with the cape; and, near this, a harbour, which was named Lax Island, while, to a large inlet, full of ice, south of this, I gave the name of Mary Jones Bay.

On the south side there were smaller inlets and creeks; and, to the north, a remarkable mountain, shaped like a tomb, and covered on the south side with a reddish vegetation. It was named Christian's monument. Proceeding along the coast, we found an Esquimaux fox-trap, with some remains of summer habitations, and counted thirty-three islands of different sizes, for the names of which I must here refer to the charts and the tables. The vegetation on this island, which is in the middle of the bay, was very backward compared to that on the mainland.

The new ice had totally dissolved this day; the temperature of the air being 38°, and that of the sea 32°. There was now no snow on the high mountains of the interior to the southward, and all the fresh-water lakes and pools were open. In the evening the wind came from the south-south-east, and thus prevented us from moving: while the water fell so low as to compel us to haul further out.

It was high water soon after one in the morning, and the tide rose to six feet eight inches, with the flood from the northward. The two icebergs to which we were moored just floated; but we kept them fast to the shore by ropes until the tide had lowered. A thick fog prevented us from moving till two; when, the wind Sept. 14.

being north-north-west, we made all sail and stood for the point through loose ice, which, however, soon closed, so as to oblige us to run for a small bay to the north of the cape.

This proved a very good shelter: and having gone on shore, and ascended the hill on the point, we saw that the ice was still more open than it had been the day before, that the land trended more to the southward, and that the outermost portion was but an island, six or seven miles from the mainland. Many fine harbours were also visible, and the shore was intersected by inlets in every direction. Having taken the usual formal possession of this cape, since even that which is nugatory or absurd must be done where custom dictates, a cairn and a beacon were erected, with the ship's name, and the date, on a plate of copper, as before. This cape was named Verner, and the harbour Joanna. The geology was here nearly what it had all along been: but one of the masses of granite formed a pyramid alike striking from its form and its dimensions, while we also perceived some coarse argillaceous schist.

As the point on the north side of the harbour was the most convenient for observation, we erected a cairn here also, for determining angles and laying down positions; though it was not likely to prove of much use hereafter in verifying the accuracy of the discoverers. Just before dark, the channel between the shore and a small island was cleared of ice by the rapidity of the ebb: but too late to allow us to attempt our way through it. The temperature of the air was from 35° to 36°, and that of the sea from 31° to 32° all this day; and the tide rose two feet less than it had done in the night preceding. No animals, nor any traces of Esquimaux were seen.

CHAPTER XI.

A HEAVY GALE: SUCCESSION OF TEMPESTUOUS WEATHER, WITH SNOW—PARTIAL CLEARING OF THE ICE, AND EXTRICATION FROM IT—DISCOVER THE ISLAND OF ANDREW ROSS, CAPE MARGARET, BEST HARBOUR, AND MARTIN ISLANDS—A NEW BAY—END OF SEPTEMBER—GENERAL REMARKS ON THE PAST PROGRESS OF THE SHIP AND THE MODE OF NAVIGATING AMONG ICE.

THE sky had worn a very unsettled aspect on the preceding evening; and the wind, rising, increased to a storm during the night. Having also veered round to the northward, it brought around us a great quantity of heavy ice; so that, at daylight, we found ourselves completely locked in, to our no small vexation, which was much augmented by seeing clear water within a quarter of a mile. Every exertion was made to warp out, or to extricate ourselves in some manner: but a whole forenoon of hard labour gained us scarcely more than four times the length of our ship. At length the ice accumulated to such a degree, that we were obliged to abandon the attempt. Sept. 15.

In the mean time the storm increased, with squalls of snow, so as to render our situation both critical and uncomfortable; since we

could not regain the harbour which we had so prematurely left. Thus exposed to the storm, the pressure of the ice was also to be feared, as the icebergs were accumulating on the shores of the cape, which they were too deep to pass. At length the one to which we were moored went afloat, giving us much trouble: while the largest one near us split into six pieces, with a noise like thunder; falling over and throwing up the water all around. One of these fragments gave our ship a violent shock; and another, rising up beneath the Krusenstern, lifted her out of the water on the ice, and then launched her off again. Fortunately, no damage was sustained.

The night tide was further diminished, and we continued, after this last adventure, to be not far from the point of the cape behind which was the clear water: while we were obliged to wait with patience for some favourable change of the wind. The thermometer was at 34°, and the snow was so heavy as to cover the mountains. A party was sent to the cairn, to examine into the state of the ice, and, having returned, they reported it to be quite closed to the southward, with exception of a narrow lane of water along the land, which now appeared to trend more to the southward. Shortly, the temperature fell to 28°, with clearer weather and the barometer rising. The latitude of this cape was found to be 76° 22′, and the longitude 92° 15′, which, with the correction, is probably 91°.

Sept. 16. The wind was somewhat more moderate this day, and the weather milder; but the ice was quite close every where, excepting for a small space on the south side of the cape. We went on shore to survey the channel through which we had intended to pass;

when we saw that there were two reefs of rocks in the middle of it. It was a lesson to our impatience; as it was one among many incidents occurring in this voyage, calculated to teach us that apparent misfortunes are often benefits. Had we been but ten minutes sooner, we should have made the attempt; and, without a miracle, the consequences must have been fatal. Of this, we could entertain no doubt, when we saw that their depth would then have been six feet, enough to conceal them from us, while, on taking the ground, we should have been overwhelmed by the descending masses of ice. Thus was our disappointment converted into a source of enjoyment, and of self gratulation: with the same knowledge on the day before, we should have thought our icy prison a paradise.

A little before noon, the wind shifted suddenly to the south-east, and blew a gale; while we had in the mean time moored to the largest floe in the passage, that we might be ready in case of any favourable chance. In consequence of this reversal of the wind, the ice began to move in the opposite direction to what we had expected: so that we were glad to regain our position in the bay, though this was not effected without several hours of warping.

Going on shore in the evening, we had the satisfaction of seeing that the ice was fast leaving the land, and that it would probably allow us to try again in the morning, with the probability of making ten or fifteen miles. We here found that the fine harbour to the south of the cape had an entrance from a bay to the southward, and also another from one to the northward, rendering the cape itself an island. The channel was narrow and crooked, and singularly intersected by the projections of hilly points on both sides,

with inlets branching in every direction. The harbour was clear of ice, and contained three inlets. We here saw three hares.

The observations at noon confirmed yesterday's latitude. The thermometer in the twenty-four hours, varied from 30° to 34°, the water being at 29°; and there was new ice in the pools among the rocks on shore. Various bearings were taken; and we thought that the land trended less to the east than we had formerly supposed; rendering it a matter of hope, rather than of aught else, that we had now arrived at the south-eastern extremity of this land.

At ten at night the wind suddenly changed to the north-west, and blew with increased violence; when, once more, the ice which had not yet cleared the bay, closed in upon our protecting icebergs, forcing us to carry out additional ropes, both to them and the shore. The Krusenstern was transported to a place of safety in the innermost harbour; and, during the night, it blew extremely hard, with squalls of snow; the thermometer falling to 21° in the air, and 23° in the water. We had therefore, once more, great reason to be thankful that we had not been able to get out of this haven, where the heavy masses of ice around us afforded very tolerable security, since they were aground on all sides, and exerted no pressure against us.

Sept. 17. The gale continued with undiminished fury from the northward quarter, accompanied by heavy squalls of snow; and the sea froze as it washed over our decks and the adjoining icebergs. The outer edge of the ice to windward was but a mile from us; and, on this as well as the islands, the sea broke in a tremendous manner, producing a considerable swell, even where we lay, though sheltered

by a point of land and this extensive tract of ice. The thermometer in the air fell to 21°, and the water to about 28°; and though the tide rose high, the icebergs did not float. In the evening the ice broke up so much as to bring the open water a quarter of a mile nearer to us; and, in no long time, the wind became more moderate: while some masses of ice were seen floating through the channel of our intended passage, which displayed a good deal of clear water.

The moderating of the wind on the preceding evening was but a delusive promise. In the night, the gale increased once more; and to a degree of violence exceeding all that we had yet felt, accompanied, as before, by snow. As some of the icebergs began to move, three large masses came across our bows, threatening to break the two cables which we had made fast to the rocks, and obliging us to carry out a third. The ice on the outside of us was soon broken up by the swell, and at daybreak the waves reached within a quarter of a mile of the ship: while the motion of the solid masses around produced such an agitation in her as to compel us to carry out steadying ropes and fenders. Sept. 18.

In consequence of the tide now rising to an unusual height, many icebergs drove near to the shore; but as that fell, things became comparatively quiet: though the rapid destruction of the ice, under all the present violence, gave us great alarm lest we should lose the protection which had hitherto sheltered us so well. At ten in the morning, therefore, we went on shore, in hopes of obtaining a better view of the circumstances in which we were now engaged; the wind having once more moderated. We thus discovered that

there was nothing to obstruct our passage as soon as we should be released from our present durance, and that although there was much ice in the harbour, it was not such as to prevent our entrance.

We here confirmed our former observations for the latitude: and the barometer rose; as also did the thermometer, from 21° to 28°. The moulding of ice collected round the sides of the ship drifted off in consequence, during the course of the day, as did the icicles which had been formed on the icebergs. It still, however, blew hard: the sea continued to draw nearer to us, and the agitation was scarcely less; so that the motion of the ship was extremely troublesome. Our situation thus became so hazardous that we were about to seek a new position, close to the rocks; when, suddenly, we saw a fleet of heavy ice islands bearing down on us, which, by five o'clock, took their stations at the outer edge of the now narrow field, and, in a very short time, all was quiet.

Such is the ice, and such the compensation it offers for the too frequent assaults which it makes, and the obstructions which it creates. It is far from being an unmixed evil; and, estimating all our adventures with and among it, I might not be wrong in saying, that it had much oftener been our friend than our enemy. We could not, indeed, command the icebergs to tow us along, to arrange themselves about us so as to give us smooth water in the midst of a raging sea, nor, when we were in want of a harbour, to come to our assistance and surround us with piers of crystal, executing, in a few minutes, works as effectual as the breakwaters of Plymouth or Cherbourg. But they were commanded by Him who commands all things, and they obeyed.

The gale continued, though with somewhat less violence; nor, Sept. 19.
even towards night, was there any announcement of a change. We were safe within the large pack which had accumulated, and could now see additional masses of blue ice attached to its outer edge; the sea breaking high over them, in a tremendous manner. I therefore went on shore, and, having a good place for such a record, caused the ship's name and the date to be painted on the pyramidal rock formerly described: ascertaining the latitude at 70° 23′, and the longitude at 91°. No immediate hope of a removal was held out by the state of the ice as we now saw it from the land; but there was very little snow on the ground, after all that appeared to have fallen, and the temperature was from 25° to 27°. How much of the disappearance of this snow, on this, as on many subsequent occasions, arose from the mere sweeping force of the wind, we could not determine; but we had often, in this region, abundant proof of the great evaporation which it undergoes, even at very low temperatures; confirming a fact respecting the production of vapour, which has long been known to meteorology. In no other way indeed could we account for the small thickness of snow which generally remained to be converted into water, by the common process of thawing, at the approach of spring; since its hard frozen surface very widely prevented the gales from dispersing it in the form of drift, while we were quite sure that a much larger quantity had accumulated during the winter than that which remained when the thaw commenced. On the utility of this arrangement in diminishing the great flow of water which would otherwise take place at that period, I need make no remarks.

Sept. 20. It was comparatively moderate during the night, with the same wind, but no snow. At daylight a large pack of ice was seen approaching the bay, when it divided: one portion passing to the eastward of us, while the rest closed in, so as, in a few hours, to block us up more completely than we had ever yet been. After divine service, the crew were allowed such relaxation on shore as they could contrive in such a place: and the view hence still showed some clear water to the southward; attainable, if we could but obtain a westerly wind. The thermometer was at 27°, but there was no new ice in the harbour, although the land pools were frozen over. In the evening the swell subsided every where, and at midnight it was calm and freezing hard; but the ice did not open, as we hoped it might do on the ebb.

Sept. 21. This ice still appeared stationary, there being a light air from the north; and, on examination, we found that the huge masses around us were frozen together, giving us the prospect of being condemned to remain here for the rest of the winter. But the breeze becoming westerly at nine o'clock, all hands were set to work, and continued occupied the whole day in separating the masses which had been cemented by the frost, since this afforded us the only chance of getting clear. This being done, we placed the ship's head in the best position for getting out; and, after this, she was soon surrounded by new ice, the thermometer being at 25°.

Sept. 22. A strong breeze arose during the night; and, at daylight, we found that, with the exception of two pieces, it had carried away all the ice that we had cut, while the water was clear outside. We again, therefore, set all hands to work in breaking the ice that

remained, soon detaching many large pieces, which the tide carried away. The work, however, became more heavy as we proceeded; so that the last cuts through a thick floe were not completed till the evening. At this time a large mass to the eastward of us broke away, promising to sail off and assist in clearing us, when, unfortunately, it took the ground and remained fixed; and, still more vexatiously, just opposite to the channel which we were attempting to clear.

Thus we were obliged to make a new attempt at another point; appealing again to that patience, and exerting once more that determination not to be foiled, which, for ever wanted under every situation in life, are never more needed than by him who must work his way through the never ending, ever renewed, obstructions of an icy sea. By the time it was dark, we had completely succeeded, and had once more the satisfaction of finding ourselves in clear water; when we hove out beyond the icebergs, and made fast for the night to that floe which we had cut into the resemblance of a pier. Soon after this it began to blow hard from the southward, and the ice which had passed by was seen returning; producing, once more, a new enigma to be solved, as it threatened us again with a repetition of what we had been so often and so long undergoing. It became necessary therefore to go on shore, that we might the better understand how matters were likely to be with us now; since our position in the ship was not sufficiently commanding to allow of an adequate view. We thus found that the circumstances were even worse than we had anticipated; since we could not even get round to the good harbour which we

had occupied before, until the weather should moderate. There was also seen some new ice, the thermometer being at 22°, and thence to 26°. By the time, however, that we had returned to the ship, the wind fortunately rose from the very quarter that we desired, being that which was best adapted for carrying away the ice; while, blowing with sufficient force to remove it, we were enabled to go to our repose under some hopes for the following day.

Sept. 23. These hopes were quashed by the appearance of the morning. It had snowed hard since midnight, and every thing, land, rocks, ice, our deck, was deeply covered; while our intended passage outwards was blocked up by large pieces of floes and bergs; two more having detached themselves from the land to aid in the obstruction. The wind, indeed, had it been more moderate, would have been sufficiently favourable: and thence were we induced to renew our labours, in spite of the storm and every other discouraging circumstance. So successful also were they, that the passage was cleared by eight o'clock; at which time the gale began to abate, and the fall of snow to diminish; so as to hold out some better prospects than the early morning had promised.

We therefore undertook another survey from the shore, when we found that the north entrance of the harbour was still blocked up, but that there was much clear water to the southward. This induced us to go off in the whale boat, that we might survey the very intricate channel before us; leaving it to those on board to warp the ship out and get her under sail in the mean time. Thus we investigated the pilotage; and, returning at ten o'clock, we succeeded in carrying our vessel through, without any accident, in

spite of a rapid tide and the numerous sunken rocks in the passage. The whole of this expedition, successful, if of little extent, was terminated in an hour.

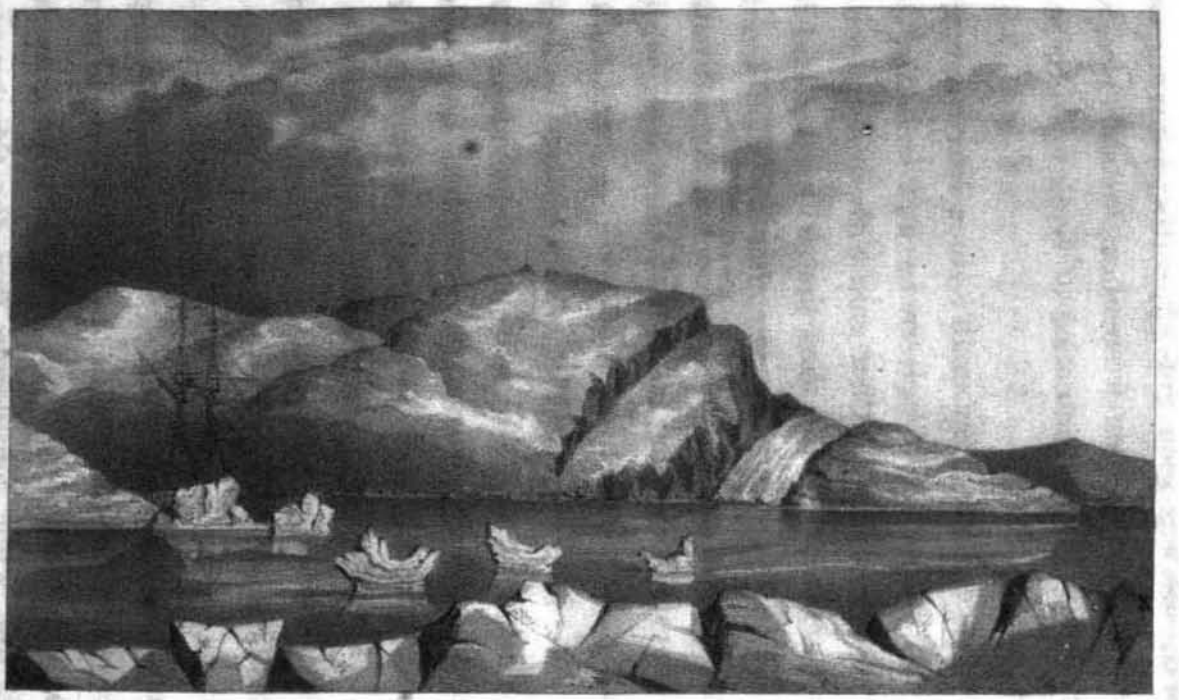
It was our intention to have entered the harbour; but, on standing towards its entrance, we thought it probable that we might reach a few miles further, the current being still in our favour, though the wind was against us. We continued, therefore, to work along shore, and having passed the harbour at noon, reached the furthest point that we had seen from our last station. Hence, the land trended nearly due south, being more bold and rocky, and also more elevated than what we had hitherto seen: and here also we discovered an inlet some miles to the south, with high land on each side of it, which, on a nearer approach, proved to be full of ice. Near it there was some low land, which was conjectured to be an island, and, more towards the south-east, a decided one, which was the most distant land we had yet seen.

At four o'clock, being opposite the bay, we were obliged to force through two streams of ice, and, by seven, closed in with the island: when, having a favourable wind and current, we attempted to work up to the mainland. The coming on of night prevented this; and we were compelled to run round a point on the island, where we secured ourselves to some heavy ice, about fifty yards from the shore, and in four fathoms water. It was far, indeed, from being a safe place, and, in an easterly wind, would have been a hazardous one: but, after much examination, we could find nothing better, and were obliged to be content. The snow continued the whole day, but was not such as to prevent us from seeing to distances of two or

three miles: the temperature of the air rose from 26° to 32°, but the barometer fell half an inch. By our reckoning, we had made about fourteen miles: an unexpected progress, which put us all into high spirits, and made us anxious for the return of another day.

Sept. 24. Though the weather had been moderate during the night, the flood tide set in with great rapidity, and the iceberg to which we were fast received so many severe blows from the floating masses, that we began to suspect it would itself be carried off at high water. An alarm to this effect was indeed given: but, on examination, we found that it was the vessel which had sheered; on which she was moored to the rocks. The wind, which had been gradually changing during the night, became south-east at daylight; and we could then see from the island, that the ice was fast closing on us: so as to give us timely warning to quit a place where it was impossible to remain long with safety. We therefore made sail; and, passing to the eastward of the island, found a channel through which the tide was running with a moderate velocity. We then sent the boats to examine into this apparent harbour, and to select a place where we could make fast: but it was soon discovered that there was only a reef of rocks, so that we were obliged to moor to a large iceberg, within a few yards of the shore, and not far from a shallow entrance opening to the south-east.

As soon as the men had breakfasted, we prepared to remove again, when the boat should have found a better position. Suddenly, however, the ice turned round; and, before we could prevent it, the ship's bow was carried on the rocks with such violence, that it was raised eighteen inches. But as, at this time, the ice



On Stone by J.Branston, from the Original Drawing by Captain Ross.

ANDREW ROSS ISLAND.

Printed by Graf & Lord

grounded again, no further assault was made on her: and by means of hawsers, she was soon got off, without having sustained any damage. The breeze then freshening, the sails were set, enabling us to stand out with the intention of lying to while we waited the report of the boat.

But our success was very small; since after running half a mile, with great difficulty, through rocks and icebergs, the situation which we attained, and did not gain without much toil and hazard, was found to be little better than that which we had left. It had but ten feet water; and we saw that we should not be able to haul out of the stream before the ship had arrived within her own breadth of some rocks that rose above the water; while her stern lay close to others that were not six feet beneath the surface. We therefore proceeded in the whale boat to seek for a better place, for which the now increasing wind made us more anxious; and thus succeeded in finding an excellent deep-water channel between the mainland and the first range of islands. The entrance, however, seemed extremely hazardous; being scarcely wider than the ship herself, with a tongue of ice, having only seven feet water on it, extending across, from side to side.

There was, however, neither a choice to make nor time to be spared in resolving. We therefore dropped the ship down by hawsers, grazing the rocks with our keel. How to carry her over the tongue was another problem, seeing that her draught exceeded its depth; but, while considering this, the tide swept her on it, and she stuck fast; it having proved, contrary to our reckoning, that it was now ebb. The hawsers were then carried out again, and we

contrived to heave through; yet not without sawing off some projecting points on the two opposite icebergs, so narrow was the passage.

We did not, however, extricate ourselves from this perilous situation, without passing two other icebergs, one higher than our mast-head, and so close that the vessel had only half her breadth to spare. But, this achievement over, we had no further difficulty in sailing two miles through the channel, when we reached a place of security, and made fast to two large icebergs, out of the stream, and near the entrance of a good harbour. In this position there was a large island on each side, and, before us, the mainland.

This mainland was what we had seen the day before, and displayed a high range of mountains close to the coast, extending in a north and south direction; while it seemed to trend in a more favourable manner than formerly, and no land was visible beyond the cape. We proceeded to examine and sound the harbour near us, together with the several entrances to it: but these latter were all blocked up, with exception of the one to which we were opposite. Thus, after all, the place which we had first chosen proved the most convenient; and we therefore remained satisfied with the result of our day's work, and not thankless for our escapes through so hazardous a navigation. There was a little snow, and no bay ice was seen; the air and water both at 29°, and the wind, in the evening, coming from the north-east. We were here obliged to fill our casks with ice, as there was no fresh water to be procured. The land near us consisted, as usual, of granite.

Sept. 25. The wind came to the northward during the night, causing such a rise of the tide that all the icebergs were set in motion. In con-

sequence, they were shortly all carried off, except one which was kept in its place by our ropes. In the morning it was clear, and we saw, from the mast-head, a good deal of open water to the southward, forming the receptacle of the ice which was sailing out of this narrow channel. Thus we at first thought that it would clear itself, so that we might perhaps proceed by noon: but the unlucky arrival of a large pack of ice at the northern entrance, not only filled it up once more, but produced a general stoppage which compelled us to remove the ship further within the harbour.

In the afternoon we landed and took formal possession of the island to which we were now moored, giving it the name of Andrew Ross, being that of my son. From the cairn which we built, we obtained a very extensive view, and saw land bearing south of us at a distance of eighteen or twenty miles; yet not so as to ascertain whether it consisted of islands, or was a continuation of the land near us, and the American continent. Much clear water was also seen in the same direction; giving some prospect of a further progress, in case the wind should come to the northward, and enable us to clear the channel by which we were imprisoned. A sketch being taken, the islands were named.

The last night's gale had so blown away the snow, lodging it in the ravines and hollows, that the land seemed comparatively clear, and the island on which we stood was so bare as to show its clean granite, without a mark of vegetation. A slight fogginess in the direction of the newly-seen islands continued to render the view of them indistinct; and, in the evening, the weather was quite moderate, with a temperature of 24°, though without the formation of

any new ice. The harbour having been at length quite surveyed, was found to have fifteen feet at low water, with an even muddy bottom, to be free of currents, except in the main channel, and secure from every wind. Where the current did run, it was, indeed, very powerful; carrying the ice through it with fearful velocity and tremendous collision. Except a glaucous gull, we here saw no animal.

Sept. 26. Though calm and clear after midnight, and the thermometer not more than 27°, no new ice was formed in the still water, and the tide carried away the greater part of that which had occupied the channel. But, at nine, it began to come in at the northerly opening; which, with a north-easterly breeze and a heavy fall of snow, put an end to all prospect of advancing for this day. Soon after dark, the temperature fell to 25°, and the snow continued to fall; but, under the influence of the tides, the ice began to clear away in both directions. An increase of wind forced us to carry out additional ropes, and the Krusenstern was also moored in a place of security.

Sept. 27. During the night it blew a very hard gale from the northward, and the tide rising high in consequence, all the icebergs were set in motion. Our strongest hawser slipped off the rock to which it was fastened, and obliged us to let go an anchor, as it was dark: but when daylight came, we transferred the former to another rock, and got the anchor up again. It was then seen that the channel was closed with ice at both ends; and thus it continued the whole day, though having some clear water in the middle, at its widest part. A good deal of heavy ice came to the entrance of this little

CAPE MARGARET.

harbour, but did not reach our own clear water, on which no new ice was formed, in consequence, probably, of the gale.

After muster and prayers, part of the crew was sent on shore for exercise, and the remainder in the evening. Being with this last party, we saw that in spite of some open sea, there was no chance of our being released from our present situation without a change of wind. We had time to walk over this island, which is the largest of the group, but found no vegetation, nor any animal; though, on the following morning, we killed a seal and a glaucous gull. The temperature of the air and water equally, was 29°, and it came on to blow hard from the north-west soon after we got on board.

Though the wind veered to the west during the night, it did not release us, as we had hoped. The ice, indeed, had drifted a considerable way off the coast, but our channel was still locked up. Besides this, there was much heavy ice driving up and down, with great velocity, before the tide, which, even could we have got out, it would not have been prudent to encounter. Some of these masses, indeed, entered the channel, sweeping it clear from side to side for a time, as some of them blocked up the entrance of our harbour. A survey by the boat, however, showed at last that we might get out at the southern entrance, if we could release ourselves from the prison that now enclosed us. Sept. 28.

Though it was moderate all day, the barometer fell an inch, prognosticating what soon occurred. Accordingly, we were visited by a very heavy gale, in the evening, from the north-north-west, with a snow storm, which obliged us to carry a cable to the rocks, and another to the next iceberg, for the sake of keeping it between

us and the shore, in case any shift of wind should drive us on the rocks from which we were not many yards off. The thermometer was at one time 22°, and rose to 28°. We examined the island to the south of us to-day, but found nothing on it to attract our attention.

Sept. 29. The snow storm continued without intermission all night; but, in the morning, it had so far cleared away the ice as to render the passage navigable. The state of the weather would not, however, permit us to get under way, since no canvas could have stood against the gale. Towards noon, and in the evening, the wind was in squalls, and the snow ceased to fall; when such was the effect on the land, as to blow away the snow by which it had been previously covered. The thermometer was at 23° in the middle of the storm, and did not sink below 21°: while, in the evening, the barometer began to rise. By this time the entrance of the harbour was cleared, and all the new ice and frozen snow were dispersed. After the tide had risen, it continued the whole day at nearly the same elevation, marking that effect of the winds which we had more than once before noticed. The latitude was observed at 70° 12′, and the longitude, uncorrected, at 92° 21′. No one could leave the ship during the whole of this day.

Sept. 30. The storm abated gradually during the night; and at five, being daylight, it seemed sufficiently moderate to warrant an attempt to get out: the channel, to the southward, being nearly clear of ice. Accordingly, the cables and hawsers were cast off, and at six we got under way, with the Krusenstern in tow. Though the tide in the channel was setting north, or against us, the northerly breeze

J. Ross | J. Carter

THE VICTORY,

Finally stopped by the Ice Sep.r 30, 1829.

London, Published 1834 by Captain J. Ross R.N.

with us was sufficient to make us run through it at the rate of five miles an hour; estimating the current, at the same time, at half that quantity. At seven we passed the southern entrance of the harbour and the south-east opening of the channel; finding the tide stronger as we advanced, and most rapid in the narrowest part, as might have been expected.

It was now necessary to know more of what was likely to follow, since we had arrived at the boundary of our present knowledge; and we were, therefore, in great anxiety to discover the trending of the land; watching the westernmost cape, and every successive point that opened as we advanced. We found that the distant land which we had seen between the round island and the main, was a cluster of large islands, and that the coast was trending to the westward. At eight we had rounded the cape; successively opening out seven points, of which the fifth marked the place of a large inlet or bay, which, on our approach, we found to be full of ice. A bay beyond the second point seemed also to offer a good harbour: while we further noticed a remarkable inlet, with what appeared to be two islands at its entrance. These several places were named; but I need not here give what will be more usefully seen in the chart and tables.

Our distance gradually increased, in running down the coast, from a hundred yards to two miles; and, at noon, the great body of ice was seen extending from the shore about two miles north of the extreme point of the mainland, to the islands southward: thus completely obstructing all further passage, since it consisted of very heavy masses most closely packed. We had run seventeen

miles; five to the south and twelve to the south-west: and we now, therefore, tacked and beat up to the land in search of a harbour, detaching a boat as we approached, to sound and seek for a safe position: while, in the mean time, we made fast to a neighbouring iceberg, but in a situation that could not be trusted, from the small depth of water.

The boat discovered, to the north-eastward of our place, a spacious bay, but open on three points of the compass; and, to the south-west, an island which offered a place of security, having a rock above water to the south, with a shallow ridge near the northern entrance. This position we therefore took; making fast to two icebergs, and under protection of the islet, so as to be not more than a quarter of a mile distant from the barrier of heavy ice, which we could now better see to consist of hundreds of icebergs wedged together into a solid mass. We had passed, in our course hither, some large pieces which were sailing to join this threatening barrier, and had also been obliged to force our way through some pancake ice, as it is termed, so dense as to give us considerable trouble.

The thermometer was from 23° to 25° in the day, but in the evening it became calm, when the temperature suddenly fell to 18°. At sunset, the weather was very clear, and high land was seen beyond the point, at the distance of ten or eleven leagues, bearing south-west, and extending to the eastward of south; but, whether connected with the land near us, or not, we could not discover. The large islands bore from east-by-south to south-south-east, at about nine miles distance, and were surrounded by heavy ice, separated from them, in one place, by a small line of water.

The aspect of the land had now considerably changed. It was far lower than those parts of the coast which we had already examined, and the general surface was much more even. There was some vegetation on the little island, and we observed recent tracks of the hare and the ermine. Here also were two circles of stones, being the remains of the summer habitations of the Esquimaux, but of a much more recent date than those we had seen before. Though there was snow, the greater part had been blown into the ravines and lee places, which allowed us to see that the rocks consisted of red granite. One track of a bear was afterwards found near the place where we were moored, and many seals also made their appearance. As no observations were taken, we were obliged to estimate the latitude, by our reckoning, at 70°, and the longitude (uncorrected) at 92° 40′.

With the termination of September, of which we had now reached the last day, I considered that all hope of making any further progress this season was at an end. And thus I entered that opinion in my journal; adding to it those remarks which I now transcribe without alteration, because they better show the impressions and opinions consequent on our proceedings and situation, than aught that I might have written at a later period, or should write now.

" My full conviction is, that in every voyage of this nature, the safety of the ship ought to be that prime consideration to which every thing else should yield; since, upon its preservation, the chance of success depends in a greater degree than in any other navigation; though, in every case, the same proposition is, to a

certain extent, true. And, on a calm review of what is just past, I have reason to blame myself for not having acted up to this principle with sufficient steadiness. A not unnatural anxiety to proceed has often induced me to push forward as soon as there appeared any probability of creeping along shore: yet I have been comparatively justified in doing, in a small ship, what would have been infinitely more imprudent in a large one; as it is partly for the sake of those who may hereafter renew these attempts in larger vessels that I make this remark.

"But, justified or not, every thing which has occurred has proved that nothing was gained by this ambition and impatience: it was fighting against the unsurmountable obstructions of climate; against winds and currrents, and ice and rocks; against nature herself, daily threatening to draw the boundary which we were not to pass. It is now plain, (and let future navigators in these seas profit by the remark,) that had I patiently waited, in numerous instances, until sure of reaching a place of refuge, we should have attained our present position far sooner than we have done, and with far less of toil and anxiety and hazard. But it is nevertheless plain, from the state of the ice, that although we had reached this point much earlier in the season, we could scarcely have succeeded in making any important progress further before the winter. As far as our operations for the following season are concerned, we are probably in as good a position for deciding, here, as we could have been, though more advanced: being also, while three hundred miles further than any preceding expedition, not more than two hundred and eighty miles from the coast laid down by Captain Franklin."

"On the mode of navigating in these seas, I may here also declare my now acquired conviction, that where there is no harbour, and the ice is setting along the shore, there ought to be no hesitation in taking a position in the pack, especially when a ship is near the land. It is, in reality, the most secure proceeding; and although the consequence may often be a retrograde movement, that is not to be put into competition with the safety of the ship; while we never experienced any difficulty in extricating ourselves sooner or later. I am earnest in enforcing this doctrine on navigators, because the reverse opinion is rooted; as the consequence of the opposite practice is, to keep a vessel in a constant state of actual, as well as apprehended danger, or anxiety. And this is, in fact, the source of all the dangers and narrow escapes of which we read; while a little care and patience would generally avoid that frequent casualty, the being beset in the ice. A little reflection should indeed show, that it is not within the power of a ship to force herself through such obstructions: and thence do I recur to the conclusion, that it is imprudent, as well as idle, to be perpetually pushing on to reach every tract of open water, unless it can be done without risk, and unless also there be a prospect of retaining the ground that has been gained, or of making a determinate progress.

"It is indeed true, as it may be answered to these remarks, that it is the business of a ship to seek for a harbour, especially after a long run, and on an unknown coast. But it is generally easy to send boats on this duty, with little or no comparative hazard, when there are prospects of refuge on shore: while, instead of thus endangering the ship, it is, as I have already recommended, the

certain extent, true. And, on a calm review of what is just past, I have reason to blame myself for not having acted up to this principle with sufficient steadiness. A not unnatural anxiety to proceed has often induced me to push forward as soon as there appeared any probability of creeping along shore: yet I have been comparatively justified in doing, in a small ship, what would have been infinitely more imprudent in a large one; as it is partly for the sake of those who may hereafter renew these attempts in larger vessels that I make this remark.

"But, justified or not, every thing which has occurred has proved that nothing was gained by this ambition and impatience: it was fighting against the unsurmountable obstructions of climate; against winds and currrents, and ice and rocks; against nature herself, daily threatening to draw the boundary which we were not to pass. It is now plain, (and let future navigators in these seas profit by the remark,) that had I patiently waited, in numerous instances, until sure of reaching a place of refuge, we should have attained our present position far sooner than we have done, and with far less of toil and anxiety and hazard. But it is nevertheless plain, from the state of the ice, that although we had reached this point much earlier in the season, we could scarcely have succeeded in making any important progress further before the winter. As far as our operations for the following season are concerned, we are probably in as good a position for deciding, here, as we could have been, though more advanced: being also, while three hundred miles further than any preceding expedition, not more than two hundred and eighty miles from the coast laid down by Captain Franklin."

"On the mode of navigating in these seas, I may here also declare my now acquired conviction, that where there is no harbour, and the ice is setting along the shore, there ought to be no hesitation in taking a position in the pack, especially when a ship is near the land. It is, in reality, the most secure proceeding; and although the consequence may often be a retrograde movement, that is not to be put into competition with the safety of the ship; while we never experienced any difficulty in extricating ourselves sooner or later. I am earnest in enforcing this doctrine on navigators, because the reverse opinion is rooted; as the consequence of the opposite practice is, to keep a vessel in a constant state of actual, as well as apprehended danger, or anxiety. And this is, in fact, the source of all the dangers and narrow escapes of which we read; while a little care and patience would generally avoid that frequent casualty, the being beset in the ice. A little reflection should indeed show, that it is not within the power of a ship to force herself through such obstructions: and thence do I recur to the conclusion, that it is imprudent, as well as idle, to be perpetually pushing on to reach every tract of open water, unless it can be done without risk, and unless also there be a prospect of retaining the ground that has been gained, or of making a determinate progress.

"It is indeed true, as it may be answered to these remarks, that it is the business of a ship to seek for a harbour, especially after a long run, and on an unknown coast. But it is generally easy to send boats on this duty, with little or no comparative hazard, when there are prospects of refuge on shore: while, instead of thus endangering the ship, it is, as I have already recommended, the

safest, and indeed the only prudent practice, to take to the ice. This is, if I mistake not, the refuge furnished by Providence; and he who neglects it, still trusting to Providence to escape the dangers which he unnecessarily incurs, must not complain in case of failure; since he has not exerted his utmost care and prudence to render himself entitled to that protection. Let that be kept in mind by him at least who may hereafter attempt a 'north-west passage:' and let him never lose sight of the two words, caution, and patience."

CHAPTER XII.

REMARKS ON THE PRESENT CONDITION OF THE SHIP, AND PREPARATIONS TO REDUCE THE ENCUMBRANCE OF THE ENGINE—UNRIGGING OF THE SHIP—A SUCCESSFUL BEAR HUNT—ASCERTAIN THAT WE ARE TRULY FROZEN IN FOR THE WINTER—A POWDER MAGAZINE ERECTED ON SHORE—PROVISIONS EXAMINED—THE GUNS AND PARTS OF THE ENGINE HOISTED OUT.

BEFORE proceeding with the journal of the following month, I must offer some remarks on the actual condition of our ship, especially as regards the engine. The record of the last weeks has already shown that we had ceased to consider her as aught more than a sailing vessel: and it is also true, that whatever advantage we had latterly derived from our machinery, it was not greater than we might have obtained from our two boats, by towing. But, thus rendering us no service, the engine was not merely useless: it was a serious encumbrance; since it occupied, with its fuel, two-thirds of our tonnage, in weight and measurement. It had been, from the beginning, a very heavy grievance in another way, and in addition to the endless troubles and vexations which I have already recorded: since it demanded and employed the services of four per-

sons, who were necessarily landsmen, not sailors: thus cramping, very seriously, the number of our real, or nautical, crew. As the engine, moreover, had been considered the essential moving power in the original arrangement of the vessel, the masting and sailing had been reduced accordingly, since it was presumed that the sails would only be required in stormy weather; so that, in fact, she was almost a jury rigged ship. To add to all these disadvantages, she had, under this imperfect power, the heavy duty of towing a boat of eighteen tons, a dimension equalling one-fourth of her own: the whole comprising a mass of obstruction and encumbrance which we certainly as little expected as we had foreseen when we quitted England.

If with all this, we had not less reason to be thankful for the progress we had made, than really to wonder at our success thus far, these were not things to make us shut our eyes to what it seemed now most needful to do. In future, our ship was to be a sailing vessel, and nothing more. I therefore determined to lighten her of the most ponderous and least expensive part of this machinery, and to apply, towards strengthening the ship, whatever might seem available for that purpose. With this view, arrangements were made on the last day of September, for taking to pieces the boilers, that we might land them as soon as the ship should be frozen in; an event that could not be distant; while, to this, I had more than the concurrence of every officer, and, probably, that of every man. It is true that we thus consented to reduce ourselves to a degree of power far inferior to that of any preceding vessel engaged in these services; but, in reality, that evil had already occurred against

our will, and our voluntary act of self condemnation was, after all, little more than a form.

During the last night, the thermometer fell to 17°, threatening us with having reached our last position for this season; but, towards daylight, the weather became cloudy, and the temperature rose to 21°, with a fall of snow, which continued the whole day. We were thus, however, prevented from ascending the high land near us, and, thence, from making those observations on the state of the coast and the ice, which were indispensable towards any further attempt at proceeding. We could do nothing more therefore than sound and survey our little harbour; and were pleased to find that if we should really be frozen up in this spot, we should find it a safe place, after making some alterations in it, by clearing away the heavy masses, and sawing into the bay ice, which was now six inches thick. The snow ceased at night. A very recent fox-trap was found on the shore: and as the seals were very shy, while numerous, it was a natural conclusion that the Esquimaux had not long quitted this place. Oct. 1.

Though the morning was cloudy, it was not an unfavourable day for an inland excursion. We landed on the north side of the harbour, as the ice was not such as to enable us to cross it to the southern one, which was, to us, the important point. After passing a valley containing a frozen lake, I ascended a high hill, and thence discovered that a creek which had caused us to make a circuit, was an inlet running about six miles within the land, in a north-west direction. Here I also saw the head of the great inlet which we had observed on the thirteenth, surrounded by land Oct. 2.

appearing considerably higher than that to the south-west, which consisted of a succession of uniform low hills. Beyond this land I could see no water. To the south-east, there was a perfect view of the islands that we had passed on the thirtieth of September, together with some land to the eastward and southward, which was probably the American continent; though this point could not then be determined, any more than I could ascertain whether it was a continuation of that on which I was now standing.

At present, it was more important to know what the state of the ice was, and what it was likely to be; but what we saw gave us no hopes of any further progress. We were at a stand. We had indeed long suspected that the event which could not be very distant, was impending, nor could we, in reason, be surprised that it had arrived. Yet we had been busy and active up to the present point, and our perpetual efforts had, as is usual in life, prevented us from thinking of the future, from seeing that the evil which could not for ever be protracted, was drawing nearer every hour, that it was coming every minute, that it was come; thus nourishing that blind hope, which even in the face of inevitable danger or of certain ruin, even on the bed of death itself, is the result of effort and resistance; that hope which ceases only with the exertions by which it was supported, when the helpless ship falls asunder on the rock, and the sun fades before the eyes of the dying man.

It was now that we were compelled to think, for it was now that there was nothing more to be performed; as it was now also that the long and dreary months, the long-coming year I might almost say, of our inevitable detention among this immoveable ice rose

full in our view. The prison door was shut upon us for the first time; while feeling that if we were helpless as hopeless captives, that not even Nature could now relieve or aid us, for many a long and weary month to come, it was impossible to repel the intrusion of those thoughts which, if they follow disappointment, press on us ever more heavily, under that subsidence of feeling which follows on the first check to that exertion by which hope was supported. Should we have done better, been further advanced, have passed through these difficulties, and more, should we have passed all, and found ourselves where we wished, forming a junction with the discoveries to the westward, had the engine not disappointed us, had we been here, as we ought to have been, a month or six weeks sooner? Was it the badness of our vessel, a complication of defects not to have been foreseen, which had prevented us from completing the outline of America, from ascertaining the "north-west passage" in a single season? This was the thought that tormented us; and not unnaturally, when we recollected all that we had endured, all our delays and disappointments. But, like that self-tormenting under which mankind make themselves so often fruitlessly miserable, these thoughts were purposeless, and worse; so that we hastened to discard them as they arose: aware, on reflection, that we could not see into the distant and the future, that we could not speculate on the nature of the land before us, could not be sure what the ice had been before our arrival, and could, therefore, as little know, whether there was a passage westward to be found in this direction, as whether we should have been one foot further advanced, had every thing we desired conformed to our wishes.

We saw here many tracks of hares, and shot some which were, even at this early period, quite white: this needful change taking place, as should now be well known to naturalists, long before the ground has become permanently covered with snow, and long before the weather has become truly cold; proving that it is, at least, not the effect of temperature, as it is assuredly a prospective arrangement for meeting the cold of winter. The track of a bear was also found; and, in the interior, we could see, even through the snow, that the plains were covered with vegetation; while the protruding rocks consisted of red granite, accompanied by fragments of limestone near the shore; indicating a continuity of the same geological structure that we had traced ever since entering this strait. There were many Esquimaux traps, with a great number of those cairns, or stones, resembling men when at a distance, which these people erect for the purpose of frightening the deer within their reach. In this space, amounting to five miles, which we had traversed, there were two large lakes.

During our yesterday's excursion the men nearly demolished the iceberg which chiefly obstructed our possible exit, so that it was hove out into the tideway before five o'clock: but as it continued calm, with a temperature of 20°, there was little chance of proceeding, even after this impediment was surmounted; since, in this state of things, the new ice could not fail to set us fast. This morning the temperature promised even worse, being only 13°: but, during the day, it rose to 21°, the weather being clear and moderate. Landing again, we reached the summit of the highest accessible hill at noon: but the sight of the horizon from it was

imperfect, and we could decide on nothing, though what we did see was by no means of a promising nature. The ascent of a second hill disclosed nothing but a vast extent of land from the north-east to the south-west, with no space of water but that where we lay, and which resembled the bottom of a great bay. We again saw the tracks of hares, and that of a white bear, together with those of ermines and foxes; picking up, moreover, the horns of a reindeer.

The state of the ice was however the important consideration; while knowing too well how difficult it is here to judge of the nature and connexions of the land, I was fully aware that we could not form any decisive conclusions from what we had yet seen. The former appeared nearly in the same state; and we had now even more reason to believe that the great pack was so firmly cemented for the winter, that it would separate no more. Of the land I was determined to acquire more knowledge, if that should be possible, by travelling as far as it should prove accessible. Our ship was not absolutely frozen in; but she was placed in the most desirable position that could be found, in case of that event occurring; as we had now so much reason to expect.

As to the nature of the land thus traversed, it differed little from what we had already examined; though more uneven and rugged. The valleys, as before, included lakes; but those which we saw were but a few feet deep, and seemed to contain no fish. Angles were taken from a cairn erected on the highest hill, together with the usual observations. In the mean time, the men on board were employed in taking the engine to pieces, for the purpose of landing

it, the dogs were exercised in the sledges, and other preparations for wintering were made. The thermometer, in the night, sank to 16° with a fall of snow, while the air had a peculiarly raw and cold feel.

Oct. 4. The morning temperature was 13°, but it rose to 17° at noon, and the snow ceased. Being Sunday, divine service was performed, and the men were sent on shore for exercise, when some ptarmigans were seen. The ice had but little increased, and there was still much open water to the north-east, with some to the southward, though the heavy pack which lay in our way remained in the same state. There was more snow on the hills, yet the approach of winter was much more gradual than it had usually been found in these climates.

Oct. 5. The men were employed in unbending some of the small sails and in unreeving the running rigging, while the engineers were busied in continuing the work which they had commenced on Saturday. The temperature rose from 14° to 17°, but fell again to 14° in the evening; and there was open water not very far from the ship. The dogs were again exercised, and a fox was seen on the ice, being the first that we had met with. An aurora borealis was observed at one o'clock, and the barometer rose to 30° 73′. The weather, at the same time, became so thick as to render it hopeless at present to get any further sight of the land; and as we were at length quite frozen round, the prospect of advancing became less and less every hour.

Oct. 6. A fresh breeze of wind made the last night colder than any which had preceded; and, in the morning, the temperature was at

12°; rising in the course of the day to 14°. We now therefore proceeded to cut the ice, so as to get the ship into what we considered the position of greatest safety for the winter; a work which occupied the whole day. There was still a little open water to the northward: not much snow fell, and, in the evening, the wind shifted to the south, blowing fresh.

The tedium of this day, the forerunner of many far worse, was enlivened by a successful bear hunt, being the first chance of the kind which had occurred to us. The animal, having approached the ship, was turned towards the island; and in this way our party was enabled to cut it off from the land. Thus imprisoned, we turned our Greenland dogs on it; but they proved to be of no use, showing nothing of the instinctive desire to attack this animal, which is so general in their race. It was then chased to the water; where, plunging into the new-formed ice, it could make little progress, and was, consequently, overtaken by the skiff and killed. Being brought on board, it proved to be a female of a medium size; measuring six feet eight inches between the nose and the tail, and weighing five hundred pounds.

After a fine morning, the snow came on at eight; but the weather was so much milder, that the thermometer rose from 12° to 21°. The sawing of the ice was finished at noon; and the ship, being hauled in, was placed with her head to the northward, between the island and the main, so as to be quite defended, both from the eastern and western blasts. With land also toward the north, and the rock to the south-east, she was open to only three points of the compass, so that we had reason to be pleased with Oct. 7.

our success, where no great choice could have been commanded at any time. The depth of water was thirty-three feet: and as there had been a current as long as there could have been one, we had a right to conclude that it would return with the summer, and expedite the disruption of the ice, so as to assist us in getting out, whenever that season should arrive. The boats were now therefore landed, the decks cleared of ropes and spars, and the other needful arrangements made for housing the ship during the winter.

Oct. 8. There could, in fact, no longer be the least doubt that we were at our winter's home; if we could indeed have reasonably doubted this some days before. But, as I have already said, it was a time to come, sooner or later; and if we had, within this last week, found reasons enough to feel neither surprise nor disappointment, so, as I had concluded at our first entanglement in this place, were we far from being sure that we had any thing to regret. We could not, indeed, expect to lead an active life now: we did not even know that we should find any thing useful to do: but it was our business to contrive employment, and to make ourselves as easy and as happy as we could, under circumstances which we had ample reason to expect. We were, I believe, all pretty well provided with patience, and there was no reason to want hope; it was for after years to draw somewhat deeply on the former, and to prove, of the latter, that more, perhaps, depends on a fortunate constitution than on aught else.

Our conviction was indeed absolute; for there was now not an atom of clear water to be seen any where; and excepting the occasional dark point of a protruding rock, nothing but one dazzling and monotonous, dull and wearisome extent of snow was visible,

all round the horizon in the direction of the land. It was indeed a dull prospect. Amid all its brilliancy, this land, the land of ice and snow, has ever been, and ever will be a dull, dreary, heart-sinking, monotonous, waste, under the influence of which the very mind is paralyzed, ceasing to care or think, as it ceases to feel what might, did it occur but once, or last but one day, stimulate us by its novelty; for it is but the view of uniformity and silence and death. Even a poetical imagination would be troubled to extract matter of description from that which offers no variety; where nothing moves and nothing changes, but all is for ever the same, cheerless, cold, and still.

Amid all this, it was a satisfaction to find that every one seemed pleased with the progress which had been made. It was indeed far short of what had at first been expected; but on examining what had been done, much more quietly and far more in detail than we had been enabled to do in our first reflections under this obstruction, and on comparing that with our numerous impediments and misadventures, the view now taken was not less reasonable than gratifying. We could not forget the days when we should have thought ourselves fortunate though we had only reached Port Bowen in this season, and though we had failed in attaining to the wreck and the stores of the Fury. But when the chart was at length displayed before us, we saw that we had not merely reached this great point in our voyage, but had passed it by a hundred and sixty-six geographical miles, and were two hundred further than that harbour where we had expected to be laid up, if we had even attained that spot. Nor was it less satisfactory to reflect on the

numerous dangers which we had escaped, in navigating passages so truly intricate and perilous, under the gales that we had evaded, and through the ice which had been rendered our slave rather than our master. Thus comparing and considering, as we had at length ample time and much reason to do, we came to the tranquillizing conclusion that we were now become a little united and settled family; all equally zealous and equally patient; all ready for new difficulties whenever they should occur, and, while all thankful for our success, all, whose duty it was to obey, giving obedience with a good will, or an alacrity, which might not have been equally conspicuous under positive martial law.

During twenty-four hours the gale was fresh from the east-south-east, with driving snow, which was inconvenient as far as our works were concerned; but the thermometer being at 24°, the cold was not severe. The men were employed in clearing the hold and measuring the remaining fuel, and the engineers were busied on the engine: while the carpenters were at work in making alterations in the cabin, to secure us better from the cold. We had not lately been able to keep it higher than 28°, in consequence of the position of the door; but by these alterations we could now keep it at 45°, and had no desire for a higher temperature. This is sufficient to keep off damp: and in this climate, that is a circumstance more to be avoided than mere cold. We boiled the blubber of our bear and some seals, on shore; but the smell attracted no foxes or bears, so that we believed there were no animals at this place.

Oct. 9. The snow ceased this morning, and the thermometer rose from 19° to 25°, the sun shining bright during the day. The engine was

nearly taken to pieces; and, by throwing down the bulk head, the seamen's accommodations were materially extended. Observing some large holes of water to the south-west, we went to examine them, and found them varying from twenty square yards to an acre, in extent, with a strong current boiling up at their western sides, and running towards the east, in which direction their longest dimensions lay. During the whole day this current remained the same; a fact which puzzled us, as we were obliged to postpone the determination of its real nature and cause to the ensuing summer. If there were any among us who had theories of springs here rising in the sea, or rivers running into it, they are not worth the trouble of either detail or examination.

Towards evening the wind came round to the northward, and the thermometer fell to 13°. A seal was shot, but was lost by sinking; and the skeleton of the bear having been sunk in the water that it might be cleaned by the marine animals, was brought up with some shrimps and shell fish attached, to increase our small collection of specimens. This was the only perfectly clear night we had seen since our residence in these straits; and, the moon being full, the aspect of every thing was unusually cheerful.

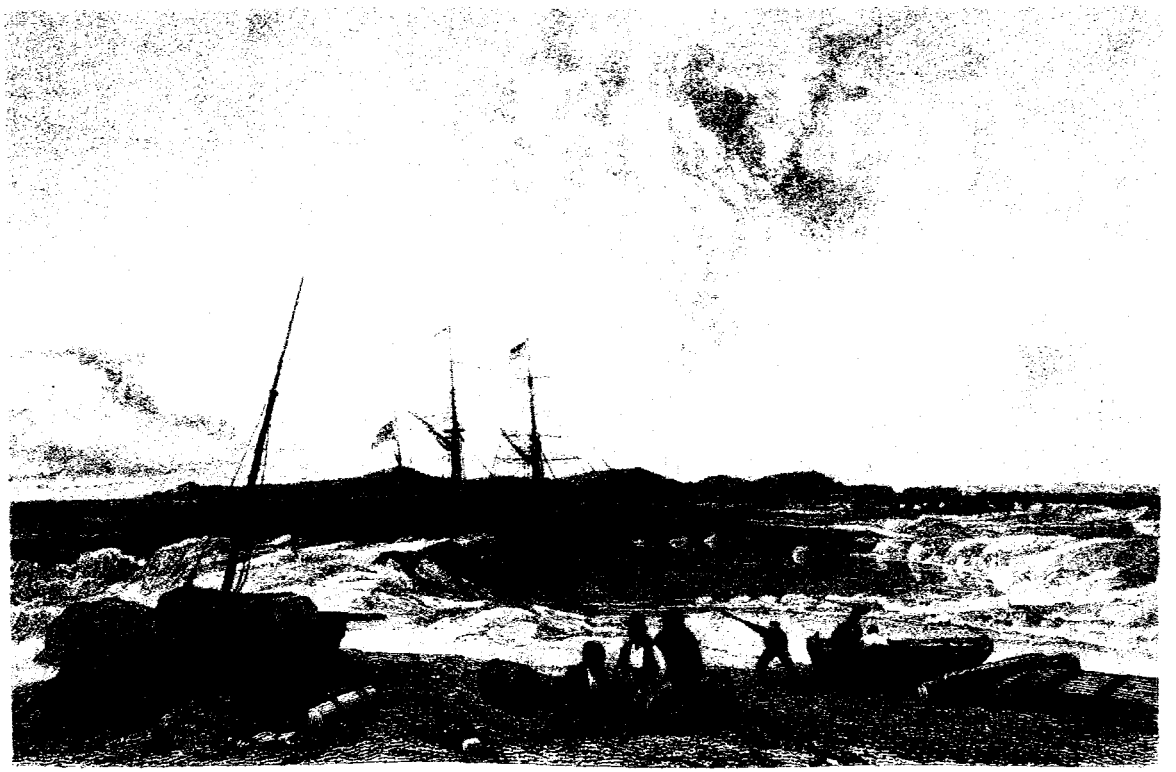
The northerly breeze had blown hard, but subsided towards morning, so as to leave us a bright and clear day; the sea horizon, however, presenting a thick fog. Nothing remained standing on board but the lower masts with their rigging. An excursion on shore led us to a rude stone of a columnar form, erected by the Esquimaux, but for a purpose that did not appear; and we observed the tracks of foxes. A small quantity of clear water was Oct. 10.

still seen to the northward, as well as in the openings already mentioned; but we could conjecture no cause for this current. In the day the temperature was 15°, falling to 10° at night. The latitude was settled at 69° 58′ 42″ and longitude 92° 1′ 6″.

Oct. 11. The sky being overcast, the thermometer rose to 18°, but, even at this temperature, it did not feel cold, as the breeze was moderate. The ship's crew were mustered in good health, excepting R. Wall, who had fallen down into the engine room, yet without any serious injury. After church service, the men were allowed their turns on shore; and, in their walk, they set up a landmark for the ship, about four miles off on the coast. The wind freshened at night, and the thermometer fell to 11°.

Oct. 12, 13. There was no material change. The work in the ship was continued, and a place for a powder magazine selected on the island near us, which was consequently named Magazine Island. The hold being restowed, the fuel was measured, and found to amount to seven hundred bushels of coal and coke; being, as we computed, sufficient for the ordinary wants of the ship during the same number of days. A complete examination of the provisions also took place: and the result was, to find that there was enough for two years and ten months, on full allowance; a quantity easily made to cover three years consumption. The quantity of oil and tallow was found such as to promise a duration equivalent to that of the provisions; presuming, at least, on the further assistance that we had a right to expect from our captures of bears and seals, on sea and land.

The thermometer, on the twelfth, was 14°, falling to 10° the



next day; and, again rising to 20°, it remained so till late, not falling below 17° at midnight; the weather becoming more and more cloudy, with an appearance of threatening snow. We thought ourselves fortunate in discovering here what might turn out a source of fresh provisions, in a large whelk, which had not been seen in the former voyages. Some unsuccessful attempts were made on the seals, and a part of the engine was hoisted over on the ice. The snow, on the following day, fulfilled its promise; Oct. 14. coming on very early in the morning, when the thermometer rose to 20°, and then to 22°, falling back to 17° towards night. The brass guns were put on the ice, with more of the engine, and the lower deck was cleared of some spare stores, by stowing these in the hold. They who valued omens were left to speculate on the prophesying of a raven which flew round the ship. How far they did speculate, and what their prognostics were, I did not take the trouble to inquire: had they been either absurd or important, it is probable that I should have heard enough of them, without inquiring.

CHAPTER XIII.

REMARKS ON THE ACTUAL TEMPERATURE AND ON THAT OF SENSATION—PROCEED IN LIGHTENING THE SHIP—THE ENGINE FINALLY LANDED, AND THE KRUSENSTERN SECURED—ROOFING OF THE SHIP COMPLETED—REMARKS ON THE TEMPERATURE—ABOLITION OF THE USE OF SPIRITS ON BOARD—CONTRIVANCES FOR WARMING AND VENTILATING THE VAPOUR BETWEEN DECKS—DESCRIPTION OF THE SEVERAL ARRANGEMENTS MADE FOR WINTERING, AS RELATING BOTH TO THE SHIP AND THE CREW.

Oct. 15. THE snow ceased before daylight, but it blew fresh from the north; feeling very cold, though the thermometer was 18°; a temperature, which, but a few days before, had not been disagreeable. This difference is, very obviously, as it is vulgarly, explained by the different strength of the wind; while the immediate cause, on this supposition, is too simple to require statement. But there is much more to be taken into consideration; while some of the circumstances are either so little heeded, or so difficult to perceive, that if the reader is sometimes puzzled to explain the apparent contradictions in the reports on the actual heat and on that of sensation, they who feel that of which others read, are often not less puzzled themselves. I may as well state here, once for all, what

has struck me when thinking on this subject; since the same collision of facts is likely to be of frequent occurrence, and the reader will be thus enabled to explain for himself, many future statements of the same nature, and save me the trouble of recurring to what I believe to be the philosophy of this subject.

Among these considerations, is the hygrometrical state of the air, of which we did not preserve any register: but this is not so simple a case as it appears at first sight. Every one knows that a damp air feels cold and raw; it is a better conductor of heat. Yet the same effect on the sensations is produced by the reverse condition of the atmosphere. A dry air increases the evaporation from the body, and that evaporation is a source of cold. Combining one or other of these conditions with the varying strength of the wind, we already see a certain way into the intricacy of this question; but that is not yet the whole, even as the mere atmosphere is concerned. The damp air does not, necessarily and always, produce a sensation of coldness, and, least of all, does it produce this effect when the weather is calm; since a fog, by checking the radiation of heat from the surface, may be more than an equivalent to the cold which its conducting power might cause; while it also acts in the same direction, in another manner, by checking the evaporation from the body.

But the state of the body itself is scarcely of less moment than all this, in any attempts to explain these apparent contradictions; as it complicates the whole question in a far higher degree. Every one knows that the sense of cold can exist in certain fevers, even under the burning sun of Africa; and the same internal sensation,

as of a low temperature, is of frequent occurrence from other diseases, and moreover from derangements of health so slight as to be undefinable. It is far more remarkable, that the feeling of extreme cold can be present, under fever, when the temperature of the body is many degrees above the natural standard, and when, to the touch of others, the patient is burning hot; as, in the space of a very few minutes, it may appear the same to himself, though no change of the actual temperature has taken place.

Thus also, if the circumstances differ, does exercise, or the want of it, produce sensations of temperature, when there is nothing external to cause them; and the case is similar under want, or reversely, under abundance, of food. These are things which affect the power that generates animal heat; as the greater or less energy of this power is perhaps the chief cause of all the facts which are often so difficult of explanation under a simple regard to external temperature. That energy, too, is not the mere produce of food or exercise; there are cases, in which no allowance of food, and no exertion of the muscular powers, will suffice to preserve a high temperature in the human body. In reality, though it is little remarked, and, as far as I know, is not even observed by the writers on physiology, the power of generating heat varies exceedingly in different individuals, and is as much a portion of the original constitution, as are the muscular or the mental energies. Any one who pleases may observe this in common life; it was always striking to us, in circumstances where the application of the test was so often extreme; so that, after a little practice, it was easy to anticipate who would suffer from degrees of cold which others would despise.

In mentioning this, I am also, in justice to the chief sufferers in our crew, bound to observe, that I have myself been noted, by a physiologist of well-known reputation, as possessing in a very high degree, the power of generating heat, whence too, as he infers, that indifference to cold of which I was always conscious; together, consequently, with the very limited comparative suffering that I experienced during that long protracted winter, as I may fairly call it, which occupied four of the winters of England, yet such winters as England never saw and will never conjecture, together with five summers, of which every one would, in that country, be deemed severe beyond the severity of its own Januaries and Februaries. I must leave it to the reader to judge how far this constitution may have influenced my reports on the temperature of sensation, on many occasions; it is certain that I could not judge what others felt; but I could not have described what I did not myself feel.

These remarks are not mere matters of philosophical speculation, nor are they questions of amusement or curiosity alone. They offer useful hints to those who may hereafter engage in similar expeditions; since they deserve some among the first attentions in the selection of a crew. Other circumstances of apparent health and strength being equal, it is he who seems the readiest generator of heat who ought to be the selected individual; for no one will know, until he has suffered from it, what disappointments and vexations and labours, and restraints to the service, follow from the susceptibility of cold in the individuals who may form the crew of a ship, on a service like this: to say nothing of the accidents, in mor-

tifications and death, and in scurvy too, I have little doubt, which follow from the same cause. I know not, however, that I can give rules that will not produce disappointment, where the test of facts would be the really desirable guide. But this at least seems certain, that men of the largest appetites and most perfect digestion produce the most heat; as feeble stomachs, whether dyspeptic, as it is termed, or merely unable to receive much food, are subject to suffer the most from cold; never generating heat enough to resist its impressions.

Physicians must determine whether the strong digestive power and the heat-generating one are but parts of one original constitution, or whether the large use of food is not a cause of the production of heat; but what follows is at least practically true, as the reasons seem abundantly plain. He who is well-fed resists cold better than the man who is stinted; while the starvation from cold follows but too soon a starvation in food. This, doubtless, explains in a great measure, the resisting powers of the natives of these frozen climates: their consumption of food, it is familiar, being enormous, and often incredible. But it is also a valuable remark for those who may hereafter be situated like ourselves; since if these views are correct, as I believe them, both from experience and reasoning to be, it shows that no effort should be spared to ensure an ample supply of the best food.

Our system, whether in the navy or the merchant service, and in whatever parts of the world, be it the icy seas, or the tropical ocean, has been as fixed as it is uniform; and perhaps I ought not to blame those who have made regulations, when they did not know,

and could not therefore take into consideration the grounds on which their orders ought to have been regulated. If the allowance of the food for seamen, under all possible differences of climate, or labour of service, technically speaking, has been fixed, and uniform, implying circumstances, and involving consequences respecting which I dare not here take room to speak, so, in the case immediately before me, have we been accustomed to fix the allowance of food, to restrict it, I may fairly say, through an experience founded on far other circumstances, or under a system calculated from very different data.

The conclusion therefore in which I wish to rest, willingly as I would have extended these remarks, and perhaps then extending them so as to produce the greater conviction, is this; namely, that in every expedition or voyage to a polar region, at least if a winter residence is contemplated, the quantity of food should be increased, be that as inconvenient as it may. It would be very desirable indeed if the men could acquire the taste for Greenland food; since all experience has shown that the large use of oil and fat meats is the true secret of life in these frozen countries, and that the natives cannot subsist without it; becoming diseased, and dying under a more meagre diet. Nor do I know that this is impossible; since it is notorious that where the patients in English hospitals have been treated with fish oil for the cure of rheumatism, they not only soon learn to like it, but prefer that which is strongest and most offensive. I have little doubt, indeed, that many of the unhappy men who have perished from wintering in these climates, and whose histories are well known, might have been saved if they

had been aware of these facts, and had conformed, as is so generally prudent, to the usages and the experience of the natives.

I know not that I am safe in making another remark respecting the constitutions which peculiarly generate heat, because this is the business of physicians; but they will be ready enough to correct me if I am wrong. A ruddy, elastic, florid, or clear complexioned man, has always seemed to me better secured by nature against cold, than the reverse constitution; and the term for the former is a sanguine temperament, while that which is applied to the other is, a phlegmatic or a melancholic man: but physicians best know how many species there are in this class. At any rate, the pale, and flabby, and sallow, and melancholy-looking men, are not the men for an arctic voyage; they suffer most from cold, whatever individual exceptions there may be; and therefore I suppose that they do not manufacture heat to the same extent as the others. If such men also are slow and melancholy in mind, as I believe to be very common, this is most assuredly an additional reason against employing them; for even when these feelings occur in a better temperament, they diminish the power of resisting cold; as if the exciting passions, as they are termed, a fact which I know not how to doubt, led to the generation of heat, and the depressing ones to the reverse. And this, be the theory true or not, being practically the fact, inasmuch as hope and confidence make men bear that cold under which the timid and desponding suffer, though perhaps it is only that the same constitution leads to both results, producing hope and displaying energy while it also generates heat, another suggestion offers itself respecting the care to be bestowed on

the crew, and the occupations which should be invented for them, as well as in regard to the original choice; since it thus becomes the interest, not less than the duty, of the commanding officer, to keep up their spirits and hopes, by any means that he can contrive; as, in doing this, he also knows that he is adopting one of the best expedients against the attacks of the scurvy.

I will only add to these remarks, what may, I trust, be of use to future arctic navigators, namely, that although every expedient in the way of clothing should be adopted for resisting the impressions of external temperature, as these are too well known to require detail, nothing will compensate for the want of the heat-generating energy, but external heat; as that is but too often an imperfect expedient. It is of little use to clothe him who will not, in himself, produce heat: it is like the attempt to warm a piece of ice by means of a blanket; but it is too common a mistake to imagine that the expedient which can only preserve heat is capable of producing it.

The weather continued fine, but the thermometer fell to 6°. We Oct. 16.
continued to lighten the ship and get out the boilers. I ascended the highest accessible hill to the south-west, and obtaining a good view, conceived that the distant land was continuous from the south-west till it closed in with the west end of the island, though I could not be positive respecting objects so far off, nor be sure that there was not some opening. The land was very rugged, and intersected by ravines, with many small islands scattered along the shore. There was still some clear water to the northward and in the inlet; but the horizon being hazy, we could not see further than Hecla and Fury island. The holes in the ice which we had noticed, were now

frozen up, and all marks of a current had, of course, disappeared.

Oct. 17. A strong north wind made the cold very severe on the following day, though the thermometer ranged between 14° and 8°. A single coal fish was taken; and I doubt if it was before known that this species frequented the seas so far north; if, indeed, it should not prove a new one.

Oct. 18. It was a beautiful day, with calm weather; the thermometer was between 6° and 8°; but in the evening it fell till it reached one degree only, at seven o'clock. This was by very much the lowest temperature we had yet experienced. Sunday found all our men well, and him who had met with the accident recovered. More than fifty lunar distances were obtained for the longitude. The aurora was seen in the south-east. Our nets continued to bring up the welcome shell fish, but not in great numbers.

Oct. 19. The thermometer rose a few degrees as the sun proceeded to the meridian, and, at sunset, fell to 2°. It continued calm till evening, when there was a light air. We again obtained lunar distances to the amount of a hundred and twenty, with meridian altitudes of the sun and of several stars. A chronometer, intended for the transit observations, was set to mean time. In the course of the evening, the frames belonging to the engine were got out: and I believe the men felt that they were fast ridding themselves of a nuisance; of an enemy, where they had reckoned on a friend.

Oct. 20. The fine weather continued, and the temperature fell to two degrees under zero. It was our first minus, and we began to agree that the cold weather was really arrived. But it was very tolerable thus far. In the course of the day it rose to plus 7°; but, at night,

fell again to minus 9°. The last of the engine was hoisted out: may I not say that there was not one of us who did not hail this event with pleasure. We could not even look at its fragments without recollecting what it ought to have been, and what it proved to be; nor without reflections, and those not kind ones, on its maker, when we remembered the endless and ever recurring trials of our patience which it had caused, the never ceasing labour of the men in its reparation, the ever renewed hopes, producing ever new disappointments, and the loss of temper, to most of us, I fear, of which it had been the fertile cause. The enemy, however, was at last at our feet; and while it was incumbent on us to store it up, though it would in reality be difficult to say why, were it not from that habit, or feeling, which rebels against absolute wastefulness, I believe there was not one present who ever again wished to see, even its minutest fragment.

The Krusenstern was secured yesterday, and, at night, an aurora made its appearance. A fish which we believed might be a new species, as we had not seen it before, was taken. The thermometer was low, ranging between plus and minus 4°: the weather nearly calm. The erection of a roof over the ship was commenced, and a white fox shot. We could get no lunar observations, and were not likely to procure them again for the next four months. Oct. 21.

Though the land was much elevated by refraction, this day, it showed us nothing new: the thermometer did not materially vary. It now became necessary to cut away the ice round the ship, in consequence of her having been so much lightened; that she might settle to her natural line of flotation. This being done, she rose Oct. 22.

nine inches; and we proceeded to build up a bank of snow and ice round her, for shelter from the cold. The galley was also moved, and placed in the centre of the men's berths, that the heat from the fire might be more equally distributed. A tank of plate iron was, further, placed on the upper deck, over the coppers; and, by this contrivance, the steam, which is a constant annoyance at these low temperatures, was secured and condensed. Another raven was seen; and our fishery of whelks, though never very productive, was continued daily.

Oct. 23. A fresh breeze rendered the cold very sensible to-day; but its effect was, nevertheless, to raise the thermometer from minus 6° to plus
Oct. 24. 8° in the course of the day. This wind continued on the following day, with drift snow; the thermometer falling to minus 3°, and then rising again as high as plus 15°. This is a sure indication of snow in these climates; and accordingly a heavy fall came on at midnight. Some other useful alterations were this day made in the ship; and, among the rest, a pipe was carried from the upper deck to the fire, by means of which that was easily regulated. These things being done, it was found that a very small quantity of fuel was sufficient to keep the lower deck, where the crew lived, dry and comfortable, and to maintain a medium heat of about 55°, being what I judged the most advantageous one.

Oct. 25. The snow continuing in the morning the thermometer rose to 18°, but began to fall at noon, and, in the evening, was at minus 6°. Prayers, and exercise on shore, occupied, as usual, their portions of the present Sunday. We had set a fox-trap yesterday, and to-day it was found robbed by the dogs.

Though the temperature was not materially different this day, a smart gale made the cold very severe. We therefore hastened to complete the roofing, which was done by means of the spare sails procured from the Rookwood's and the Fury's stores: and we immediately found the advantage of this additional security against the cold. Other needful arrangements on the part of the carpenters and engineers, found us in-door employment, when it was especially unsafe for inexperienced men to work out of the ship, lest they should be frost-bitten. Oct. 26.

After continuing to blow a storm all day, the wind fell at six o'clock, and the weather cleared: after which the snow ceased, and it became calm. We were thus enabled to make considerable progress for a time in our snow fortification; but in the evening it blew as hard as ever, and the thermometer fell to minus 11°. Thus it continued till six on the following morning, when it settled and cleared. In the course of this day the temperature sunk to minus 13°, being the lowest that had yet occurred. The ship, however, being now completely housed in, we found ourselves in a very comfortable position. Oct. 27. Oct. 28.

In the course of the preceding night the thermometer rose to plus 3°, and, during the day, to 4°; a state of things, as I have just remarked, always attending snow, which accordingly fell in considerable quantity. On the following day, the drift was so great that we could not proceed with our embankment. The changes in the temperature were not so remarkable as to need recording here; but I must remark, that on this, as on almost every preceding occasion, the barometer indicated the coming gale. A white fox was taken in the trap, alive. Oct. 29. Oct. 30.

Oct. 31. The wind blew still harder, and the thermometer fell to minus 16°. At sunset there was a large halo, being but the second that we had seen; it was, however, only a white one. There was afterwards an aurora to the southward. The tops of the mountains were considerably bared of their snow by the gale: but the contrast of their dark rocks with the whiteness around, only served to render the aspect of this winter landscape more desolate. The poor fox was accidentally strangled: only, however, anticipating a fate which we should have been obliged to inflict hereafter, though we did not then foresee it.

We had, on this day, completed the first month of our imprisonment in this dreary and miserable country, and were naturally led to compare our present condition with those of preceding voyagers, and to make some general remarks on various matters, the most important of which I may now record, as briefly as may be.

I may first note, that in this climate, unlike to Sweden and Norway, the degree of the temperature bears little or no relation to the latitude. This will be sufficiently evident by the brief comparative table which I here insert, relating to our own mean for this month and those which had been formerly found at Melville island, Winter island, Igloolik, and Port Bowen. It is not however a very accurate comparison; because, in these cases, the temperatures were observed on board the ships, not on the ice; while the allowance of three degrees for that difference is far from sufficient; my own experience showing that it may amount to even 6°

These are the facts in question:

	Lat.	*Long.*	*Mean Temp. of*
Victory's position	69° 59′ 00″	92° 01′ 06″	Oct. 1829 . . + 8°, 43′
Melville island .	74° 47′ 20″	110° 48′ 7″	Do. 1819 . − 6°, 50′
Winter island .	66° 11′ 27″	83° 11′ 0″	Do. 1821 . . + 9°, 51′
Igloolik . . .	69° 20′ 30″	81° 52′ 46″	Do. 1822 . + 9°, 79′
Port Bowen .	73° 13′ 40″	88° 54′ 48″	Do. 1824 . . + 10°, 85′

In the next place, comparing our progress with some preceding ones, it was true that we had not reached so far westward as Melville island; but we had wrought our way through as much ice, since the extent of this navigation had been 240 geographical miles, as our progress had also been a very laborious one, and not a little hazardous on more than one occasion.

It was now, further, quite ascertained that the tides came from the northward, and were both later and lower when the wind was from the south. We had seen no whales for the last sixty miles, and had never fallen in with a walrus.

I formerly mentioned the quantity of provisions and fuel that we had remaining, which were computed to last till August, 1832. But there was only one year's allowance of spirits, which was a subject rather of congratulation than otherwise, since there can be no question of their pernicious effects in these frozen climates; one of those being, I have no doubt, to increase the tendency to scurvy. It was necessary, however, that what we had should be reserved for the future parties on land excursions, where it might often prove of considerable, if temporary service; or, as might become necessary,

for our use in case of shipwreck, and our being condemned to take to the boats; since this article would then be valuable not merely as an article of diet, but as fuel; or, finally under the chance of our being unable to liberate the ship in the spring, and being thus compelled to continue our investigations by land. Orders were accordingly given to stop the use and allowance of grog; while it was very satisfactory to find that these were received without remonstrance.

Our roofing had been perfected in this month; but it still remained to complete our embankment, and to cover the upper deck with snow. More arrangements than those yet noticed had also been made in the interior of the ship, by constructing a room in the place of the steerage, to receive the men's chests and the apparatus for cooking and baking; while copper flues were carried from them round the whole apartment, in order to convey away the vapour. Over the steam kitchen, oven, and after passage, apertures were made in the upper deck, on which were placed iron tanks with their openings downward. In these the vapour was received, and became immediately condensed: but though we rather expected that we might have drawn it off in the shape of water, and had contrived means accordingly, we found it so generally frozen that these were of no use.

We found this last contrivance to be the best that had yet been adopted; and chiefly as, by keeping the apartment of the crew dry, it saved the necessity of forcing up the temperature, as had been done on former occasions, for the purpose of keeping the vapour afloat till it was condensed on the beams and deck. This, too, involved a great saving of fuel: since we found that a temperature

between 40° and 50° was sufficient to make the place dry, warm, and comfortable, whereas it had, in the ships that preceded us, been necessary to carry it as high as 70°.

The regulations adopted on other matters were the following; and I point them out, that future adventurers in this country may gain, without labour, the experience which had now been purchased by many successive voyages. It will easily be seen how much of all this was directly useful, for some one or other specific purpose, and how far the intention was to find occupation for the minds of the men, and exercise for their bodies.

The men slept in hammocks, which were taken down at six in the morning, and hung up at ten at night, being also aired twice a week. The lower deck, being the dwelling floor, was covered with hot sand every morning, and scrubbed with sand till eight, when the men breakfasted. Monday was settled in future as the washing day; and this operation being finished by noon, the linen was dried at the stove. The upper deck having been at length covered with snow two feet and a half in thickness, it was trod down till it became a solid mass of ice, and was then sprinkled with sand, so as to put on the appearance of a rolled gravel walk. Above this, was the roof already mentioned, of which the canvas sides were continued so low as to cover those of the ship. The surrounding bank of snow, being completed, reached to the ship's gunwale, so that the union of this with the roof formed a perfect shelter from all wind, and thus excluded, very materially, the impressions of the external cold. In the same manner there was a covering of snow to the cabin deck, while the skylight was fitted with double sashes: but the way from

the cabin to the deck was not closed, since the frost was not yet so intense as to render that necessary: the inner doors were merely fitted with ropes and pulleys.

With respect to the arrangements below, a communication was made from the steerage to the fore part of the space between decks, by means of a door leading first to an antechamber screened off by canvas, and then to a space, similarly about five feet square. Into this last the men descended immediately from the deck: and thus passing the antechamber into the dwelling apartment, they were not exposed to any sudden change of temperature. In this way, after first ridding themselves of snow, they were compelled to leave all their dresses, which might still contain snow or moisture, in the first division, or chamber; thence advancing into the canvas apartment, which further served as a guard to prevent the entrance of the cold external air into the steerage, their dwelling place.

During the day, including the space between six in the morning and nine at night, the steam kitchen was found sufficient both for warmth and cooking; and, in the night, the baking oven served the same purpose, while it also heated the sand for the morning's use. As it is a pernicious plan, being a very clumsy and inconvenient one, even in the domestic arrangements of England, to supply, from the doors, the air required for the fires, I caused a large copper pipe to be brought from without to the fireplace. Thus, not only was the external air prevented from making a cold "draught" through the room, but the pipe itself became sufficiently warmed to assist in keeping dry the air within this principal apartment.

By these means the vapour was enabled more easily to ascend

and settle in the external condensers, instead of becoming water in the room itself; while, what was not less important, the fires were kept burning with a uniform degree of strength. In proof of the effect of the utility of the condensers, I may now remark that it was our practice to clear them out every Saturday, and that the quantity of ice they contained averaged about a bushel a day: the representative of a quantity of vapour first, and of a corresponding proportion of water afterwards, that would not only have been extremely annoying but truly pernicious.

In continuation of our wintering system, every atom of rigging was taken down, cleaned, marked, and stowed away. In arranging the duties and the victualling of the men, the following plan was adopted; the whole crew being divided into five watches. The three leading mates, the engineer, and the harpooner, had, each, with one seaman, the charge of the deck in their respective turns: their duty being, to keep a look out respecting fire, wild animals, and natives, to register the direction and strength of the wind, with the appearances of the sky and weather, and the temperature, as well as the state of the tides and the occurrence of auroras. The officers, with their servants, the carpenters, the armourers, and the cook, had sufficient other duties in their respective departments.

The breakfast, of which the hour has been already mentioned, consisted of cocoa or tea; and the dinner was at noon. When the weather permitted any thing to be done outside of the ship, the men worked, after that meal, till three or four o'clock: while, when that was impossible, they were obliged to walk for a certain number of hours on deck, beneath the roof. Their tea was at five o'clock;

and, after this, they attended an evening school, commencing at six, and lasting till nine; which being closed, and the hammocks slung, they retired to bed at ten.

On Sunday, no work was allowed. The men were mustered, and inspected in their best clothes, by ten o'clock, after which there were prayers and a sermon. To occupy the remainder of the day, there was a collection of tracts which had been presented to us by Mrs. Enderby, of Blackheath, proving a judicious as well as a useful gift. But, at six there was a Sunday school: the occupation on this evening being the reading of portions of scripture by the men, while the day was concluded by psalms and by the lessons appointed in the liturgy. Of the good effect of this system of religious duties and of instruction, I could entertain no doubt; for the men seemed truly to feel that they all belonged to one family: evincing mutual kindness, with a regularity and tranquillity of behaviour which are not very general on board of a ship.

The days of baking for the men were on Sundays and Thursdays, and those for the officers every other evening excluding Sundays: all these regulations having regard to the collateral uses we might derive from the heat necessary for those purposes. The allowance of provisions to the men and the officers, issued for fourteen days, is seen in the following table.

Account of the Daily Proportion of Provisions served to 18 *Men for* 14 *Days.*

No	Week Days	Pounds of												Rice	Pickles		Spirits	
		Bread	Flour	Suet	Raisins	Sugar	Cocoa	Tea	Rice	Lemon Juice	Preserved Meats	Salt Beef	Salt Pork	Gallons	Gals. of Cabbage	Gals. of Onions	Gallons	Pints
								oz.										
1	Sunday . .					$2\frac{1}{16}$	$1\frac{1}{8}$	$4\frac{1}{2}$	3	$1\frac{1}{8}$	$13\frac{1}{2}$				$1\frac{1}{8}$			
2	Monday .	63	64		9	$2\frac{1}{16}$	$1\frac{1}{8}$	$4\frac{1}{2}$		$1\frac{1}{8}$			$13\frac{1}{2}$	1				
3	Tuesday .					$2\frac{1}{16}$	$1\frac{1}{8}$	$4\frac{1}{2}$		$1\frac{1}{8}$	$13\frac{1}{2}$							
4	Wednesday		$13\frac{1}{2}$			$2\frac{1}{16}$	$1\frac{1}{8}$	$4\frac{1}{2}$		$1\frac{1}{8}$		$13\frac{1}{2}$						
5	Thursday .					$2\frac{1}{16}$	$1\frac{1}{8}$	$4\frac{1}{2}$		$1\frac{1}{8}$	$13\frac{1}{2}$							
6	Friday . .					$2\frac{1}{16}$	$1\frac{1}{8}$	$4\frac{1}{2}$		$1\frac{1}{8}$			$13\frac{1}{2}$	1				$4\frac{1}{2}$
7	Saturday .					$2\frac{1}{16}$	$1\frac{1}{8}$	$4\frac{1}{2}$		$1\frac{1}{8}$	$13\frac{1}{2}$							
8	Sunday . .					$2\frac{1}{16}$	$1\frac{1}{8}$	$4\frac{1}{2}$	3	$1\frac{1}{8}$	$13\frac{1}{2}$							
9	Monday .	63	$64\frac{1}{2}$	6		$2\frac{1}{16}$	$1\frac{1}{8}$	$4\frac{1}{2}$		$1\frac{1}{8}$		$13\frac{1}{2}$				$1\frac{1}{8}$		
10	Tuesday .					$2\frac{1}{16}$	$1\frac{1}{8}$	$4\frac{1}{2}$		$1\frac{1}{8}$	$13\frac{1}{2}$							
11	Wednesday					$2\frac{1}{16}$	$1\frac{1}{8}$	$4\frac{1}{2}$		$1\frac{1}{8}$			$13\frac{1}{2}$	1				
12	Thursday .					$2\frac{1}{16}$	$1\frac{1}{8}$	$4\frac{1}{2}$		$1\frac{1}{8}$	$13\frac{1}{2}$							
13	Friday . .		$13\frac{1}{2}$			$2\frac{1}{16}$	$1\frac{1}{8}$	$4\frac{1}{2}$		$1\frac{1}{8}$		$13\frac{1}{2}$						
14	Saturday .					$2\frac{1}{16}$	$1\frac{1}{8}$	$4\frac{1}{2}$		$1\frac{1}{8}$	$13\frac{1}{2}$							$4\frac{1}{2}$
	Total .	126	$145\frac{1}{2}$	6	9	$39\frac{3}{8}$	$15\frac{6}{8}$	$3\frac{1}{16}$	6	$15\frac{6}{8}$	108	$40\frac{1}{2}$	$40\frac{1}{2}$	3	$1\frac{1}{8}$	$1\frac{1}{8}$	1	1

Besides this, vinegar was served as it was required; but, more rarely, preserved soups, as it was thought best to reserve them for the coldest weather, or for particular occasions. There were also lemons and tamarinds for those who might be unwell.

This portion of the ship's duty appertained to Mr. Thom, who had also the charge of the log, as master not less than purser; together with that of the barometer, and its attached thermometer. The chronometers were now under the charge of Commander Ross; who also took a joint duty with myself in the navigation and the different classes of observation: with the further undivided command over the department of natural history.

CHAPTER XIV

THE MONTH COMMENCES STORMY AND COLD—IMPROVEMENT IN ITS PROGRESS—REMARKS ON THE THERMOMETER AND BAROMETER—OCCURRENCE OF A SPLENDID AURORA BOREALIS—SUMMARY OF THE MONTH.

Nov. 1. THE most severe storm that we had yet experienced came on this day; bursting suddenly from the north, with a heavy fall of snow, and the thermometer under zero. Sunday was spent as usual, except that it was impossible to take exercise on shore. There was an Nov. 2. aurora at night, but not brilliant. The gale then subsided, and was followed by a fine day: when, although the temperature was at minus 14°, the cold was by no means disagreeable. Though the distant horizon was not very clear, we could see that the ice was partially broken up by the storm; some clear water appearing in the south-eastern quarter. In the evening of this day the wind came to the westward, and there was another aurora, of short duration.

Nov. 3. There was no material change of wind or weather this day, the thermometer being at minus 9°. We found traces of foxes during our walk on shore. More was done towards completing our snow fortification; and I believe most readers now know, that the frozen

snow is cut into masses resembling squared stones, and applied in the same manner, as the cement is formed of water. On the fourth, Nov. 4. there was snow again, during the whole day: the thermometer rose to zero; falling again, in the night, to minus 10°. We had now ceased to take the shellfish for some days.

The morning was fine, and as is then unusual, the temperature Nov. 5. got up to minus 1°. Four willow partridges were killed. On the following day the wind was fresh from the northward, but not so Nov. 6. cold as to impede the necessary work. An examination of the condensers proved that they collected, jointly, a bushel of ice in the day, as I noticed in the summary of last month to be the expected quantity: and we could not but be highly pleased at reflecting, that had it not been for the collection and condensation of this bushel, we should have been ourselves the condensers, and been involved in vapour and internal rain, to an equivalent amount, all the twenty-four hours. It is always desirable to be relieved from suffering; but it is infinitely more gratifying, when we know that we have been benefited by the exertion of our own invention and industry. These are among the true rewards of exertion, in all the circumstances of life; and the self congratulation which follows is more than pardonable.

In spite of a brisk wind from the north-east, with much drift Nov. 7. snow, our officers contrived to kill two ptarmigans; but, notwithstanding such a breeze from this quarter, the thermometer rose to plus 3°. I must confess that these vacillations in the heat were not always intelligible; we knew, generally, what a peculiar wind ought to produce, why an overcast sky should raise the temperature, or a fall of snow make the air comparatively warm, and

why also we ought to expect the severest cold with a clear sky. But all our causes sometimes failed us; and I can only now conclude, as I did then, that our knowledge of the atmosphere and its conditions is as yet not sufficient to explain even the changes of temperature; failing us, as it does, in every thing else, when we attempt to lay down those general rules, without the certainty of which, there is no sound knowledge.

Nor is this less true of what has been deemed most certain, namely, the changes in the barometer; and if what we had occasion at different times to observe, be at present inexplicable, I can only remind my philosophical readers, that it has often, and amply, been confirmed, by the reports of La Perouse and the experience of navigators beyond number. The mercury has risen when it should have fallen; and it has sunk when there was present every reason that has been assigned for its rise. It has fallen with winds from the east and the north; and also (for this has been a reason given for its rise) with winds from the land; while it has risen under the reverse circumstances, being the received ones for its fall. Thus has a low barometer brought fair weather, and a high one rain; while I have also seen it fall, with an east wind, bringing violent rain, when, on coming round to the west, the mercury rose, even more than half an inch, within a very short time, and with fine and settled weather. In a nautical view, these must indeed be considered as exceptions: I should be very sorry, among others, were not this instrument still of much use on board of ships, especially in those seas and those seasons in which sudden and violent gales arise; but if its prognostics are not absolute, and not therefore such

as to be an excuse for inattention to other circumstances, or for the omission of constant watchfulness at sea; so must it be recollected, that, in philosophy, such exceptions prove our ignorance of laws which we pretend to know. It is a silly maxim, as it is a false one, popularly rooted as it is, that the exception proves the rule; the slightest exertion of common sense should show, that nothing can be a law in philosophy if it admits but of one exception.

On the preceding evening, the wind blew hard from the north- Nov. 8.
west; but the morning of Sunday was beautiful, with a brilliant sky, without a cloud. Divine service was performed, and the exercise on shore was enforced as on former occasions: this being intended as a standing order for every Sunday on which it might be practicable. All were well, except the armourer, whose constitution could not bear the climate. He ought not, indeed, to have been with us; having been destined for our consort, the John, as the armourer of that ship was intended for the Victory. Unluckily, that man was one of those who joined the mutineers; and though I had intended to send the present ailing and feeble person home by the first whaler that we should meet, not one had fallen in our way

The fine weather continued, with the thermometer at minus 10° Nov. 9.
A shooting party had no success; seeing merely some hares, and the track of a bear. On the next day the same party was soon driven Nov. 10.
in, by the thermometer falling to minus 20°, though the weather continued fine. At night it was 22° minus; being the lowest yet experienced. In the middle of the next day it came to blow, and, in Nov. 11.
the evening, abundance of snow fell; both the force of the gale and the quantity of snow increasing till midnight. Thus we were pre-

vented from getting some occultations by the moon, in Taurus, on which we had calculated, and for which we had made preparation.

Nov. 12. After blowing with increased fury, the gale became somewhat more moderate towards the evening. It is worthy of remark, that the range of the thermometer, in the last thirty-six hours, was 48°. If the ice was at all broken up by this gale, it was a matter which we had no means of discovering, as there were now but three hours of daylight. But it was likely; for the wind coming from the north-east to the south-east in the evening, there was an unusual high tide, and the ice near us burst open with a tremendous noise, admitting the water above it. The thermometer at midnight was as high as 26° plus.

Nov. 13. The temperature did not begin to fall till after noon on this day, and then very gradually. This was a long duration of what may be called a high heat at this season of the year; since it had been above 24° plus, for about eighteen hours: but the more remarkable fact is, that there was a north-easterly wind all the time; confirming the observations I have just made respecting the obscure causes by which temperature is regulated. According to general experience in these regions, the cold ought to have been severe. As to the thermometrical observations themselves, there can be no doubt of their accuracy, because they were made on shore, remote from the influence of the ship, while the instruments were the same that had been used on former expeditions. It was almost amusing to find the sportsmen complaining of the heat; and, with the snow that fell, there was some rain.

Nov. 14. Though our sport was without any success, the position of the sun to-day, and the clearness of the air, when on the hill we had so often visited, gave me a more extensive view of the distant land than

I had ever yet obtained; displaying a range of mountains more remote than those which we had yet seen. The colouring was admirable this day, as it had been for a short period in the afternoon before. It was not only that the clouds and the sky in the south presented all those rich summer tints of evening which are occasionally seen in our own country, and those hues contrasted by the deep, dark, calm purple of the northern horizon, but, in addition to the aerial tints and reflections of the snow of the mountains, emulating or exceeding those on the clouds, the hills near the sun were often splendid with prismatic colours as it passed along them in its course. In reality, the noonday sun of these regions is an evening sun; and it is not surprising, therefore, that its whole diurnal progress exhibits but the appearances of a similar sun in our own latitudes. I had reason to believe, from the colour of the sky, that there was some open sea to the northward: and we could distinctly see one clear space of about a mile in diameter, not a very great way from us, together with some smaller pools, the effects of the late storm.

The weather continued calm, and not cold; since the thermometer did not fall lower than 1°, and rose as high as 8°. A very little snow fell: but, on shore, the valleys and ravines were already quite filled, as the far larger part of the hills and of the other ground in general was covered; only a solitary black rock appearing here and there, wherever the gale had acted with most violence. Traces of foxes and hares were now seen every day, by the parties on shore; but that was all. The Sunday was spent as usual. The sun had not been seen yesterday, and neither sun nor moon was visible this day: the weather was nearly as mild. In the night, however, it fell to minus 4°, and continued nearly the same on this day. Nov. 15. Nov. 16.

Nov. 17. On Monday, the seventeenth of November, a very singular appearance of the sun occurred, with an effect too incredible and absurd to admit of representation, splendid as it was to the eye. The centre was darkened by a cloud, while the circumference was surrounded by a belt, under which the rays shot out in such a manner as to give it the semblance of a star of the order of the Bath. If there was any one on board who imagined that this appearance was ominous of that, or any other knighthood, to any of us, the secret was kept; fortunately for the prognosticator, who might have lost his fame by trusting to a fallacious omen; though, by a very singular coincidence, it has been accomplished on the very day that the correction of this sheet, in passing through the press, enables me to add its fulfilment.

Nov. 18. It was still mild; but, from the force of the wind, there was enough drift, on the hills, to prevent shooting: the thermometer reached plus 7° at midnight. Our school was completely organized,

Nov. 19. for instruction in reading, writing, arithmetic, mathematics, and navigation; and the men being divided into classes, the necessary materials and books were distributed. Out of the eighteen, three had not learned to read and write; but the want of arithmetic was very general: the three mates were capable of commencing with astronomy and navigation. No compulsion was here necessary; all were volunteers; and the school hours always terminated by reading two chapters from the bible, together with the evening psalms.

Nov. 20. There had been neither sun, moon, nor stars to be seen these two last days, and the weather still continued gloomy, with little wind and less snow. The thermometer reached 9°, and averaged 5° during the twenty-four hours. A white hare was shot. The fol-

Nov. 21. lowing morning was equally dull and dark, with occasional snow;

though the moon made her appearance, once or twice, for a very short time. At midnight the temperature fell to minus 1°. A female fox was taken in the trap to-day, and was brought on board for the purpose of being tamed. A very faint aurora was seen in the south-eastern horizon.

Sunday was calm and clear, with the thermometer as low as minus 9°. In the course of their walk after service, the men found the tracks of reindeer, but nothing more. On Monday the thermometer continued falling till it reached minus 16°. Intending to pursue the tracks of yesterday's reindeer, Commander Ross proceeded for a certain distance along shore, and thus found, for the first time, that the south-west point of the nearest land was insulated from the main by a channel leading to the westward, but without being able to ascertain how far it penetrated. The wind shifted to the southward; and the men found work in extricating the engine boilers, which, being on the ice, had been partially buried in a new layer formed by the breaking through of the water a few days before.

Nov. 22.

Nov. 23.

An overcast sky caused the thermometer to rise a few degrees, but the change was only temporary. There was enough of work for the day, in cutting out the various ironwork of the engine, as well as the whale boat, which was in the same predicament. A cairn on the island, intended as a guide to the ship for those who might lose their way, was completed; and a thermometer, constructed purposely for us, was fixed on it. There was a brilliant aurora to the south-west, extending its red radiance as far as the zenith. The wind vacillated on the following day, and there was a still more brilliant one in the evening, increasing in splendour till midnight,

Nov. 24.

Nov. 25.