

GEORGE BRYCE

THE SIEGE AND
CONQUEST OF THE
NORTH POLE

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of the North Pole

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The Siege and Conquest of the North Pole:

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PREFACE

My chief object in compiling this work has been to supply a brief account of the main efforts which have been made to reach the North Pole. The subject is now so extensive that few have the opportunity of covering the whole ground. While the exciting and specially interesting incidents have not been omitted, the book aims at giving the reader an intelligent idea of the equipment and other means by which the work of exploration has been carried on.

The many expeditions which have set out to find a north-west or a north-east passage do not come within the scope of the book, except when they have had some special bearing on the struggle for the Pole.

Those who may wish to pursue the subject further by consulting the original authors can be assured that no works of fiction relate greater deeds of heroism than are found in the records of Arctic exploration; and that while they may satisfy their love for the adventurous they will add something to their geographical knowledge.

It is hoped that the maps may be of considerable

assistance in enabling the reader to follow the narrative. The spelling of geographical and other names is generally that adopted by the authors of the original works.

GEORGE BRYCE.

Birmingham, December 1909.

GLOSSARY OF ARCTIC TERMS

Beset, so enclosed by floating ice as to be unable to navigate.

Bore, to force through loose or recent ice.

Calf, detached mass from berg or glacier, rising suddenly to the surface.

Crow's nest, a look-out place attached to the topgallant-masthead.

Dock, an opening in the ice, artificial or natural, offering protection.

Drift ice, detached ice in motion.

Field ice, an extensive surface of floating ice.

Floe, a detached portion of a field.

Hummocks, ridges of broken ice formed by collision of fields.

Ice-blink, a peculiar appearance of the atmosphere over distant ice.

Ice-foot, the ice which adheres to the coast above the ordinary level of the sea.

Lane or lead, a more or less navigable opening in the ice.

Nip, the condition of a vessel pressed upon by ice on both sides.

Pack, a large area of floating masses of ice driven together more or less closely.

Palæocrystic ice, the name given by Nares to the old ice of the Polar Sea.

Polynia, a Russian term for an open-water space.

Rue-raddy, a shoulder-belt to drag by.

INTRODUCTION

“There’s a flag on the mast, and it points to the north,
And the north holds the land that I love;
I will steer back to northward, the heavenly course
Of the winds guiding sure from above.”

Frithjof’s Saga.

The North Pole is the centre of the Northern Hemisphere. This hemisphere contains Europe, Asia, North America, and a large part of Africa, yet no human being reached its centre before the eighth year of the twentieth century A.D.

The North Pole is the point where the axis of the earth cuts its surface. It is the point where, as Captain Hall expressed it, there is no north, no east, no west. It is the place where every wind that blows is a south wind. It is a point where all the meridians meet, and there is therefore no longitude. It is one of the two places on the surface of the earth where there is but one night and one day in every year. It is a point from which all the heavenly bodies appear to move in horizontal courses, and the stars never set. It is not to be confused with the magnetic pole, which is situated about 1600 miles south of it, near the mainland of North America. At the North Pole the magnetic needle points due south.

The North Pole is therefore a place of absorbing interest, and until it was reached man never rested satisfied. Ever since Robert Thorne, in the reign of Henry VIII., offered “very weighty and substantial reasons to set forth a discoverie even to the North Pole,” the struggle has been going on.

In no other records of adventure do we find greater deeds of daring than in those of Arctic travel. The dauntless courage in the face of extreme danger, the perseverance when hope was forlorn, the self-sacrifices made to render assistance to comrades, all stamp these pioneers of science and commerce as heroes in the highest sense of the word. Some of their daring exploits, their successes and disasters, are here recorded, but the author hopes that this book will only serve as an introduction to the original ones. After reading the thrilling narratives of Arctic exploration, one is ready to admit that “truth is stranger than fiction.”

The Polar regions can be reached by only three navigable routes. Either by the wide passage between Greenland and Norway, a smaller passage between Greenland and America, or by the narrow Bering Strait between America and Russia.

Up till the beginning of the nineteenth century nearly all the Arctic voyages had as the chief object the discovery either of a north-west or a north-east passage to the Pacific Ocean.

On the 7th June 1585 two tiny craft sailed from Dartmouth in quest of the North-West Passage. They were commanded by John Davis, a daring explorer.

Davis sighted Greenland on 20th July, and on the 29th he was

off where now stands the Danish settlement of Godthaab. He crossed the strait which now bears his name, and traced part of the western coast.

Davis made a second voyage in 1586, and a third in 1587. In the latter year he reached and named Sanderson's Hope, in $72^{\circ} 41'$.

Between 1594 and 1596 three expeditions were dispatched by the Dutch towards Spitzbergen. That of 1596 is of special interest. William Barents, the discoverer of Spitzbergen, was the chief pilot. The ship reached Ice Haven, Novaya Zemlya, on 26th August, and here the party were forced to winter. A house was built with wood, but the winter was passed miserably, scurvy ultimately making its appearance among the crew. The ship being hopelessly beset by the ice, it was decided during the following summer to abandon it.

In two boats, the party of fifteen men started on a journey of 1524 miles. Barents himself and one of the crew were ill, and had to be dragged on a sledge from the house to the boats. Both died on the boat-journey. The remainder ultimately reached Russian Lapland, where their troubles ceased.

About 274 years afterwards, the house built by Barents was discovered by Captain Carlsen. Over the fireplace still stood the cooking-pans, an old clock was against the wall, and arms, tools, drinking-vessels, and books were found as they had been left nearly three centuries before.

In 1607, Henry Hudson endeavoured to reach the Pole along

the east coast of Greenland. He attained 73° at a point which he named "Hold with Hope."

He then examined the edge of the ice between Greenland and Spitzbergen, and reached the latitude of $80^{\circ} 23'$. He named the north-west point of Spitzbergen "Hakluyt Headland," and on his way home he discovered the island now known as "Jan Mayen."

In 1610 he discovered Hudson's Strait, and the great bay which bears his name.

On 26th March 1616, Robert Bylot as master, with William Baffin as pilot and navigator, set out from Gravesend in the *Discovery*, a craft of only 55 tons. Greenland was sighted on 14th May, and on the 30th May, Sanderson's Hope, the farthest point of Davis, was reached. On the 9th June he discovered Baffin Islands, in $73^{\circ} 54'$. He then took what is known as the "Middle Passage" across Melville Bay, and reached the "North Water" of the whalers of to-day.

Baffin discovered and charted Wolstenholme Sound and Hakluyt Island, and passed north till he was within sight of Cape Alexander. He named Smith Sound after the first Governor of the East India Company. He also discovered Carey Islands, Lancaster Sound, and Jones Sound.

When we consider the wretched means with which these early explorers were provided, we are lost in astonishment at their audacity and at the success of their achievements.

It was exactly two hundred years afterwards that these northern places were visited by Ross and Parry. Baffin's work

had been almost forgotten, and his discoveries were not believed.

During the seventeenth century many expeditions were sent out which were the means of opening up extensive commercial relations with Russia and of establishing the fisheries of Spitzbergen, Davis Straits, and Newfoundland.

During the eighteenth century several expeditions were fitted out by the Hudson Bay Company, and a good deal of exploration was done by the Russians. In 1728, Vitus Bering discovered the straits which now bear his name; and in 1742, Lieutenant Chelyuskin reached the most northerly point of Asia in $77^{\circ} 34'$ by sledges. In 1765, Admiral Tschitschagoff was sent by the Czarina Catharine of Russia with three vessels to Spitzbergen to sail towards the North Pole. He reached $80^{\circ} 21'$, but found it impossible to advance farther. The following year he reached $80^{\circ} 28'$. In 1770 the New Siberian Islands were discovered by Liakhof.

In 1773, Constantine John Phipps, afterwards Lord Mulgrave, sailed with the *Racehorse* and *Carcass*, with a view of reaching the North Pole. He reached $80^{\circ} 37'$, and visited some of the Seven Islands. He also mapped the north of Spitzbergen. In this expedition the great Horatio Nelson was captain's coxswain on board the *Carcass*.

In 1818, Captain Buchan in the *Dorothea*, and Lieutenant (afterwards Sir John) Franklin in the *Trent*, attained $80^{\circ} 34'$ north of Spitzbergen.

In 1823, Clavering and Sabine, in the ship *Griper*, visited

Spitzbergen, and while Sabine carried on magnetic observations on the inner Norway Island, Clavering went to sea and steered northwards, but did not get farther than $80^{\circ} 20'$.

The edge of the ice had now been thoroughly examined between the coast of Greenland and Novaya Zemlya, and it became evident that the ice could not be pierced by a ship. It occurred to Sir John Franklin and Sir Edward Parry that the best way of reaching the Pole would be by means of sledging over the ice. Parry put his ideas into practice in 1827, when he undertook his well-known expedition in the *Hecla*. He had just returned from his third Arctic voyage in search of the North-West Passage. His fourth voyage was an important one, and will be treated at some length in the first chapter.

The Siege and Conquest of the North Pole

CHAPTER I

PARRY'S EXPEDITION OF 1827

In April 1826, Captain William Edward Parry proposed to Viscount Melville, First Lord Commissioner of the Admiralty, "to attempt to reach the North Pole, by means of travelling with sledge-boats over the ice, or through any spaces of open water that might occur." The proposal was referred to the Royal Society, who strongly recommended its adoption; and an expedition having been equipped, Parry was appointed to the command of it.

Before making the proposal, Parry had given the subject careful consideration. He mentions that Captain Lutwidge, the associate of Captain Phipps in the expedition towards the North Pole in 1773, describes the ice north of Spitzbergen to the distance of ten or twelve leagues to have the appearance of "one continued plain of smooth unbroken ice, bounded only by the horizon." The testimony of Mr. Scoresby, Jun., "a close and intelligent observer of Nature in these regions," was also found to agree with that given by Lutwidge. "I once saw," says he, "a field that was so free from either fissure or hummock, that I imagine, had it been free from snow, a coach might have been driven many leagues over it in a direct line, without obstruction or danger." In addition to these, experienced whalers, whom

Parry consulted as to the nature of the ice, agreed that it was highly favourable for the purpose of his expedition. An important factor in determining Parry to make the proposal was the fact that Franklin had drawn up a plan for making the attempt on the same lines.

For the journey over the ice, two boats were constructed having great flatness of floor, with the extreme breadth carried well forward and aft, and possessing the utmost buoyancy, as well as capacity for stowage. Their length was 20 feet, and their extreme breadth 7 feet. The timbers were made of tough ash and hickory, 1 inch by half an inch square, and a foot apart, with a "half-timber" of smaller size between each two. On the outside of the frame thus formed was laid a covering of Mackintosh's waterproof canvas, the outer part being coated with tar. Over this was placed a plank of fir, $\frac{3}{16}$ of an inch thick; then a sheet of stout felt; and over all, an oak plank of the same thickness as the fir; the whole of these being firmly and closely secured to the timbers by iron screws applied from without. "On each side of the keel, and projecting considerably below it, was attached a strong 'runner' shod with smooth steel, in the manner of a sledge, upon which the boat entirely rested while upon the ice; and to afford some additional chance of making progress on hard and level fields, we also applied to each boat two wheels, of 5 feet diameter, and a small one abaft, having a swivel for steering by, like that of a Bath chair; but these, owing to the irregularities of the ice, did not prove of any service, and were subsequently

relinquished. A 'span' of hide-rope was attached to the fore part of the runners, and to this were affixed two strong ropes of horse-hair, for dragging the boat; each individual being furnished with a broad leathern shoulder-belt, which could readily be fastened to or detached from the drag-ropes." The boats weighed 1539 lb. and 1542 lb. respectively. Two officers and twelve men were selected for each boat's crew. The provisions consisted of biscuit, sweetened cocoa-powder, and pemmican. The process of making the latter consisted in drying large thin slices of the lean of the meat over the smoke of wood fires, then pounding it, and lastly mixing it with about an equal weight of its own fat. In this state it was quite ready for use, without further cooking.

The *Hecla*, which was to convey the expedition to the north coast of Spitzbergen, left the Thames on the 25th of March 1827. They arrived at Hammerfest on 18th April. Here they obtained a small quantity of venison and an abundance of good fish. They also purchased a set of snow-shoes, together with Lapland shoes (called "Kamooga"). They also took on board eight reindeer and a supply of moss. "The quantity of *clean* moss considered requisite for each deer per day is 4 pounds, but they will go five or six days without provender, and not suffer materially. As long as they can pick up snow as they go along, which they like to eat quite clean, they require no water; and ice is to them a comfortable bed."

Hammerfest was left on 29th April, and on the 5th of May, in latitude 73° 30', the first straggling mass of ice was met.

After some delay in waiting for the ice to open, Hakluyt's Headland was reached on 14th May. While preparations were being made to land a quantity of provisions here, a gale came on, and forced Parry to take shelter among the pack-ice, where he remained beset twenty-four days. Now began a search for a suitable harbour for the *Hecla*, but it was not till the 20th June that this was found in Treurenburg Bay. During this search Parry reached as far north as $81^{\circ} 5'$, and landed a small store of provisions on Walden Island, and another on an islet near Little Table Island.

Preparations were now made to leave the ship on the journey to the north. Parry writes: "As it was still necessary not to delay our return beyond the end of August, the time originally intended, I took with me only seventy-one days' provisions; which, including the boats and every other article, made up a weight of 260 lb. per man; and as it appeared highly improbable, from what we had seen of the very rugged nature of the ice we should first have to encounter, that either the reindeer, the snow-shoes, or the wheels would prove of any service for some time to come, I gave up the idea of taking them. We, however, constructed out of the snow-shoes four excellent sledges for dragging a part of our baggage over the ice, and these proved of invaluable service to us, while the rest of the things just mentioned would only have been an encumbrance."

The *Hecla* was left on the 21st June, and Low Island was reached on the 22nd. One of the ship's cutters accompanied the

two boats in order to carry part of the provisions which were to be landed on Low Island and on Walden Island. Open water for the boats was found until they reached latitude $81^{\circ} 12' 51''$, which was now the highest that had ever been reached. Scoresby, in 1806, had reached $81^{\circ} 12' 42''$, and with this exception no one had ever reached the 81st degree.

Parry now writes: "Our plan of travelling being nearly the same throughout this excursion, after we first entered upon the ice, I may at once give some account of our usual mode of proceeding. It was my intention to travel wholly at night, and to rest by day, there being, of course, constant daylight in these regions during the summer season. The advantages of this plan, which was occasionally deranged by circumstances, consisted first, in our avoiding the intense and oppressive glare from the snow during the time of the sun's greatest altitude, so as to prevent, in some degree, the painful inflammation in the eyes, called 'snow-blindness,' which is common in all snowy countries. We also thus enjoyed greater warmth during the hours of rest, and had a better chance of drying our clothes; besides which, no small advantage was derived from the snow being harder at night for travelling. The only disadvantage of this plan was, that the fogs were somewhat more frequent and more thick by night than by day, though even in this respect there was less difference than might have been supposed, the temperature during the twenty-four hours undergoing but little variation. This travelling by night and sleeping by day so completely inverted the natural order of

things, that it was difficult to persuade ourselves of the reality. Even the officers and myself, who were all furnished with pocket chronometers, could not always bear in mind at what part of the twenty-four hours we had arrived; and there were several of the men who declared, and I believe truly, that they never knew night from day during the whole excursion.

“When we rose in the evening, we commenced our day by prayers, after which we took off our fur sleeping-dresses, and put on those for travelling; the former being made of camblet, lined with racoon-skin, and the latter of strong blue box-cloth. We made a point of always putting on the same stockings and boots for travelling in, whether they had dried during the day or not; and I believe it was only in five or six instances, at the most, that they were not either still wet or hard-frozen. This, indeed, was of no consequence beyond the discomfort of first putting them on in this state, as they were sure to be thoroughly wet in a quarter of an hour after commencing our journey; while, on the other hand, it was of vital importance to keep dry things for sleeping in. Being ‘rigged’ for travelling, we breakfasted upon warm cocoa and biscuit, and after stowing the things in the boats and on the sledges, so as to secure them, as much as possible, from wet, we set off on our day’s journey, and usually travelled from five to five and a half hours, then stopped an hour to dine, and again travelled four, five, or even six hours, according to circumstances. After this we halted for the night, as we called it, though it was usually early in the morning, selecting the largest

surface of ice we happened to be near, for hauling the boats on, in order to avoid the danger of its breaking up by coming in contact with other masses, and also to prevent drift as much as possible. The boats were placed close alongside each other, with their sterns to the wind, the snow or wet cleared out of them, and the sails, supported by the bamboo masts and three paddles, placed over them as awnings, an entrance being left at the bow. Every man then immediately put on dry stockings and fur boots, after which we set about the necessary repairs of boats, sledges, or clothes; and, after serving the provisions for the succeeding day, we went to supper. Most of the officers and men then smoked their pipes, which served to dry the boats and awnings very much, and usually raised the temperature of our lodgings 10° or 15° . This part of the twenty-four hours was often a time, and the only one, of real enjoyment to us: the men told their stories and 'fought all their battles o'er again,' and the labours of the day, unsuccessful as they too often were, were forgotten. A regular watch was set during our resting-time, to look out for bears or for the ice breaking up round us, as well as to attend to the drying of the clothes, each man alternately taking this duty for one hour. We then concluded our day with prayers, and having put on our fur dresses, lay down to sleep with a degree of comfort, which perhaps few persons would imagine possible under such circumstances; our chief inconvenience being, that we were somewhat pinched for room, and therefore obliged to stow rather closer than was quite agreeable. The temperature,

while we slept, was usually from 36° to 45° , according to the state of the external atmosphere; but on one or two occasions, in calm and warm weather, it rose as high as 60° to 66° , obliging us to throw off a part of our fur dress. After we had slept seven hours, the man appointed to boil the cocoa roused us, when it was ready, by the sound of a bugle, when we commenced our day in the manner before described.

“Our allowance of provisions for each man per day was as follows: —

“Biscuit, 10 oz.; pemmican, 9 oz.; sweetened cocoa-powder, 1 oz. to make 1 pint; rum, 1 gill; tobacco, 3 oz. per week.

“Our fuel consisted entirely of spirits of wine, of which 2 pints formed our daily allowance, the cocoa being cooked in an iron boiler over a shallow iron lamp, with seven wicks; a simple apparatus, which answered our purpose remarkably well. We usually found 1 pint of spirits of wine sufficient for preparing our breakfast — that is, for heating 28 pints of water, though it always commenced from the temperature of 32° .”

They set off on their first journey over the ice on 24th June. Instead of the fine level floes they expected, they found the ice consisting of pieces of small extent and very rugged, obliging them to make three journeys, and sometimes four, with the boats and baggage, and to launch several times across narrow pools of water. They experienced a great amount of rain, and had sometimes to wade through water from 2 to 5 inches deep upon the ice. It was rarely that they met with a surface sufficiently

level and hard to drag all their loads at one journey. Deep soft snow was frequently met with, and proved a difficult obstacle to overcome. At other times their way lay across small loose pieces of ice, and the boats had to be made to serve the purpose of a bridge between the pieces. After a laborious day's work, they frequently found that they had not progressed more than 2 miles. It had been calculated that they could travel 20 miles per day over level ice. They found the Lapland shoes, or Kamoogas, good for walking in when the snow was dry, but when it was wet they found Esquimaux boots much superior. On the 5th of July they had reached latitude $81^{\circ} 45' 15''$, and on sounding with 400 fathoms of line failed to reach the bottom. A like result was met in latitude $82^{\circ} 17' 10''$, which was reached on 13th July. About this date they found that they were being drifted considerably to the south – sometimes 1 or 2 miles per day. The glare of the sun was often very oppressive: the best preservative was found to be spectacles having the glass of a bluish-green colour, and with side-screens to them. On the 20th July they reached $82^{\circ} 36' 52''$, less than 5 miles to the northward of their position on the 17th, although they calculated they certainly had travelled 12 miles. On the 25th July, Parry wrote: "So small was the ice now around us, that we were obliged to halt for the night at 2 a.m., being upon the only piece in sight, in any direction, on which we could venture to trust the boats while we rested. Such was the ice in the latitude of $82\frac{3}{4}^{\circ}$!"

At noon on the 26th they found the latitude $82^{\circ} 40' 23''$, and

calculated that since midnight on the 22nd they had lost no less than 13½ miles by drift. At this time Parry writes: "It had, for some time past, been too evident that the nature of the ice with which we had to contend was such, and its drift to the southward, especially with a northerly wind, so great, as to put beyond our reach anything but a very moderate share of success in travelling to the northward. Still, however, we had been anxious to reach the highest latitude which our means would allow, and, with this view, although our whole object had long become unattainable, had pushed on to the northward for thirty-five days, or until half our resources were expended, and the middle of our season arrived. For the last few days, the 83rd parallel was the limit to which we had ventured to extend our hopes; but even this expectation had become considerably weakened since the setting in of the last northerly wind, which continued to drive us to the southward, during the necessary hours of rest, nearly as much as we could gain by eleven or twelve hours of daily labour. Had our success been at all proportionate to our exertions, it was my full intention to have proceeded a few days beyond the middle of the period for which we were provided, trusting to the resources we expected to find at Table Island. But this was so far from being the case, that I could not but consider it as incurring useless fatigue to the officers and men, and unnecessary wear and tear for the boats, to persevere any longer in the attempt. I determined, therefore, on giving the people one entire day's rest, which they very much needed, and time to wash and mend their clothes,

while the officers were occupied in making all the observations which might be interesting in this latitude; and then to set out on our return on the following day.”

The bottom was found here with 500 fathoms of line. At the extreme point of the journey the distance from the *Hecla* was 172 miles. To accomplish this distance, Parry reckoned they travelled 292 miles, of which about 100 were performed by water previous to entering the ice. But as they travelled by far the greater part of the distance on the ice three, and not unfrequently five times over, the total distance estimated was 580 geographical, or 668 statute miles, being nearly sufficient to have reached the Pole in a direct line.

Returning south, open water was reached in latitude $81^{\circ} 34'$, about 50 miles north of Table Island. The party had been forty-eight days on the ice. During this journey several seals and bears were killed, and these assisted very much both for meat and fuel. The islet at Table Island was reached on the 12th of August, and it was found that bears had devoured all the bread, amounting to 100 lb., left there. To this islet Parry applied the name of Lieutenant Ross. The *Hecla* was reached on 21st August, after an absence of sixty-one days, and the total distance travelled was estimated at 1127 miles. Parry writes: “Considering our constant exposure to wet, cold, and fatigue, our stockings having generally been drenched in snow-water for twelve hours out of every twenty-four, I had great reason to be thankful for the excellent health in which, upon the whole, we reached the ship.

There is no doubt that we had all become, in a certain degree, gradually weaker for some time past; but only three men of our party now required medical care, two of them with badly swelled legs and general debility, and the other from a bruise; but even these three returned to their duty in a short time.”

The *Hecla* left Treurenburg Bay on 28th August, rounded Hakluyt’s Headland on the 30th, and arrived at Shetland on 17th September. Here Parry left the ship, and proceeded to London *via* Inverness.

Having finished his narrative of this attempt to reach the North Pole, Parry makes the following observations: —

“That the object is of still more difficult attainment than was before supposed, even by those persons who were the best qualified to judge of it, will, I believe, appear evident from a perusal of the foregoing pages; nor can I, after much consideration and some experience of the various difficulties which belong to it, recommend any material improvement in the plan lately adopted. Among the various schemes suggested for this purpose, it has been proposed to set out from Spitzbergen, and to make a rapid journey to the northward, with sledges, or sledge-boats, drawn wholly by dogs or reindeer; but, however feasible this plan may at first sight appear, I cannot say that our late experience of the nature of the ice which they would probably have to encounter, has been at all favourable to it. It would, of course, be a matter of extreme imprudence to set out on this enterprise without the means of crossing – not merely

narrow pools and lanes – but more extensive spaces of open water, such as we met with between the margin of the ice and the Spitzbergen shores; and I do not conceive that any boat sufficiently large to be efficient and safe for this purpose, could possibly be managed upon the ice, were the power employed to give it motion dependent on dogs or reindeer. On the contrary, it was a frequent subject of remark among the officers, that reason was a qualification scarcely less indispensable than strength and activity, in travelling over such a road; daily instances occurring of our having to pass over difficult places, which no other animal than man could have been easily prevailed upon to attempt. Indeed, the constant necessity of launching and hauling up the boats (which operations we had frequently to perform eight or ten, and on one occasion, seventeen times in the same day) would alone render it inexpedient, in my opinion, to depend chiefly upon other animals; for it would certainly require more time and labour to get them into and out of the boats, than their services in the intervals, or their flesh ultimately used as food, would be worth; especially when it is considered how large a weight of provender must be carried for their own subsistence.

“In case of employing reindeer, which, from their strength, docility, and hardy habits, appear the best suited to this kind of travelling, there would be an evident advantage in setting out much earlier in the year than we did; perhaps about the end of April, when the ice is less broken up, and the snow much harder upon its surface, than at a more advanced part of the season. But

this, it must be recollected, would involve the necessity of passing the previous winter on the northern coast of Spitzbergen, which, even under favourable circumstances, would probably tend to weaken in some degree the energies of the men; while, on the other hand, it would be next to impossible to procure there a supply of provender for a number of tame reindeer, sufficient even to keep them alive, much less in tolerable condition, during a whole winter. In addition to this, it may be observed, that any party setting out earlier must be provided with a much greater weight of warm clothing, in order to guard against the severity of the cold, and also with an increased proportion of fuel for procuring water by the melting of snow, there being no fresh water upon the ice, in these latitudes, before the month of June.”

Parry's attempt to reach the Pole, hauling heavy boats over the ice, brings into prominence the determination and daring of English sailors. Parry's record of $82^{\circ} 45'$ remained unbroken forty-eight years, when a new record was again made by English sailors in an exactly similar way to that of Parry, but in a different region.

The next expedition of importance after Parry's was that of Sir John Franklin in search of the North-West Passage, and does not strictly come within the scope of this book. Although the many expeditions which were sent out in search of Franklin and his men were the means of tracing a great extent of coast-line among the islands which lie to the north of America, only one had any special bearing on the struggle for the Pole. This was

the one commanded by Dr. Kane, and will be treated in the next chapter.

CHAPTER II

KANE'S EXPEDITION

(1853, '54, '55)

In December 1852, Dr. Kane received orders from the Secretary of the U.S. Navy to conduct an expedition to the Arctic seas in search of Sir John Franklin. Dr. Kane's plan of search was based upon the probable extension of the land-masses of Greenland to the Far North – a fact at that time not verified by travel, but sustained by the analogies of physical geography. As inducements in favour of his scheme, he mentioned —

“(1) *Terra firma* as the basis of our operations, obviating the capricious character of ice-travel.

“(2) A due northern line, which, throwing aside the influences of terrestrial radiation, would lead soonest to the open sea, should such exist.

“(3) The benefit of the fan-like abutment of land, on the north face of Greenland, to check the ice in the course of its southern or equatorial drift, thus obviating the great drawback of Parry in his attempt to reach the Pole by the Spitzbergen Sea.

“(4) Animal life to sustain travelling parties.

“(5) The co-operation of the Esquimaux; settlements of these people having been found as high as Whale Sound, and probably extending still farther along the coast.

“We were to pass up Baffin’s Bay, therefore, to its most northern attainable point; and thence, pressing on toward the Pole as far as boats or sledges could carry us, examine the coast-lines for vestiges of the lost party.”

Kane left New York on the 30th May 1853, in the *Advance*, a “hermaphrodite brig of 144 tons.” The entire party numbered eighteen. At Fiskernaes, Greenland, he engaged Hans Christian, aged nineteen, as an Esquimaux hunter.

The pack was encountered in Melville Bay on 28th July, and Kane was fortunate in passing through to the North Water by 4th August. Smith Sound was entered on 7th August. A boat with a stock of provisions was buried at the north-east point of Littleton Island, and a cairn was erected on the western cape. About 40 miles north of Littleton Island the ice was met, and the *Advance* was forced into Refuge Harbour. After a great deal of warping, the brig reached Rensselaer Harbour in latitude $78^{\circ} 37'$.

When Kane attained the latitude of $78^{\circ} 41'$, he made a curious observation. He states: “We are farther north than any of our predecessors, except Parry on his Spitzbergen foot-tramp.” This was far from the truth. Much higher latitudes had been reached centuries before. In the seventeenth century both the English and Dutch had reached a higher latitude in the Spitzbergen Sea: Tschitschagoff in 1765 reached $80^{\circ} 21'$; Phipps in 1773 reached $80^{\circ} 37'$; and Scoresby in 1806 reached $81^{\circ} 12' 42''$. Had Kane’s statement been confined to the route between Greenland and America, it would have been correct, but referring as he did to

Parry's Spitzbergen voyage, he was entirely astray.

When Smith Sound was reached, Kane had more than fifty dogs, but many of them soon died. Preparations for the winter were made without delay: a storehouse was formed on a small island in the harbour; an observatory was built on another island, and a deck-house was made to protect the *Advance*.

Arrangements were then made to form provision-dépôts along the Greenland coast for the purpose of northern exploration. The first dépôt party left on the 20th of September, and returned on the 15th of October. On the 25th of September this party reached Cape Russell, where the first cache of pemmican, together with some bread and alcohol for fuel, was made. A second cache was made at Cape Bonsall, about 30 miles to the north-east of the first dépôt. They reached their highest latitude, $79^{\circ} 50'$, on 6th October. A third cache was placed on a low island near the Humboldt Glacier.

A sunless winter of one hundred and forty days now closed upon them. The influence of the long, intense darkness was found most depressing. Most of the dogs died during this winter from convulsions. The temperature went down to as low as 68° F. below zero during February. The dreadful scurvy made its appearance, and by the middle of March only two members of the party were free of it. The supplies of the expedition were found to be altogether inadequate, both as regard provisions and fuel. On the 19th of March 1854, the first spring party left the brig, with the object of forming more dépôts. The

temperature was about 40° F. below zero. On 31st March three of this party made their appearance at the brig unexpectedly. Kane graphically describes the incident: "They were swollen and haggard, and hardly able to speak. Their story was a fearful one. They had left their companions in the ice, risking their own lives to bring us the news: Brooks, Baker, Wilson, and Pierre were all lying frozen and disabled. Where? They could not tell: somewhere in among the hummocks to the north and east: it was drifting heavily round them when they parted. Irish Tom had stayed by to feed and care for the others; but the chances were sorely against them. It was in vain to question them further. They had evidently travelled a great distance, for they were sinking with fatigue and hunger, and could hardly be rallied enough to tell us the direction in which they had come. My first impulse was to move on the instant with an unencumbered party: a rescue, to be effective or even hopeful, could not be too prompt. What pressed on my mind most was, where the sufferers were to be looked for among the drifts. Ohlsen seemed to have his faculties rather more at command than his associates, and I thought that he might assist us as a guide; but he was sinking with exhaustion, and if he went with us we must carry him. There was not a moment to be lost. While some were still busy with the newcomers and getting ready a hasty meal, others were rigging out the 'Little Willie' with a buffalo-cover, a small tent, and a package of pemmican; and, as soon as we could hurry through our arrangements, Ohlsen was strapped on in a fur bag, his legs wrapped in dog-skins and

eider-down, and we were off upon the ice. Our party consisted of nine men and myself. We carried only the clothes on our backs. The thermometer stood at -46° , 78 degrees below the freezing-point. A well-known peculiar tower of ice, called by the men the 'Pinnacly Berg,' served as our first landmark: other icebergs of colossal size, which stretched in long beaded lines across the bay, helped to guide us afterward; and it was not until we had travelled for sixteen hours that we began to lose our way. We knew that our lost companions must be somewhere in the area before us, within a radius of 40 miles. Mr. Ohlsen, who had been for fifty hours without rest, fell asleep as soon as we began to move, and awoke now with unequivocal signs of mental disturbance. It became evident that he had lost the bearing of the icebergs, which in form and colour endlessly repeated themselves; and the uniformity of the vast field of snow utterly forbade the hope of local landmarks.

"Pushing ahead of the party, and clambering over some rugged ice-piles, I came to a long level floe, which I thought might probably have attracted the eyes of weary men in circumstances like our own. It was a light conjecture; but it was enough to turn the scale, for there was no other to balance it. I gave orders to abandon the sledge, and disperse in search of footmarks. We raised our tent, placed our pemmican in cache, except a small allowance for each man to carry on his person; and poor Ohlsen, now just able to keep his legs, was liberated from his bag. The thermometer had fallen by this time to -49.3° , and the wind was setting in sharply from the north-west. It was

out of the question to halt: it required brisk exercise to keep us from freezing. I could not even melt ice for water; and, at these temperatures, any resort to snow for the purpose of allaying thirst was followed by bloody lips and tongue: it burnt like caustic.

“It was indispensable, then, that we should move on, looking out for traces as we went. Yet when the men were ordered to spread themselves, so as to multiply the chances, though they all obeyed heartily, some painful impress of solitary danger, or perhaps it may have been the varying configuration of the ice-field, kept them closing up continually into a single group. The strange manner in which some of us were affected I now attribute as much to shattered nerves as to the direct influence of the cold. Men like McGary and Bonsall, who had stood out our severest marches, were seized with trembling-fits and short breath; and, in spite of all my efforts to keep up an example of sound bearing, I fainted twice on the snow.

“We had been nearly eighteen hours out without water or food, when a new hope cheered us. I think it was Hans, our Esquimaux hunter, who thought he saw a broad sledge-track. The drift had nearly effaced it, and we were some of us doubtful at first whether it was not one of those accidental rifts which the gales make in the surface-snow. But, as we traced on to the deep snow among the hummocks, we were led to footsteps; and, following these with religious care, we at last came in sight of a small American flag fluttering from a hummock, and lower down a little Masonic banner hanging from a tent-pole hardly

above the drift. It was the camp of our disabled comrades: we reached it after an unbroken march of twenty-one hours. The little tent was nearly covered. I was not among the first to come up; but, when I reached the tent-curtain, the men were standing in silent file on each side of it. With more kindness and delicacy of feeling than is often supposed to belong to sailors, but which is almost characteristic, they intimated their wish that I should go in alone. As I crawled in, and, coming upon the darkness, heard before me the burst of welcome gladness that came from the four poor fellows stretched on their backs, and then for the first time the cheer outside, my weakness and my gratitude together almost overcame me. 'They had expected me: they were sure I would come!'

"We were now fifteen souls; the thermometer 75° below the freezing-point; and our sole accommodation a tent barely able to contain eight persons: more than half our party were obliged to keep from freezing by walking outside while the others slept. We could not halt long. Each of us took a turn of two hours sleep; and we prepared for our homeward march.

"We took with us nothing but the tent, furs to protect the rescued party, and food for a journey of fifty hours. Everything else was abandoned. Two large buffalo-bags, each made of four skins, were doubled up, so as to form a sort of sack, lined on each side by fur, closed at the bottom, but opened at the top. This was laid on the sledge; the tent, smoothly folded, serving as a floor. The sick, with their limbs sewed up carefully in reindeer-skins,

were placed upon the bed of buffalo-robes, in a half-reclining posture; other skins and blanket-bags were thrown above them; and the whole litter was lashed together so as to allow but a single opening opposite the mouth for breathing.

“This necessary work cost us a great deal of time and effort, but it was essential to the lives of the sufferers. It took us no less than four hours to strip and refresh them, and then to embale them in the manner I have described. Few of us escaped without frost-bitten fingers: the thermometer was at 55.6° below zero, and a slight wind added to the severity of the cold.

“It was completed at last, however: all hands stood around; and, after repeating a short prayer, we set out on our retreat. It was fortunate indeed that we were not inexperienced in sledging over the ice. A great part of our track lay among a succession of hummocks; some of them extending in long lines, 15 and 20 feet high, and so uniformly steep that we had to turn them by a considerable deviation from our direct course; others that we forced our way through, far above our heads in height, lying in parallel ridges, with the space between too narrow for the sledge to be lowered into it safely, and yet not wide enough for the runners to cross without the aid of ropes to stay them. These spaces, too, were generally choked with light snow, hiding the openings between the ice-fragments. They were fearful traps to disengage a limb from, for every man knew that a fracture or a sprain even would cost him his life. Besides all this, the sledge was top-heavy with its load: the maimed men could not bear

to be lashed down tight enough to secure them against falling off. Notwithstanding our caution in rejecting every superfluous burden, the weight, including bags and tent, was 1100 pounds.

“And yet our march for the first six hours was very cheering. We made by vigorous pulls and lifts nearly a mile an hour, and reached the new floes before we were absolutely weary. Our sledge sustained the trial admirably. Ohlsen, restored by hope, walked steadily at the leading belt of the sledge-lines; and I began to feel certain of reaching our half-way station of the day before, where we had left our tent. But we were still 9 miles from it, when, almost without premonition, we all became aware of an alarming failure of our energies.

“I was, of course, familiar with the benumbed and almost lethargic sensation of extreme cold; and once, when exposed for some hours in the midwinter of Baffin’s Bay, I had experienced symptoms which I compared to the diffused paralysis of the electro-galvanic shock. But I had treated the *sleepy comfort* of freezing as something like the embellishment of romance. I had evidence now to the contrary.

“Bonsall and Morton, two of our stoutest men, came to me, begging permission to sleep: ‘they were not cold: the wind did not enter them now: a little sleep was all they wanted.’ Presently Hans was found nearly stiff under a drift; and Thomas, bolt upright, had his eyes closed, and could hardly articulate. At last, John Blake threw himself on the snow, and refused to rise. They did not complain of feeling cold; but it was in vain that I wrestled,

boxed, ran, argued, jeered, or reprimanded: an immediate halt could not be avoided.

“We pitched our tent with much difficulty. Our hands were too powerless to strike a fire; we were obliged to do without water or food. Even the spirits (whisky) had frozen at the men’s feet, under all the coverings. We put Bonsall, Ohlsen, Thomas, and Hans, with the other sick men, well inside the tent, and crowded in as many others as we could. Then, leaving the party in charge of Mr. McGary, with orders to come on after four hours’ rest, I pushed ahead with William Godfrey, who volunteered to be my companion. My aim was to reach the half-way tent, and thaw some ice and pemmican before the others arrived.

“The floe was of level ice, and the walking excellent. I cannot tell how long it took us to make the 9 miles; for we were in a strange sort of stupor, and had little apprehension of time. It was probably about four hours. We kept ourselves awake by imposing on each other a continued articulation of words; they must have been incoherent enough. I recall these hours as among the most wretched I have ever gone through: we were neither of us in our right senses, and retained a very confused recollection of what preceded our arrival at the tent. We both of us, however, remember a bear, who walked leisurely before us and tore up as he went a jumper that Mr. McGary had improvidently thrown off the day before. He tore it into shreds and rolled it into a ball, but never offered to interfere with our progress. I remember this, and with it a confused sentiment that our tent and buffalo-robcs might

probably share the same fate. Godfrey, with whom the memory of this day's work may atone for many faults of a later time, had a better eye than myself; and, looking some miles ahead, he could see that our tent was undergoing the same unceremonious treatment. I thought I saw it too, but we were so drunken with cold that we strode on steadily, and, for aught I know, without quickening our pace.

"Probably our approach saved the contents of the tent; for when we reached it the tent was uninjured, though the bear had overturned it, tossing the buffalo-robcs and pemmican into the snow: we missed only a couple of blanket-bags. What we recollect, however, and perhaps all we recollect, is, that we had great difficulty in raising it. We crawled into our reindeer sleeping-bags, without speaking, and for the next three hours slept on in a dreamy but intense slumber. When I awoke, my long beard was a mass of ice, frozen fast to the buffalo-skin: Godfrey had to cut me out with his jack-knife. Four days after our escape, I found my woollen comfortable with a goodly share of my beard still adhering to it.

"We were able to melt water and get some soup cooked before the rest of our party arrived: it took them but five hours to walk the 9 miles. They were doing well, and, considering the circumstances, in wonderful spirits. The day was most providentially windless, with a clear sun. All enjoyed the refreshment we had got ready: the crippled were repacked in their robes; and we sped briskly toward the hummock-ridges which

lay between us and the Pinnacly Berg.

“The hummocks we had now to meet came properly under the designation of squeezed ice. A great chain of bergs stretching from north-west to south-east, moving with the tides, had compressed the surface-floes; and rearing them up on their edges, produced an area more like the volcanic pedragal of the basin of Mexico than anything else I can compare it to.

“It required desperate efforts to work our way over it, — literally desperate, for our strength failed us anew, and we began to lose our self-control. We could not abstain any longer from eating snow: our mouths swelled, and some of us became speechless. Happily the day was warmed by a clear sunshine, and the thermometer rose to -4° in the shade: otherwise we must have frozen.

“Our halts multiplied, and we fell half sleeping on the snow. I could not prevent it. Strange to say, it refreshed us. I ventured upon the experiment myself, making Riley wake me at the end of three minutes; and I felt so much benefited by it that I timed the men in the same way. They sat on the runners of the sledge, fell asleep instantly, and were forced to wakefulness when their three minutes were out.

“By eight in the evening we emerged from the floes. The sight of the Pinnacly Berg revived us. Brandy, an invaluable resource in emergency, had already been served out in tablespoonful doses. We now took a longer rest, and a last stouter dram, and reached the brig at 1 p.m., we believe without a halt.

“I say *we believe*; and here perhaps is the most decided proof of our sufferings: we were quite delirious, and had ceased to entertain a sane apprehension of the circumstances about us. We moved on like men in a dream. Our footmarks seen afterward showed that we had steered a bee-line for the brig. It must have been by a sort of instinct, for it left no impress on the memory. Bonsall was sent staggering ahead, and reached the brig, God knows how, for he had fallen repeatedly at the track-lines; but he delivered with punctilious accuracy the messages I had sent by him to Dr. Hayes. I thought myself the soundest of all, for I went through all the formula of sanity, and can recall the muttering delirium of my comrades when we got back into the cabin of our brig. Yet I have been told since of some speeches and some orders too of mine, which I should have remembered for their absurdity if my mind had retained its balance.

“Petersen and Whipple came out to meet us about 2 miles from the brig. They brought my dog-team, with the restoratives I had sent for by Bonsall. I do not remember their coming. Dr. Hayes entered with judicious energy upon the treatment our condition called for, administering morphine freely, after the usual frictions. He reported none of our brain-symptoms as serious, referring them properly to the class of those indications of exhausted power which yield to generous diet and rest. Mr. Ohlsen suffered some time from strabismus and blindness; two others underwent amputation of parts of the foot, without unpleasant consequences; and two died in spite of all our efforts.

This rescue party had been out for seventy-two hours. We had halted in all eight hours, half of our number sleeping at a time. We travelled between 80 and 90 miles, most of the way dragging a heavy sledge. The mean temperature of the whole time, including the warmest hours of three days, was at -41.2° . We had no water except at our two halts, and were at no time able to intermit vigorous exercise without freezing.”

About the beginning of April 1854, Esquimaux made their appearance. For some time they caused trouble through stealing everything they could. Great tact was necessary in dealing with them, but this Dr. Kane possessed, and he was ultimately successful in making them close friends.

On 25th April, the advance party of the next sledging expedition left the brig, and was joined later by Dr. Kane. Deep snow was encountered, and several of the party began to show signs of the dreaded scurvy. A cache of provisions on which they intended to rely was found to have been almost entirely destroyed by bears. Dr. Kane himself became ill, and the whole party had to return when in the neighbourhood of the great glacier of Humboldt. They cached some of their stores, and an india-rubber boat, near Dallas Bay, in lat. 79.5° , long. 66° .

On the 20th May another sledge-party was sent off, and consisted of Dr. Hayes and William Godfrey. They were to cross Smith's Straits above the inlet and make as near as possible a straight course for Cape Sabine. This they accomplished with great difficulty, and proceeded north on the ice along the west

coast as far as latitude $79^{\circ} 45'$. They then returned south as far as Cape Sabine, and recrossed the straits, arriving at the brig on 1st June. This was a remarkable journey. The equipment was as follows: – a light sledge and team of seven dogs, 80 lb. of pemmican, 16 lb. of bread, 18 lb. of lard and rope-yarn for fuel; a reindeer-skin sleeping-bag for each, a lamp and pot for cooking, sextant, pocket-compass, telescope, Sharpe's rifle, two extra pairs of stockings and one of boots for each. About the third day Dr. Hayes suffered from snow-blindness, and this caused some delay. The dogs' harness lines had to be frequently repaired, which could only be done ultimately by cutting strips from Godfrey's seal-skin trousers. Great hummocks of ice from 20 to 40 feet in height were encountered. In crossing these ridges the sledge frequently capsized and rolled over and over, dogs, cargo, and all. In twelve days a distance not less than 400 miles was covered; the last day's travel, when provisions ran short, was 70 miles.

Dr. Kane had not completed the entire circuit of the frozen waters of Smith Sound. He could not yet say whether it was landlocked or whether a channel existed still farther to the north. This he determined to discover. McGary, Bonsall, Hickey, and Riley were detailed for the first section of the new parties. They were accompanied by Morton, who had orders to keep himself as fresh as possible, so as to enter on his farthest north reach in the best possible condition.

They left the vessel on the 4th of June, and made for the

Humboldt Glacier. Here Morton was joined by Hans with the dog-sledge, and the two set out on the 18th June, pursuing a northerly course nearly parallel with the glacier, and from 4 to 7 miles distant from it, according to the condition of the ice. The icebergs given off by the glacier presented great difficulties, but these were finally overcome. On the 21st of June, Kennedy Channel was sighted, and they directed their course towards the cape at the eastern side of the entrance – Cape Andrew Jackson. Here they found open water, and it was with great difficulty that the cape was rounded. Still proceeding north, they reached Cape Constitution in latitude $81^{\circ} 22'$. An attempt to pass this cape failed. Morton climbed up the cliff to a height of 500 feet, and could get no farther. As far as he could see not a speck of ice was visible. He stated: “As far as I could discern, the sea was open, a swell coming in from the northward and running crosswise, as if with a small eastern set. The wind was due north – enough of it to make white caps – and the surf broke in on the rocks below in regular breakers. The sky to the north-west was of dark rain-cloud, the first that I had seen since the brig was frozen up. Ivory gulls were nesting in the rocks above me, and out to sea were mollemoke and silver-backed gulls. The ducks had not been seen north of the first island of the channel, but petrel and gulls hung about the waves near the coast.”

Morton was absent on this journey thirty days. The open condition of Kennedy Channel, discovered by him, had a most important bearing on some of the expeditions which followed

Kane's. It gave strong support to the theory of an open polar sea, which was believed in by many until the British Expedition of 1875. Dr. Kane himself wavered between the arguments for and against. He, however, was aware of the fact that open water, which had frequently been described as a polar sea, had been found by many explorers in various parts of the Arctic regions, which on further investigation was found to be merely temporary. And Dr. Kane, after referring to this fact, wrote: "All these illusory discoveries were no doubt chronicled with perfect integrity; and it may seem to others, as since I have left the field it sometimes does to myself, that my own, though on a larger scale, may one day pass within the same category."

All the sledge-parties had now returned to the brig, and the season of Arctic travel had ended. The question now to be faced was how they were to pass a second winter in the event of the ice not liberating the brig, which seemed likely. As Dr. Kane remarked, "there never was, and I trust never will be, a party worse armed for the encounter of a second Arctic winter. We have neither health, fuel, nor provisions."

He first determined to examine the condition of the ice to the south. He found that for 35 miles the straits were absolutely tight. He then resolved to make an attempt to communicate with Beechy Island and obtain assistance from Sir Edward Belcher's squadron, which was in search of Franklin in Wellington Channel. A whale-boat was mounted on a sledge, and Kane with five of his men started off on the tremendous undertaking. On

some rocky islets near Littleton Island over 200 eider ducks were killed in a few hours. They ultimately reached within 10 miles of Cape Parry, but were stopped there by a solid mass of ice. They returned to Northumberland Island, and obtained an abundance of auks and eiders. The ice still remaining solid, they decided to return to the brig. There was still no sign of the ice breaking up. On 15th August, Dr. Kane wrote: "The season travels on: the young ice grows thicker, and my messmates' faces grow longer, every day. I have again to play buffoon to keep up the spirits of the party." On the 18th of August the amount of wood was reduced to 6 lb. a meal. A suggestion was now made by some of the party that an effort should be made to reach the Danish settlements. On 24th August, Dr. Kane called all hands and frankly explained his reasons which determined him to remain with the brig. He gave his permission, however, to such as were desirous of making the attempt to reach the settlements to do so. Eight men decided to remain with Dr. Kane. The others received a liberal share of the resources, and left the brig on 28th August. One of this party – George Riley – returned a few days afterwards. Dr. Kane now took steps to make the brig as warm as possible in view of the fact that there was little fuel left. Moss and turf were collected with which the quarter-deck was well padded. A space about 18 feet square was enclosed below, and this was packed from floor to ceiling with inner walls of the same material. The floor was covered 2 inches deep with oakum, on the top of which was placed a canvas carpet. The entrance to this

space was from the hold by a low moss-lined tunnel. The whole arrangement was an imitation of the igloë of the Esquimaux. The outer-deck planking of the brig was now stripped off and stacked for firewood. On the 11th September the stock of game consisted of six long-tailed ducks and three ptarmigan.

Soon after this, Dr. Kane started with Hans to try and obtain seal in the open water some distance from the brig. Seal were sighted, but before they could be reached the ice became thin and dangerous. An attempt was made to reach a solid floe, but when within 50 paces from it, the sledges broke through. What followed is best described in Dr. Kane's own words: "My first thought was to liberate the dogs. I leaned forward to cut poor Tood's traces, and the next minute was swimming in a little circle of pasty ice and water alongside him. Hans, dear good fellow, drew near to help me, uttering piteous expressions in broken English; but I ordered him to throw himself on his belly, with his hands and legs extended, and to make for the island by cogging himself forward with his jack-knife. In the meantime – a mere instant – I was floundering about with sledge, dogs, and lines, in confused puddle around me. I succeeded in cutting poor Tood's lines and letting him scramble to the ice, for the poor fellow was drowning me with his piteous caresses, and made my way for the sledge; but I found that it would not buoy me, and that I had no resource but to try the circumference of the hole. Around this I paddled faithfully, the miserable ice always yielding when my hopes of a lodgement were greatest.

During this process I enlarged my circle of operations to a very uncomfortable diameter, and was beginning to feel weaker after every effort. Hans meanwhile had reached the firm ice, and was on his knees, like a good Moravian, praying incoherently in English and Esquimaux; at every fresh crushing-in of the ice he would ejaculate 'God!' and when I recommenced my paddling he recommenced his prayers.

"I was nearly gone. My knife had been lost in cutting out the dogs; and a spare one which I carried in my trousers-pocket was so enveloped in the wet skins that I could not reach it. I owed my extrication at last to a newly broken team-dog who was still fast to the sledge, and in struggling carried one of the runners chock against the edge of the circle. All my previous attempts to use the sledge as a bridge had failed, for it broke through, to the much greater injury of the ice. I felt that it was a last chance. I threw myself on my back, so as to lessen as much as possible my weight, and placed the nape of my neck against the rim or edge of the ice; then with caution slowly bent my leg, and, placing the ball of my moccasined foot against the sledge, I pressed steadily against the runner, listening to the half-yielding crunch of the ice beneath.

"Presently I felt that my head was pillowed by the ice, and that my wet fur jumper was sliding up the surface. Next came my shoulders; they were fairly on. One more decided push, and I was launched up on the ice, and safe."

On 5th October the stock of fresh meat consisted of one rabbit

and three ducks. On the 7th they were fortunate in killing a bear.

Darkness was now creeping in on them, and some remarks of Kane on the Arctic night are well worth quoting: "The intense beauty of the Arctic firmament can hardly be imagined. It looked close above our heads, with its stars magnified in glory, and the very planets twinkling so much as to baffle the observations of our astronomer. I am afraid to speak of some of these night-scenes. I have trodden the deck and the floes, when the life of earth seemed suspended, its movements, its sounds, its colouring, its companionships; and as I looked on the radiant hemisphere, circling above me as if rendering worship to the unseen Centre of light, I have ejaculated in humility of spirit, 'Lord, what is man that Thou art mindful of him?' And then I have thought of the kindly world we had left, with its revolving sunshine and shadow; and the other stars that gladden it in their changes, and the hearts that warmed to us there; till I lost myself in memories of those who are not; – and they bore me back to the stars again."

By the beginning of December, scurvy was making sad inroads among the party. On the 2nd, Dr. Kane wrote: "Had to put Mr. McGary and Riley under active treatment for scurvy. Gums retracted, ankles swollen, and bad lumbago. Mr. Wilson's case, a still worse one, has been brought under. Morton's is a saddening one: I cannot afford to lose him. He is not only one of my most intelligent men, but he is daring, cool, and every way trustworthy. His tendon Achilles has been completely perforated, and the surface of the heel-bone exposed. An operation in cold,

darkness, and privation would probably bring on locked-jaw. Brooks grows discouraged: the poor fellow has scurvy in his stump, and his leg is drawn up by the contraction of the flexors at the knee-joint. This is the third case on board – the fourth if I include my own – of contracted tendons.”

On the 7th of December, Bonsall and Petersen, two of the party that left Kane on 28th August, returned to the brig, and the remainder of the party arrived on the 12th. They had gone through a terrible trial. When they arrived at the brig, the thermometer was at -50° ; they were covered with rime and snow, and were fainting with hunger. They had journeyed 350 miles, and their last run from the bay near Etah, some 70 miles in a straight line, was through the hummocks at this appalling temperature. For more than two months they had lived on frozen seal and walrus-meat.

Food for the whole party became more and more scarce, and Dr. Kane determined to make a journey to Etah in order to obtain assistance from the Esquimaux, if possible. His views on sledging at this period are interesting: “My plans for sledging, simple as I once thought them, and simple certainly as compared with those of the English parties, have completely changed. Give me an 8 lb. reindeer-fur bag to sleep in, an Esquimaux lamp with a lump of moss, a sheet iron snow-melter or a copper soup-pot, with a tin cylinder to slip over it and defend it from the wind, a good *pièce de résistance* of raw walrus-beef; and I want nothing more for a long journey, if the thermometer will keep itself as high as

minus 30°. Give me a bear-skin bag and coffee to boot; and with the clothes on my back I am ready for minus 60°, – but no wind.

“The programme runs after this fashion. Keep the blood in motion, without loitering on the march: and for the halt, raise a snow-house; or if the snow lie scant or impracticable, ensconce yourself in a burrow or under the hospitable lee of an inclined hummock-slab. The outside fat of your walrus sustains your little moss fire: its frozen slices give you bread, its frozen blubber gives you butter, its scrag ends make the soup. The snow supplies you with water; and when you are ambitious of coffee there is a bagful stowed away in your boot. Spread out your bear-bag, your only heavy movable; stuff your reindeer-bag inside, hang your boots up outside, take a blade of bone, and scrape off all the ice from your furs. Now crawl in, the whole party of you, feet foremost; draw the top of your dormitory close, heading to leeward. Fancy yourself in Sybaris; and, if you are only tired enough, you may sleep – like St. Lawrence on his grid-iron, or even a trifle better.”

On 17th January 1855, Dr. Kane wrote: “There is no evading it any longer: it has been evident for the past ten days that the present state of things cannot last. We require meat, and cannot get along without it. Our sick have finished the bear’s head, and are now eating the condemned abscessed liver of the animal, including some intestines that were not given to the dogs. We have about three days’ allowance; thin chips of raw frozen meat, not exceeding 4 oz. in weight for each man per day.”

On 22nd January, Kane and Hans left the brig to make an

attempt to reach Etah. Unfortunately, a severe snowstorm came on soon after they reached a half-way hut. After being storm-bound two days, they attempted to push on, but found that the snow had accumulated to such an extent that it was impossible to complete the journey. They returned to the hut, and next day tried the land-ice, but in vain. Kane, however, climbed a hill from which he discovered a trough through the hummock-ridges, and level plains of ice stretching to the south. Had the dogs not been disabled and the moonlight waning, they could now have made the journey; but as it was, they were forced to return to the brig, which they reached thoroughly exhausted.

Petersen and Hans started on 3rd February to make another attempt. They returned on the 5th, having found that the snow had become impassable. At this time only five of the party were able to work, and even these were not free from scurvy. On 28th February Kane had to report: "The scurvy is steadily gaining on us. I do my best to sustain the more desperate cases; but as fast as I partially build up one, another is stricken down. The disease is perhaps less malignant than it was, but it is more diffused throughout our party. Except William Morton, who is disabled by a frozen heel, not one of our eighteen is exempt. Of the six workers of our party, as I counted them a month ago, two are unable to do outdoor work, and the remaining four divide the duties of the ship among them. Hans musters his remaining energies to conduct the hunt. Petersen is his disheartened, moping assistant. The other two, Bonsall and

myself, have all the daily offices of household and hospital. We chop five large sacks of ice, cut 6 fathoms of 8-inch hawser into junks of a foot each, serve out the meat when we have it, hack at the molasses, and hew out with crowbar and axe the pork and dried apples, pass up the foul slop and cleansings of our dormitory; and in a word, cook, *scullionise*, and attend the sick. Added to this, for five nights running I have kept watch from 8 p.m. to 4 a.m., catching cat-naps as I could in the day without changing my clothes, but carefully waking every hour to note thermometers.”

Such was the stuff of which Dr. Kane was made!

On the 6th of March, Kane made the desperate venture of sending Hans, the only effective huntsman, on a sledge-journey to find the Esquimaux of Etah. He took with him the two surviving dogs in the lightest sledge. He returned on the 10th, having made the journey successfully. He found that the plight of the Esquimaux, so far as food was concerned, had been worse than those at the brig. Hans, however, assisted in a walrus-hunt, and with his rifle succeeded in killing a walrus. With his share of the meat he returned to the brig, where he was heartily welcomed.

By the end of March, Kane was able to hope that the scurvy was abating. In his journal on 3rd April, he gives a description of the daily routine: —

“At 7.30 call ‘all hands’; which means that one of the well trio wakes the other two. This order is obeyed slowly. The

commander confesses for himself that the breakfast is well-nigh upon table before he gets his stiff ankles to the floor. Looking around, he sees the usual mosaic of sleepers as ingeniously dovetailed and crowded together as the campers-out in a buffalo-bag. He winds his way through them, and, as he does so, some stereotyped remarks are interchanged. 'Thomas!' – our ex-cook, now side by side with the first officer of the expedition, – 'Thomas, turn out!' 'Eugh-ng, sir.' 'Turn out; get up.' 'Ys-sir;' (sits bolt upright and rubs his eyes.) 'How d'you feel, Mr. Ohlsen?' 'Better, sir.' 'How've you passed the night, Mr. Brooks?' 'Middlin', sir.' And, after a diversified series of spavined efforts, the mystical number forms its triangle at the table.

"It still stands in its simple dignity, an unclothed platform of boards, with a pile of plates in the centre. Near these is a virtuoso collection of cups grouped in a tumulus or cairn, commencing philosophically at the base with heavy stoneware, and ending with battered tin: the absolute pinnacle a debased dredging-box, which makes a bad goblet, being unpleasantly sharp at its rim. At one end of this table, partly hid by the beer-barrel, stands Petersen; at the side, Bonsall; and a limejuice cask opposite marks my seat. We are all standing: a momentary hush is made among the sick; and the daily prayer comes with one heart: – 'Accept our gratitude, and restore us to our homes.'

"The act of devotion over, we sit down, and look – not at the breakfast, but at each other.

"It may sound absurd to those who cannot understand

the narrowing interest which we three availables feel in our continued mutual ability, for me to say that we spend the first five minutes in a detail of symptoms. The state of each man's gums and shins and ankles, his elbows, loins, and kidneys, is canvassed minutely and compared with his yesterday's report: the recital might edify a specialist who was anxious to register the Protean indications of scurvy. It is sometimes ludicrous, but always sad.

"Now for the bill of fare. 'Who cooked?' – I am describing a gala-day. – 'It was Morton: he felt so much better that he got up at six; but he caved in soon after': —

"First, coffee, great comforter to hard-worked men; one part of the genuine berry to three of navy-beans; next, sugar: what complex memories the word brings back! – the veritable sugar has been long ago defunct; but we have its representative molasses twice a week in our tea. Third, butter; there it is in a mutilated vegetable-dish; my own invention, melted from salt beef and washed in many waters: the unskilled might call it tallow. Fourth, a real delicacy not to be surpassed in court or camp, for Morton was up to see to it: – a pile of hot rolls of fine Virginia flour. What else? Nothing else: the breakfast resolves itself into bean-coffee, tallow, and hot bread. Yet a cordial meal it is. I am sorry to hurry over it so uncourteously, for I could dwell with Charles Lamb's pensive enthusiasm upon the fleshpots; but I have been longer in describing the feast than it takes us to dispose of it. I hurry on with the interesting detail. Dinner is breakfast, with the beans converted into soup instead of coffee; and supper

boasts of stewed apples.

“Work commences at nine. Petersen is off with his gun, and the two remaining dearly beloved Rogers arrange their carte: one makes the round of the sick and deals out their daily allowance of raw meat; the other goes to cutting ice. Those who can sit in bed and work, pick eider-down or cotton, for coverlets to our boat-bedding on the escape; others sew canvas bags for the same purpose; and Brooks balls off twine in order to lay up ‘small stuff.’

“At times when the sun comes out very brightly, Brooks and Wilson get permission to go on deck. One of us assists them, and, by the aid of creeping and crawling, these poor cripples manage to sit upon the combings of the hatch and look around in the glorious daylight. The sight seldom fails to affect them. There are emotions among rude, roughly nurtured men which vent themselves in true poetry. Brooks has about him sensibilities that shame me.

“This afternoon, save to the cook, is a season of rest; a real lazy, lounging interval, arrested by the call to supper. The coming night-watch obliges me to take an evening cat-nap. I state this by way of implying that I never sleep o’ daytimes.

“After supper, we have a better state of things than two weeks ago. Then the few tired-out workers were regaled by the groans and tossings of the sick. There was little conversation, and the physiognomy of our smoke-blackened little den was truly dismal. Now daylight pours in from the scuttle, the tea-kettle sings upon

the stove, the convalescents rise up on their elbows and spin merry yarns. We are not yet sufficiently jolly for cards; but we are sufficiently thankful to do without them. At nine, silence almost unbroken prevails throughout our dormitory, and the watch-officer slips on his bear-skin, and, full of thoughts of to-morrow, resigns himself to a round of little routine observances, the most worthless of which is this unbroken record of the changing days.”

Kane now became convinced that the brig had little chance of being released from the ice, and he began preparations for a retreat by boat to the Danish settlement of Upernavik.

“Canvas moccasins had been made for every one of the party, and three dozen were added as a common stock to meet emergencies. Three pairs of boots were allowed each man. These were generally of carpeting, with soles of walrus and seal-hide; and when the supply of these gave out, the leather from the chafing-gear of the brig for a time supplied their place. A much better substitute was found afterward in the gutta-percha that had formed the speaking-tube. This was softened by warm water, cut into lengths, and so made available to its new uses. Blankets were served out as the material for body-clothing: every man was his own tailor. For bedding, the woollen curtains that had formerly decorated our berths supplied us with a couple of large coverlets, which were abundantly quilted with eider-down. Two buffalo-ropes of the same size with the coverlets were arranged so as to button on them, forming sleeping-sacks for the occasion, but easily detached for the purpose of drying or airing.

“Our provision-bags were of assorted sizes, to fit under the thwarts of the boats. They were of sail-cloth made water-tight by tar and pitch, which we kept from penetrating the canvas by first coating it with flour-paste and plaster of Paris. The bread-bags were double, the inner saturated with paste and plaster by boiling in the mixture, and the space between the two filled with pitch. Every bag was, in sailor-phrases, roped and becketed; in ordinary parlance, well secured by cordage.

“These different manufactures had all of them been going on through the winter, and more rapidly as the spring advanced. They had given employment to the thoughts of our sick men, and in this way had exerted a wholesome influence on their moral tone and assisted their convalescence. Other preparations had been begun more recently. The provisions for the descent were to be got ready and packed. The ship-bread was powdered by beating it with a capstan-bar, and pressed down into the bags which were to carry it. Pork-fat and tallow were melted down, and poured into other bags to freeze. A stock of concentrated bean-soup was cooked, and secured for carriage like the pork-fat; and the flour and remaining meat-biscuit were to be protected from moisture in double bags. These were the only provisions we were to carry with us. I knew I should be able to subsist the party for some time after their setting out by the food I could bring from the vessel by occasional trips with my dog-team. For the rest, we relied upon our guns.

“Besides all this, we had our camp equipage to get in order,

and the vitally important organisation of our system of boats and sledges.

“Our boats were three in number, all of them well battered by exposure to ice and storm, almost as destructive of their seaworthiness as the hot sun of other regions. Two of them were cypress whale-boats, 26 feet long, with 7 feet beam, and 3 feet deep. These were strengthened with oak bottom-pieces and a long string-piece bolted to the keel. A washboard of light cedar, about 6 inches high, served to strengthen the gunwale and give increased depth. A neat housing of light canvas was stretched upon a ridge-line sustained fore and aft by stanchions, and hung down over the boat’s sides, where it was fastened (stopped) to a jack-stay. My last year’s experience on the attempt to reach Beechy Island determined me to carry but one mast to each boat. It was stepped into an oaken thwart, made especially strong, as it was expected to carry sail over ice as well as water: the mast could be readily unshipped, and carried, with the oars, boat-hooks, and ice-poles, alongside the boat. The third boat was my little *Red Eric*. We mounted her on the old sledge, the *Faith*, hardly relying on her for any purposes of navigation, but with the intention of cutting her up for firewood in case our guns should fail to give us a supply of blubber.

“Indeed, in spite of all the ingenuity of our carpenter, Mr. Ohlsen, well seconded by the persevering labours of McGary and Bonsall, not one of our boats was positively sea-worthy. The planking of all of them was so dried up that it could hardly be

made tight by caulking.

“The three boats were mounted on sledges rigged with rue-raddies; the provisions stowed snugly under the thwarts; the chronometers, carefully boxed and padded, placed in the stern-sheets of the *Hope*, in charge of Mr. Sonntag. With them were such of the instruments as we could venture to transport. They consisted of two Gambey sextants with artificial horizon, our transit-unifilar, and dip-instruments. Our glasses, with a few of the smaller field-instruments, we carried on our persons. Our fine theodolite we were forced to abandon. Our powder and shot, upon which our lives depended, were carefully distributed in bags and tin canisters. The percussion caps I took into my own possession, as more precious than gold. Mr. Bonsall had a general charge of the arms and ammunition. Places were arranged for the guns, and hunters appointed for each boat. Mr. Petersen took charge of the most important part of our field equipage, our cooking-gear. Petersen was our best tinker. All the old stove-pipe, now none the better for two winters of Arctic fires, was called into requisition. Each boat was provided with two large iron cylinders, 14 inches in diameter and 18 inches high. Each of them held an iron saucer or lamp, in which we could place our melted pork-fat or blubber, and, with the aid of spun-yarn for a wick, make a roaring fire. I need not say that the fat and oil always froze when not ignited. Into these cylinders, which were used merely to defend our lamp from the wind and our pots from contact with the cold air, we placed a couple of large tin vessels,

suitable either for melting snow or making tea or soup. They were made out of cake-canisters cut down. How many kindly festival associations hung by these now abused soup-cans! One of them had, before the fire rubbed off its bright gilding, the wedding-inscription of a large fruit-cake.

“We carried spare tins in case the others should burn out: it was well we did so. So completely had we exhausted our household furniture, that we had neither cups nor plates, except crockery. This, of course, would not stand the travel, and our spare tin had to be saved for protecting the boats from ice. At this juncture we cut plates out of every imaginable and rejected piece of tinware. Borden’s meat-biscuit canisters furnished us with a splendid dinner-service; and some rightly feared tin jars, with ominous labels of Corrosive Sublimate and Arsenic, which once belonged to our department of Natural History, were emptied, scoured, and cut down into tea-cups.”

The 17th of May was fixed as the date of setting out, and each man was to be allowed 8 lb. of personal effects. Until the boats were hauled a considerable distance from the brig, the party returned to it at night. When the last farewell to the brig was made, the entire ship’s company took part in the ceremonial. It is best described in Dr. Kane’s own words: —

“We read prayers and a chapter of the Bible; and then, all standing silently round, I took Sir John Franklin’s portrait from its frame and cased it in an india-rubber scroll. I next read the reports of inspection and survey which had been made by

the several commissions organised for the purpose, all of them testifying to the necessities under which I was about to act. I then addressed the party: I did not affect to disguise the difficulties that were before us; but I assured them that they could all be overcome by energy and subordination to command, and that the 1300 miles of ice and water that lay between us and North Greenland could be traversed with safety for most of us, and hope for all. I added that as men and messmates it was the duty of us all, enjoined by gallantry as well as religion, to postpone every consideration of self to the protection of the wounded and sick; and that this must be regarded by every man and under all circumstances as a paramount order. In conclusion, I told them to think over the trials we had all of us gone through, and to remember each man for himself how often an unseen Power had rescued him in peril, and I admonished them still to place reliance on Him who could not change.”

On reaching the boats, the party were regularly mustered and divided between the two. A rigid inspection was made of every article of personal equipment. Each man had a woollen under-dress and an Esquimaux suit of fur clothing – kapetah, nessak, and nannooke complete, with boots of their own make. One pair of boots was made of canvas faced with walrus-hide, and another inside these made of the cabin Brussels carpet. In addition to this, each man carried a rue-raddy – a shoulder-belt to drag by – adjusted to fit him comfortably, a pair of socks next his skin, and a pair of large goggles for snow-blindness, made Esquimaux-

fashion by cutting a small slit in a piece of wood. The provision-bags and other stores were numbered, and each man and officer had his own bag and a place assigned for it, to prevent confusion in rapid stowing and unstowing. Excluding four sick men, who were unable to move, and Dr. Kane, who had to drive the dog-team and serve as common carrier and courier, they numbered but twelve men, which would have given six to a sledge – too few to move it. It was therefore necessary to concentrate the entire force upon one sledge at a time.

The routine established by Dr. Kane was the most precise: – “Daily prayers both morning and evening, all hands gathering round in a circle and standing uncovered during the short exercise; regulated hours; fixed duties and positions at the track-lines and on the halt; the cooking to be taken by turns, the captains of the boats alone being excused. The charge of the log was confided to Dr. Hayes, and the running survey to Mr. Sonntag. The thermometer was observed every three hours.”

Dr. Kane prepared the hut at Anoatok for the reception of the sick, and carried a large part of the provisions there. During the first fortnight after the sledges left the brig he journeyed between 700 and 800 miles in doing this work by means of his dog-sledge – a mean travel of about 57 miles a day.

Before reaching open water on the 16th of June, enormous difficulties had to be overcome, and one man lost his life through an injury to his back in making an attempt to keep one of the sledges from going through the ice.

The boats had now to be caulked and swelled to prepare them for a long and adventurous navigation.

Nearly the whole Esquimaux settlement followed and assisted them as far as the open water, and Dr. Kane thus describes the scene near the time of bidding them farewell: —

“Each one has a knife, or a file, or a saw, or some such treasured keepsake; and the children have a lump of soap, the greatest of all great medicines. The merry little urchins break in upon me even now as I am writing: — ‘Kuyanake, kuyanake, Nalegaksoak!’ ‘Thank you, thank you, big chief!’ while Myouk is crowding fresh presents of raw birds on me as if I could eat for ever, and poor Aningnah is crying beside the tent-curtain, wiping her eyes on a bird-skin!

“My heart warms to these poor, dirty, miserable, yet happy beings, so long our neighbours, and of late so staunchly our friends. Theirs is no affectation of regret. There are twenty-two of them around me, all busy in good offices to the Docto Kayens; and there are only two women and the old blind patriarch Kresuk, ‘Driftwood,’ left behind at the settlement.

“But see! more of them are coming up, — boys ten years old are pushing forward babies on their sledges. The whole nation is gipsying with us upon the icy meadows.

“We cook for them in our big camp-kettle; they sleep in the *Red Eric*; a berg close at hand supplies them with water; and thus, rich in all that they value, — sleep and food and drink and companionship, — with their treasured short-lived summer sun

above them, the *beau ideal* and sum of Esquimaux blessings, they seem supremely happy.

“Poor creatures! It is only six months ago that starvation was among them: many of the faces around me have not yet lost the lines of wasting suspense. The walrus-season is again of doubtful productiveness, and they are cut off from their brethren to the south, at Netelik, and Appah, until winter rebuilds the avenue of ice. With all this, no thoughts of the future cross them. Babies squall, and women chatter, and the men weave their long yarns with peals of rattling hearty laughter between.

“Ever since we reached Pekiutlik, these friends of ours have considered us their guests. They have given us hand-sledges for our baggage, and taken turn about in watches to carry us and it to the water’s edge. But for them our dreary journey would have been prolonged at least a fortnight, and we are so late even now that hours may measure our lives. Metek, Myouk, Nessark, Erkee, and the half-grown boys have been our chief labourers; but women, children, and dogs are all bearing their part.

“Whatever may have been the faults of these Esquimaux heretofore, stealing was the only grave one. Treachery they may have conceived; and I have reason to believe that, under superstitious fears of an evil influence from our presence, they would at one time have been glad to destroy us. But the day of all this has passed away. When trouble came to us and to them, and we bent ourselves to their habits, – when we looked to them to procure us fresh meat, and they found at our poor Oomiak-soak

shelter and protection during their wild bear-hunts, – then we were so blended in our interests as well as modes of life that every trace of enmity wore away. God knows that since they professed friendship, albeit the imaginary powers of the angekok-soak and the marvellous six-shooter which attested them may have had their influence, never have friends been more true. Although, since Ohlsen's death, numberless articles of inestimable value to them have been scattered upon the ice unwatched, they have not stolen a nail. It was only yesterday that Metek, upon my alluding to the manner in which property of all sorts was exposed without pilfering, explained through Petersen, in these two short sentences, the argument of their morality: —

“ ‘You have done us good. We are not hungry; we will not take, (steal) – You have done us good; we want to help you: we are friends.’ ”

Kane and his men were delayed by a gale till 19th June, when they embarked in three boats. Of the original nineteen men, three had died. Another, Hans Christian the Esquimaux, had fallen in love, and remained behind. The party now, therefore, consisted of fifteen. They made first for Hakluyt Island, where the boats had to undergo further repairs. In the morning of 22nd June, they pushed forward through a snowstorm for Northumberland Island, where a number of auks were secured. Murchison Channel was crossed on 23rd June, and they encamped for the night near the base of Cape Parry. Soon after leaving here they encountered a gale from the north-west, and had great difficulty in escaping

from the drifting ice. By good luck, however, they landed at the breeding-grounds of a large number of eider ducks, and were able to gather 1200 eggs a day. Here they remained three days, until the storm abated. They now made for Cape Dudley Digges, which they reached on 11th July. Here they obtained an abundance of birds, and scurvy grass. The ice ahead barred their passage, and they were nothing loath to spend a week where there was plenty of food. On 18th July they again set out, but in doing so were unfortunate enough to lose their best shot-gun and their kettle, owing to the capsizing of one of the boats. Cape York was reached on 21st July. Here they left the coast-line and entered the ice-pack. On the 28th the daily allowance of food was restricted to 5 oz. of bread-dust, 4 oz. of tallow, and 3 oz. of bird-meat. The *Red Eric* was broken up for fuel, so that the whole party had now to be transported in two boats. The short rations soon began to tell on their strength, and the old symptoms of scurvy came back again. It was at this crisis that a seal was seen, and the incident is thus described by Dr. Kane: —

“It was an ussuk, and so large that I at first mistook it for a walrus. Signal was made for the *Hope* to follow astern, and, trembling with anxiety, we prepared to crawl down upon him.

“Petersen, with the large English rifle, was stationed in the bow, and stockings were drawn over the oars as mufflers. As we neared the animal, our excitement became so intense that the men could hardly keep stroke. I had a set of signals for such occasions which spared us the noise of the voice; and when about

300 yards off, the oars were taken in, and we moved in deep silence with a single scull astern.

“He was not asleep, for he reared his head when we were almost within rifle-shot; and to this day I can remember the hard, careworn, almost despairing expression of the men’s thin faces as they saw him move: their lives depended on his capture.

“I depressed my hand nervously, as a signal for Petersen to fire. McGary hung upon his oar, and the boat, slowly but noiselessly sagging ahead, seemed to me within certain range. Looking at Petersen, I saw that the poor fellow was paralysed by his anxiety, trying vainly to obtain a rest for his gun against the cut-water of the boat. The seal rose on his fore-flippers, gazed at us for a moment with frightened curiosity, and coiled himself for a plunge. At that instant, simultaneously with the crack of our rifle, he relaxed his long length on the ice, and, at the very brink of the water, his head fell helpless to one side.

“I would have ordered another shot, but no discipline could have controlled the men. With a wild yell, each vociferating according to his own impulse, they urged both boats upon the floes. A crowd of hands seized the seal and bore him up to safer ice. The men seemed half crazy; I had not realised how much we were reduced by absolute famine. They ran over the floe, crying and laughing and brandishing their knives. It was not five minutes before every man was sucking his bloody fingers or mouthing long strips of raw blubber.

“Not an ounce of this seal was lost. The intestines found

their way into the soup-kettles without any observance of the preliminary home-processes. The cartilaginous parts of the fore-flippers were cut off in the mêlée, and passed round to be chewed upon; and even the liver, warm and raw as it was, bade fair to be eaten before it had seen the pot. That night, on the large halting-floe, to which, in contempt of the dangers of drifting, we happy men had hauled our boats, two entire planks of the *Red Eric* were devoted to a grand cooking-fire, and we enjoyed a rare and savage feast.

“This was our last experience of the disagreeable effects of hunger. In the words of George Stephenson, ‘The charm was broken and the dogs were safe.’ The dogs I have said little about, for none of us liked to think of them. The poor creatures Toodla and Whitey had been taken with us as last resources against starvation. They were, as McGary worded it, ‘meat on the hoof,’ and ‘able to carry their own fat over the floes.’ Once, near Weary Man’s Rest, I had been on the point of killing them; but they had been the leaders of our winter’s team, and we could not bear the sacrifice.”

Within a day or two after killing the large seal, another was shot, and from that time forward they had a full supply of food. On the 1st of August they sighted the Devil’s Thumb, and were soon among the Duck Islands. A few days after this they met an Upernavik oil-boat, and received some scanty news of the world. They learnt that a squadron under Captain Hartstene had left for the north in search of them a short time before. On the 6th of

August they arrived at Upernavik, where they were well received by the Danes – eighty-three days after leaving the *Advance*. The squadron under Hartstene returned in time to convey Dr. Kane and his party to America.

The results of Dr. Kane's expedition were very important. Ross had declared that Smith Sound was a bay, and although Captain Inglefield in 1852 proved that it was a sound, he reached only $78^{\circ} 28'$. Kane extended our knowledge up to $81^{\circ} 22'$, and all indications tended to show that Kennedy Channel led to the Polar Ocean.

No one can read Kane's book without being impressed by the noble character of the man. He was a hero in the highest sense of the word. It is sad to relate that he died in Havana on the 16th February 1857, when only thirty-seven years of age.

CHAPTER III

EXPEDITION COMMANDED

BY DR. HAYES IN 1860—61

The object of Dr. Hayes' expedition may be given in his own words: —

“The plan of the enterprise first suggested itself to me while acting as surgeon of the expedition commanded by the late Dr. E. K. Kane, of the United States Navy. Although its execution did not appear feasible at the period of my return from that voyage in October 1855, yet I did not at any time abandon the design. It comprehended an extensive scheme of discovery. The proposed route was that by Smith Sound. My object was to complete the survey of the north coasts of Greenland and Grinnell Land, and to make such explorations as I might find practicable in the direction of the North Pole.

“My proposed base of operations was Grinnell Land, which I had discovered on my former voyage, and had personally traced beyond latitude 80°, far enough to satisfy me that it was available for my design.

“Accepting the deductions of many learned physicists that the sea about the North Pole cannot be frozen, that an open area of varying extent must be found within the Ice-belt which is known to invest it, I desired to add to the proofs which had already been

accumulated by the early Dutch and English voyagers, and, more recently, by the researches of Scoresby, Wrangel, and Parry, and still later by Dr. Kane's expedition.

“It is well known that the great difficulty which has been encountered, in the various attempts that have been made to solve this important physical problem, has been the inability of the explorer to penetrate the Ice-belt with his ship, or to travel over it with sledges sufficiently far to obtain indisputable proof. My former experience led me to the conclusion that the chances of success were greater by Smith Sound than by any other route, and my hopes of success were based upon the expectation which I entertained of being able to push a vessel into the Ice-belt, to about the 80th parallel of latitude, and thence to transport a boat over the ice to the open sea which I hoped to find beyond. Reaching this open sea, if such fortune awaited me, I proposed to launch my boat and to push off northward. For the ice-transportation I expected to rely, mainly, upon the dog of the Esquimaux.”

Dr. Hayes had a strong belief in the existence of an open Polar Sea, but it may here be mentioned that subsequent exploration proved that his views were not correct. On the other hand, the view of the old geographers that for a long distance around the Pole the sea was covered with immovable ice has also been disproved. Throughout the whole year the ice is found to be more or less in motion, except where it is in contact with the land.

Dr. Hayes expected to be able to start with two vessels, –

one a small steamer, to be taken out under sails, and the steam-power only to be used when actually among the ice; the other a sailing vessel, to be employed as a tender or store-ship. He found, however, that the fund which he had raised with great difficulty would only enable him to fit out and man one small sailing vessel.

A fore-and-aft schooner of 133 tons register, named *Spring Hill*, was purchased, and after some necessary alterations, was rechristened *United States*.

August Sonntag, the astronomer of Kane's expedition, early volunteered to accompany Hayes. On his return to the United States he was appointed to the Dudley Observatory, Albany, and to accompany Dr. Hayes he sacrificed the fine position of Associate Director of that institution.

Including Dr. Hayes, the party numbered fifteen persons. They left Boston on 7th July 1860, and after a rough passage crossed the Arctic Circle on 30th July. The first iceberg was met on the previous day. Some rough weather was experienced in Davis' Strait, and is thus described by Hayes: —

“We were running before the wind and fighting a wretched cross-sea under reefed fore and mainsail and jib, when the fore fife-rail was carried away; — down came everything to the deck, and there was left not a stitch of canvas on the schooner but the lumbering mainsail. It was a miracle that we did not broach to and go to the bottom. Nothing saved us but a steady hand at the helm.

“Notwithstanding all this knocking about, everybody seemed

to take it for granted that this sort of thing is very natural and proper, and a part of the engagement for the cruise. It is at least gratifying to see that they take kindly to discomfort, and receive every freak of fortune with manly good-nature. I really believe that were affairs otherwise ordered they would be sadly disappointed. They are ‘the small band of brave and spirited men’ they read about in the newspapers, and they mean to show it. The sailors are sometimes literally drowned out of the fore-castle. The cabin is flooded at least a dozen times a day. The skylight has been knocked to pieces by the head of a sea, and the table, standing directly under it, has been more than once cleared of crockery and eatables without the aid of the steward. My own cabin gets washed out at irregular intervals, and my books are half of them spoiled by tumbling from their shelves in spite of all I can do to the contrary. Once I caught the whole library tacking about the deck after an unusually ambitious dive of the schooner, and the advent of a more than ordinarily heavy rush of water through the ‘companion-way.’ ”

Land was first sighted on the 31st July, and proved to be the southern extremity of Disco Island. Owing to a calm, Proven was not reached till 6th August. The entry into the harbour is thus described by Dr. Hayes: —

“We were escorted into the harbour of Proven by the strangest fleet of boats and the strangest-looking boatmen that ever convoyed a ship. They were the far-famed Kayakers of Greenland, and they deserve a passing notice.

“The Kayak of the Greenlander is the frailest specimen of marine architecture that ever carried human freight. It is 18 feet long and as many inches wide at its middle, and tapers, with an upward curving line, to a point at either end. The skeleton of the boat is made of light wood; the covering is of tanned seal-skin, sewed together by the native women with sinew thread, and with a strength and dexterity quite astonishing. Not a drop of water finds its way through their seams, and the skin itself is perfectly waterproof. The boat is about 9 inches deep, and the top is covered like the bottom. There is no opening into it except a round hole in the centre, which admits the hunter as far as his hips. This hole is surrounded with a wooden rim, over which the Kayaker laces the lower edge of his water-tight jacket, and thus fastens himself in and keeps the water out. He propels himself with a single oar about 6 feet long, which terminates in a blade or paddle at either end. This instrument of locomotion is grasped in the centre, and is dipped in the water alternately to right and left. The boat is graceful as a duck and light as a feather. It has no ballast and no keel, and it rides almost on the surface of the water. It is therefore necessarily top-heavy. Long practice is required to manage it, and no tight-rope dancer ever needed more steady nerve and skill of balance than this same savage Kayaker. Yet, in this frail craft, he does not hesitate to ride seas which would swamp an ordinary boat, or to break through surf which may sweep completely over him. But he is used to hard battles, and, in spite of every fortune, he keeps himself upright.”

Hayes expected to obtain a supply of dogs at Proven, but he found that a disease which had prevailed among the teams during the previous year had diminished the stock to less than half of what was required by the people themselves, and he had to be satisfied with a few dogs of inferior quality. The Danish officials, however, rendered Hayes all the assistance in their power, and gave him hope of being more successful at Upernavik, for which settlement he left on 12th August.

During the night, before reaching Upernavik, the carpenter of the expedition, Gibson Caruthers, died suddenly. Besides Mr. Sonntag and Dr. Hayes, he was the only member of the party who had been in the Arctic seas, having served in the First Grinnell Expedition in search of Franklin. He was buried at Upernavik.

Having obtained about two dozen dogs, and a supply of reindeer, seal, and dog-skins, Upernavik was left after four days' delay. Three Esquimaux, an interpreter, and two Danish sailors were engaged at Upernavik. At Tessuissak, a place about 60 miles from Upernavik, a team of dogs, the property of the interpreter, was obtained.

When Melville Bay was reached, Hayes was delighted to find open water with only an iceberg here and there. This was crossed in the short space of fifty-five hours. Near the northern part of the bay a loose pack about 15 miles wide was encountered, but under a full pressure of canvas, little difficulty was experienced in "boring" it.

Standing close in under Cape York, Hayes kept a careful look-

out for natives. He wished if possible to ascertain whether Hans of the Kane expedition was there. In this he was successful. Hayes writes: —

“Six years’ experience among the wild men of this barren coast had brought him to their level of filthy ugliness. His companions were his wife, who carried her first-born in a hood upon her back; her brother, a bright-eyed boy of twelve years, and ‘an ancient dame with voluble and flippant tongue,’ her mother. They were all dressed in skins, and, being the first Esquimaux we had seen whose habits remained wholly uninfluenced by contact with civilisation, they were, naturally, objects of much interest to us all.

“Hans led us up the hillside, over rough rocks and through deep snow-drifts, to his tent. It was pitched about 200 feet above the level of the sea, in a most inconvenient position for a hunter; but it was his ‘look-out.’ Wearily he had watched, year after year, for the hoped-for vessel; but summer after summer passed and the vessel came not, and he still sighed for his southern home and the friends of his youth.

“His tent was a sorry habitation. It was made after the Esquimaux-fashion, of seal-skins, and was barely large enough to hold the little family who were grouped about us.

“I asked Hans if he would go with us.

“‘Yes!’

“Would he take his wife and baby?

“‘Yes!’

“Would he go without them?

“ ‘Yes!’

“Having no leisure to examine critically into the state of his mind, and having an impression that the permanent separation of husband and wife is regarded as a painful event, I gave the Esquimaux mother the benefit of this conventional suspicion, and brought them both aboard, with their baby and their tent and all their household goods. The old woman and bright-eyed boy cried to be taken along; but I had no further room, and we had to leave them to the care of the remainder of the tribe, who, about twenty in number, had discovered the vessel, and came shouting gleefully over the hill. After distributing to them some useful presents, we pushed off for the schooner.

“Hans was the only unconcerned person in the party. I subsequently thought that he would have been quite as well pleased had I left his wife and child to the protection of their savage kin; and had I known him as well then as, with good reason, I knew him afterwards, I would not have gone out of my way to disturb his barbarous existence.”

Cape Alexander, at the entrance to Smith Sound, was reached without any special difficulty. Standing over towards Cape Isabella on the opposite side of the sound, there seemed a good prospect of being able to reach it, but soon a heavy pack was met with, and a furious gale coming on compelled Hayes to run back to the coast for shelter. On the 31st August, during this gale, the schooner dragged its anchors. What followed is thus

described by Hayes: "McCormick managed to save the bower, but the kedge was lost. It caught a rock at a critical moment, and, the hawser parting, we were driven upon the bergs, which, as before stated, had grounded astern of us. The collision was a perfect crash. The stern boat flew into splinters, the bulwarks over the starboard-quarter were stove in, and, the schooner's head swinging round with great violence, the jib-boom was carried away, and the bowsprit and foretopmast were both sprung. In this crippled condition we at length escaped most miraculously, and under bare poles scudded before the wind. A vast number of icebergs and the 'pack' coming in view, we were forced to make sail. The mainsail went to pieces as soon as it was set, and we were once more in great jeopardy; but fortunately the storm abated, and we have since been threshing to windward, and are once more within Smith Sound."

Hayes again attempted to reach Cape Isabella, but the pack was again met. He then attempted to pass up the Greenland coast so as to try to cross farther north. However, another gale set in, and he was forced to take shelter behind Cape Alexander. When the gale subsided he again entered the sound, but was soon beset in the ice, and the schooner was seriously damaged. Even after this, another attempt was made to pass up the coast, but it ended in failure, and Hayes was forced to put into Hartstene Bay for the winter. The harbour was named Port Foulke, in honour of William Parker Foulke, of Philadelphia, who was one of the earliest, and continued to be throughout one of the most constant

advocates of the expedition. Port Foulke is situated about 8 nautical miles in a north-easterly direction from Cape Alexander. An abundance of game was found in the neighbourhood, and consisted of deer, hares, foxes, and birds.

During October, Hayes made a journey inland, ascending a glacier, named by Kane after his brother John, with five men, and taking with him a sledge loaded with eight days' provisions, a small canvas tent, two buffalo-skins for bedding, and a cooking-lamp. The party reached a point 70 miles from the coast, at an elevation of 5000 feet. Hayes describes it as a vast frozen Sahara, immeasurable to the human eye. He goes on to compare the river systems of the Temperate and Equatorial Zones with the glacier systems of the Arctic and Antarctic, and draws a delightful picture of the great law of Circulation and Change: —

“The dewdrop, distilled upon the tropic palm-leaf, falling to the earth, has reappeared in the gurgling spring of the primeval forest, has flown with the rivulet to the river, and with the river to the ocean; has then vanished into the air, and, wafted northward by the unseen wind, has fallen as a downy snowflake upon the lofty mountain, where, penetrated by a solar ray, it has become again a little globule of water, and the chilly wind, following the sun, has converted this globule into a crystal; and the crystal takes up its wandering course again, seeking the ocean.

“But where its movement was once rapid, it is now slow; where it then flowed with the river miles in an hour, it will now flow with the glacier not more in centuries; and where it once entered

calmly into the sea, it will now join the world of waters in the midst of a violent convulsion.

“We have thus seen that the iceberg is the discharge of the Arctic river, that the Arctic river is the glacier, and that the glacier is the accumulation of the frozen vapours of the air. We have watched this river, moving on its slow and steady course from the distant hills, until at length it has reached the sea; and we have seen the sea tear from the slothful stream a monstrous fragment, and take back to itself its own again. Freed from the shackles which it has borne in silence through unnumbered centuries, this new-born child of the ocean rushes with a wild bound into the arms of the parent water, where it is caressed by the surf and nursed into life again; and the crystal drops receive their long-lost freedom, and fly away on the laughing waves to catch once more the sunbeam, and to run again their course through the long cycle of the ages.

“And this iceberg has more significance than the great flood which the glacier’s southern sister, the broad Amazon, pours into the ocean from the slopes of the Andes and the mountains of Brazil. Solemn, stately, and erect, in tempest and in calm, it rides the deep. The restless waves resound through its broken archways and thunder against its adamantean walls. Clouds, impenetrable as those which shielded the graceful form of Arethusa, clothe it in the morning; under the bright blaze of the noonday sun it is armoured in glittering silver; it robes itself in the gorgeous colours of evening; and in the silent night the heavenly orbs are

mirrored in its glassy surface. Drifting snows whirl over it in the winter, and the sea-gulls swarm round it in the summer. The last rays of departing day linger upon its lofty spires; and when the long darkness is past it catches the first gleam of the returning light, and its gilded dome heralds the coming morn. The elements combine to render tribute to its matchless beauty. Its loud voice is wafted to the shore, and the earth rolls it from crag to crag among the echoing hills. The sun steals through the veil of radiant fountains which flutter over it in the summer winds, and the rainbow on its pallid cheek betrays the warm kiss. The air crowns it with wreaths of soft vapour, and the waters around it take the hues of the emerald and the sapphire. In fulfilment of its destiny it moves steadily onward in its blue pathway through the varying seasons and under the changeful skies. Slowly, as in ages long gone by it arose from the broad waters, so does it sink back into them. It is indeed a noble symbol of the Law, – a monument of Time's slow changes, more ancient than the Egyptian Pyramids or the obelisk of Heliopolis. Its crystals were dewdrops and snowflakes long before the human race was born in Eden."

By the 28th October, 74 reindeer, 21 foxes, 12 hares, 1 seal, 14 eider ducks, 8 dovebies, 6 auks, and 1 ptarmigan had been shot and brought on board. In addition to these, some 20 to 30 reindeer had been cached in various places. Hayes naturally came to the conclusion that men might live indefinitely at Port Foulke without being troubled with scurvy.

On the 19th November, one of the Esquimaux, Peter,

disappeared. For some time Hayes had observed a rivalry between Hans and Peter, and he took the side of the latter. Hans was jealous of every act of favour towards Peter, and Hayes was inclined to believe that Hans had been the means of frightening Peter and of making him run off. No news was received as to his whereabouts until months afterwards, when some Esquimaux found his dead body in a hut a long distance from the ship.

Early in December a serious disease attacked the dogs, similar to what Kane had to deal with. Hayes had at this time thirty-six, and the first attacked by the disease was shot. However, seven died within four days, and during the first two weeks of December eighteen died. At the end of the following week only nine dogs were left. This was a serious blow to Hayes, as he relied chiefly on the dogs for transport across the ice. It was now necessary to devise means for remedying the loss, or to arrange new plans in conformity with the changed circumstances. The first expedient which suggested itself was to open communication with the Esquimaux of Whale Sound, from whom some animals might be obtained. From Hans it was learned that there was a family living on Northumberland Island, several families on the south side of Whale Sound, and possibly one or more on the north side. Northumberland Island was about 100 miles distant, and the south side of the Sound about 150. It was decided that if a sufficient number of dogs remained alive when the moon came in December, Sonntag should make the journey at that period, taking a single sledge, and Hans for a

driver. They set out on the 21st December, and nothing was heard of them until the 29th January, when two Esquimaux arrived with the news that Sonntag had died. Hans appeared two days afterwards, and told his story: —

“The travellers rounded Cape Alexander without difficulty, finding the ice solid; and they did not halt until they had reached Sutherland Island, where they built a snow-hut and rested for a few hours. Continuing thence down the coast, they sought the Esquimaux at Sorfalik without success. The native hut at that place being in ruins, they made for their shelter another house of snow; and after being well rested, they set out directly for Northumberland Island, having concluded that it was useless to seek longer for natives on the north side of the sound. They had proceeded on their course about 4 or 5 miles, as nearly as I can judge from Hans’s description, when Sonntag, growing a little chilled, sprang off the sledge and ran ahead of the dogs to warm himself with the exercise. The tangling of a trace obliging Hans to halt the team for a few minutes, he fell some distance behind, and was hurrying on to catch up, when he suddenly observed Sonntag sinking. He had come upon the thin ice, covering a recently open tide-crack, and, probably not observing his footing, he slipped upon it unawares. Hans hastened to his rescue, aided him out of the water, and then turned back for the shelter which they had recently abandoned. A light wind was blowing at the time from the north-east, and this, according to Hans, caused Sonntag to seek the hut without stopping to change his wet

clothing. At first he ran beside the sledge, and thus guarded against danger; but after a while he rode, and when they halted at Sorfalik, Hans discovered that his companion was stiff and speechless. Assisting him into the hut with all possible dispatch, Hans states that he removed the wet and frozen clothing, and placed Sonntag in the sleeping-bag. He next gave him some brandy which he found in a flask on the sledge; and, having tightly closed the hut, he lighted the alcohol-lamp, for the double purpose of elevating the temperature and making some coffee; but all his efforts were unavailing, and, after remaining for nearly a day unconscious, Sonntag died. He did not speak after reaching the hut, and left no message of any kind."

Hayes was not altogether satisfied with the explanation given by Hans. He wrote; "Although I have no good reason for doubting the truth of his narrative, yet I cannot quite reconcile my mind to the fact that Sonntag, with so much experience to govern him, should have undertaken to travel 5 miles in wet clothing, especially as he was accompanied by a native hunter who was familiar with all of the expedients for safety upon the ice-fields, and to whom falling in the water is no unusual circumstance. The sledge and the canvas apron which enclosed the cargo furnished the means for constructing a temporary shelter from the wind, and the sleeping-bag would have insured against freezing while Hans got ready the dry clothing, of which Sonntag carried a complete change. Nor can I understand how he should have lived so long and have given Hans no message for me, nor have spoken

a word after coming out of the water, further than to have ordered his driver to hasten back to the snow-hut. However, it is idle to speculate about the matter; and since Hans's interests were concerned in proving faithful to the officer who, of all those in the ship, cared most for him, it would be unreasonable as well as unjust to suspect him of desertion."

Towards spring, Hayes had the body of Sonntag brought to Port Foulke and buried. "And here," writes Hayes, "in the drear solitude of the Arctic desert, our comrade sleeps the sleep that knows no waking in this troubled world, — where no loving hands can ever come to strew his grave with flowers, nor eyes grow dim with sorrowing; but the gentle stars, which in life he loved so well, will keep over him eternal vigil, and the winds will wail over him, and Nature, his mistress, will drop upon his tomb her frozen tears for evermore."

When Hans returned from his visit to the Esquimaux, he brought with him his wife's father and mother. Hayes gives the following description of them: —

"The personal appearance of this interesting couple was not peculiarly attractive. Their faces were broad, jaws heavy, cheek-bones projecting like other carnivorous animals, foreheads narrow, eyes small and very black, noses flat, lips long and thin, and when opened, there were disclosed two narrow, white, well-preserved rows of polished ivory, — well worn, however, with long use and hard service, for the teeth of the Esquimaux serve a great variety of purposes, such as softening skins, pulling and

tightening cords, besides masticating food, which I may here mention is wholly animal. Their hair was jet black, though not abundant, and the man had the largest growth of beard which I have seen upon an Esquimaux face, but it was confined to the upper lip and the tip of the chin. The face of the Esquimaux is indeed quite Mongolian in its type, and is usually beardless. In stature they are short, though well built, and bear, in every movement, evidence of strength and endurance.

“The dress of the male and female differed but little one from the other. It consisted of nine pieces – a pair of boots, stockings, mittens, pantaloons, an under-dress, and a coat. The man wore boots of bear-skin, reaching to the top of the calf, where they met the pantaloons, which were composed of the same materials. The boots of the woman reached nearly to the middle of the thigh, and were made of tanned seal-skins. Her pantaloons, like her husband’s, were of bear-skin. The stockings were of dog-skin, and the mittens of seal-skin. The under-dress was made of bird-skins, feathers turned inwards; and the coat, which did not open in front, but was drawn on over the head like a shirt, was of blue fox-skins. This coat terminates in a hood which envelops the head as completely as an Albanian capote or a monk’s cowl. This hood gives the chief distinction to the dresses of the sexes. In the costume of the man it is round, closely fitting the scalp, while in the woman it is pointed at the top to receive the hair which is gathered up on the crown of the head, and tied into a hard, horn-like tuft with a piece of raw seal-hide, – a style of

coiffure which, whatever may be its other advantages, cannot be regarded as peculiarly picturesque.

“Their ages could not be determined; for, since the Esquimaux cannot enumerate beyond their ten fingers, it is quite impossible for them to refer to a past event by any process of notation. Having no written language whatever, not even the picture-writing and hieroglyphics of the rudest Indian tribes of North America, the race possesses no records, and such traditions as may come down from generation to generation are not fixed by any means which will furnish even an approximate estimate of their periods of growth, prosperity, and decay, or even of their own ages.”

Towards the end of February three other Esquimaux appeared from the south, and from them Hayes obtained some dogs.

About the middle of March, Hayes made a preliminary journey in order to explore the track for his extended journey to the north, and cached some provisions at Cairn Point. He visited Rensselaer Harbour, where the *Advance* had been left, but no vestige of the ship remained, except a small bit of a deck-plank which Hayes picked up near the site of the old observatory.

The long sledge-journey began on the 3rd of April 1861. A quantity of provisions had previously been taken to Cairn Point, which Hayes had decided to make the starting-place for crossing the Sound. On one sledge was mounted a 20-foot metallic lifeboat with which Hayes hoped to navigate the Polar Sea. When Cairn Point was reached, Hayes decided to leave the boat there,

as he saw that it was impossible to take the boat and cargo across the Sound in one journey. A storm delayed the party several days at Cairn Point, and soon after encountering the ice-hummocks, Hayes wrote: —

“I need hardly say that I soon gave up all thought of trying to get the boat across the Sound. A hundred men could not have accomplished the task. My only purpose now was to get to the coast of Grinnell Land with as large a stock of provisions as possible, and to retain the men as long as they could be of use; but it soon became a question whether the men themselves could carry over their own provisions independent of the surplus which I should require in order that the severe labour should result to advantage. In spite, however, of everything, the men kept steadfastly to their duty, through sunshine and through storm, through cold, and danger, and fatigue.”

Hayes tried to make for Cape Sabine, but found the hummocks quite impassable, and he had to bear more to the northward. On the 25th of April he reported: “My party are in a very sorry condition. One of the men has sprained his back from lifting; another has a sprained ankle; another has gastritis; another a frosted toe; and all are thoroughly overwhelmed with fatigue.”

On the 27th April he determined to send back the men, with the exception of Knorr, Jensen, and McDonald. Only about half of the Sound had been crossed, but Hayes decided to struggle on. Jensen became partially snow-blind, and on the 3rd of May,

when stumbling along, his leg received a severe wrench in a crack in the ice. The land, at Cape Hawks, was not reached until the 11th of May. Thirty-one days had been occupied in crossing the Sound. Hayes writes: —

“The journey across the Sound from Cairn Point was unexampled in Arctic travelling. The distance from land to land, as the crow flies, did not exceed 80 miles; and yet, as hitherto observed, the journey consumed thirty-one days — but little more than 2 miles daily. The track, however, which we were forced to choose, was often at least three times that of a straight line; and since almost every mile of that tortuous route was travelled over three and five times, in bringing up the separate portions of our cargo, our actual distance did not probably average less than 16 miles daily, or about 500 miles in all, between Cairn Point and Cape Hawks. The last 40 miles, made with dog-sledges alone, occupied fourteen days — a circumstance which will of itself exhibit the difficult nature of the undertaking, especially when it is borne in mind that 40 miles to an ordinary team of dogs, over usually fair ice, is a trifling matter for five hours, and would not fatigue the team half so much as a single hour’s pulling of the same load over such hummocks as confronted us throughout this entire journey.

“In order to obtain the best results which the Esquimaux dog is capable of yielding, it is essential that he shall be able to trot away with his load. To walk at a dead drag is as distressing to his spirits and energies as the hauling of a dray would be to a

blooded horse; and he will much more readily run away with a 100 pounds over good ice than to pull one-fourth of that weight over a track which admits only of a slow pace.”

The failure to get the boat, or even a foot-party, over the Sound disarranged Hayes’ original plans. Of the 800 lb. of dog-food which he had when he sent back the men, only about 300 lb. remained. Small dépôts had, however, been made for the return journey. The most that Hayes now hoped to do was to explore the route to the shores of the Polar Sea, as a basis for further exploration to follow the event of his reaching the west side of Smith Sound with his vessel late in the summer.

The first day’s march from Cape Hawks carried the party across the wide bay to Cape Napoleon, and they were pleased to find that the whole load could be carried at one time, although the travelling was far from good. Deep snow was met, and in wading through it Jensen’s leg gave way, and he had to be carried on the sledge. From Cape Napoleon to Cape Frazer the travelling was good, and camp was made near the farthest point reached by Hayes in 1854. The little flag-staff, which Hayes had planted, was discovered, still standing erect among the rocks; but not a vestige of the flag remained. The winds had whipped it entirely away.

On the 16th of May, Jensen’s injured leg was so painful that Hayes decided to leave him behind in charge of McDonald.

From Cape Frazer northward the description given by Hayes of his route is extremely meagre and vague. He states that when

Jensen was left behind he was about 60 miles to the northward and westward of Cape Constitution, reached by Morton. About two days after leaving Jensen, Hayes reached the southern cape of a bay which was so deep that, as in other cases of like obstruction, he determined to cross over it rather than to follow the shore-line. He writes: "We had gone only a few miles when we found our progress suddenly arrested. Our course was made directly for a conspicuous headland bounding the bay to the northward, over a strip of old ice lining the shore. This headland seemed to be about 20 miles from us, or near latitude 82° , and I was very desirous of reaching it; but, unhappily, the old ice came suddenly to an end, and after scrambling over the fringe of hummocks which margined it, we found ourselves upon ice of the late winter. The unerring instinct of the dogs warned us of approaching danger. They were observed for some time to be moving with unusual caution, and finally they scattered to right and left, and refused to proceed farther. This behaviour of the dogs was too familiar to me to leave any doubt as to its meaning; and moving forward in advance, I quickly perceived that the ice was rotten and unsafe. Thinking that this might be merely a local circumstance, resulting from some peculiarity of the current, we doubled back upon the old floe and made another trial farther to the eastward. Walking now in advance of the dogs, they were inspired with greater courage. I had not proceeded far when I found the ice again giving way under the staff with which I sounded its strength, and again we turned back and sought a

more eastern passage.

“Two hours consumed in efforts of this kind, during which we had worked about 4 miles out to sea, convinced me that the ice outside the bay was wholly impassable.”

An attempt to cross farther up the bay also proved a failure, and by walking a few miles along the shore Hayes believed he saw the head of the bay about 20 miles distant. Next day he climbed to the top of a cliff supposed to be about 800 feet above the level of the sea.

“The view which I had from this elevation furnished a solution of the cause of my progress being arrested on the previous day.

“The ice was everywhere in the same condition as in the mouth of the bay, across which I had endeavoured to pass. A broad crack, starting from the middle of the bay, stretched over the sea, and uniting with other cracks as it meandered to the eastward, it expanded as the delta of some mighty river discharging into the ocean, and under a water-sky, which hung upon the northern and eastern horizon, it was lost in the open sea.

“Standing against the dark sky at the north, there was seen in dim outline the white sloping summit of a noble headland – the most northern known land upon the globe. I judged it to be in latitude $82^{\circ} 30'$, or 450 miles from the North Pole. Nearer, another bold cape stood forth; and nearer still the headland, for which I had been steering my course the day before, rose majestically from the sea, as if pushing up into the very skies a lofty mountain peak, upon which the winter had dropped its

diadem of snows. There was no land visible except the coast upon which I stood.”

The large bay which Hayes here refers to was named Lady Franklin Bay. The place from which his observations were made, Hayes gives as in latitude $81^{\circ} 35'$, longitude $70^{\circ} 30' W$. Finding his way to the north impassable, he decided to return. Hayes at this point came to the conclusion that he was near the shores of the Polar Basin, and that Kennedy Channel expanded into it. After building a cairn and leaving a record in a small glass vial, he started on his return journey.

A storm came on soon after Hayes and his companion set out. They at first tried to shelter in the lee of a huge ice-cliff, but as they had now given the dogs the last of their food, they decided to face the snowstorm and make for the camp where Jensen had been left. This was reached in twenty-two hours under great difficulties. Hayes and Knorr had fasted thirty-four hours, and were completely exhausted. On the return journey to the ship they had to depend entirely on the small caches which had been left on the outward journey. Fortunately, all of these, with one exception, were undisturbed. By the time they reached Cape Hawks and were about to cross the Sound, Jensen's leg had so far improved that he was able to walk. Near the Greenland coast the ice was beginning to give way, and it was with difficulty that they reached land. Part of the journey to the ship had then to be made on foot across the mountains.

During the absence of Hayes, McCormick the sailing-master

had examined the ship, and found that the damage sustained in the ice was serious. He repaired it as well as he could, but it was not now in a condition to stand any further collision with the ice. This was a great disappointment to Hayes, as he intended, as soon as the ice broke up, to make another attempt with the ship to cross the Sound, and pass up the west coast.

On the 3rd of July, Hayes describes a walrus-hunt: —

“I have had a walrus-hunt and a most exciting day’s sport. Much ice has broken adrift and come down the Sound during the past few days; and, when the sun is out bright and hot, the walrus come up out of the water to sleep and bask in the warmth on the pack. Being upon the hilltop this morning to select a place for building a cairn, my ear caught the hoarse bellowing of numerous walrus; and, upon looking over the sea, I observed that the tide was carrying the pack across the outer limit of the bay, and that it was alive with the beasts, which were filling the air with such uncouth noises. Their number appeared to be even beyond conjecture, for they extended as far as the eye could reach, almost every piece of ice being covered. There must have been, indeed, many hundreds, or even thousands.

“Hurrying from the hill, I called for volunteers, and quickly had a boat’s crew ready for some sport. Putting three rifles, a harpoon, and a line into one of the whale-boats, we dragged it over the ice to the open water, into which it was speedily launched.

“We had about 2 miles to pull before the margin of the

pack was reached. On the cake of ice to which we first came, there were perched about two dozen animals; and these we selected for the attack. They covered the raft almost completely, lying huddled together, lounging in the sun or lazily rolling and twisting themselves about, as if to expose some fresh part of their unwieldy bodies to the warmth, – great, ugly, wallowing sea-hogs, they were evidently enjoying themselves, and were without apprehension of approaching danger. We neared them slowly, with muffled oars.

“As the distance between us and the game steadily narrowed, we began to realise that we were likely to meet with rather formidable antagonists. Their aspect was forbidding in the extreme, and our sensations were perhaps not unlike those which the young soldier experiences who hears for the first time the order to charge the enemy. We should all, very possibly, have been quite willing to retreat had we dared own it. Their tough, nearly hairless hides, which are about an inch thick, had a singularly iron-plated look about them, peculiarly suggestive of defence; while their huge tusks, which they brandished with an appearance of strength that their awkwardness did not diminish, looked like very formidable weapons of offence if applied to a boat’s planking or to the human ribs, if one should happen to find himself floundering in the sea among the thick-skinned brutes. To complete the hideousness of a facial expression which the tusks rendered formidable enough in appearance, Nature had endowed them with broad flat noses, which were covered all

over with stiff whiskers, looking much like porcupine quills, and extending up to the edge of a pair of gaping nostrils. The use of these whiskers is as obscure as that of the tusks; though it is probable that the latter may be as well weapons of offence and defence as for the more useful purpose of grubbing up from the bottom of the sea the mollusks which constitute their principal food. There were two old bulls in the herd who appeared to be dividing their time between sleeping and jamming their tusks into each other's faces, although they appeared to treat the matter with perfect indifference, as they did not seem to make any impression on each other's thick hides. As we approached, these old fellows – neither of which could have been less than 16 feet long, nor smaller in girth than a hogshead – raised up their heads, and, after taking a leisurely survey of us, seemed to think us unworthy of further notice; and then, punching each other again in the face, fell once more asleep. This was exhibiting a degree of coolness rather alarming. If they had showed the least timidity we should have found some excitement in extra caution; but they seemed to make so light of our approach that it was not easy to keep up the bold front with which we had commenced the adventure. But we had come quite too far to think of backing out; so we pulled in and made ready for the fray.

“Beside the old bulls, the group contained several cows and a few calves of various sizes, – some evidently yearlings, others but recently born, and others half or three-quarters grown. Some were without tusks, while on others they were just sprouting; and

above this they were of all sizes up to those of the big bulls, which had great curved cones of ivory, nearly 3 feet long. At length we were within a few boats' lengths of the ice-raft, and the game had not taken alarm. They had probably never seen a boat before. Our preparations were made as we approached. The walrus will always sink when dead, unless held up by a harpoon-line; and there was therefore but two chances for us to secure our game – either to shoot the beast dead on the raft, or to get a harpoon well into him after he was wounded, and hold on to him until he was killed. As to killing the animal where he lay, that was not likely to happen, for the thick skin destroys the force of the ball before it can reach any vital part, and indeed, at a distance, actually flattens it; and the skull is so heavy that it is hard to penetrate with an ordinary bullet, unless the ball happens to strike through the eye.

“To Miller, a cool and spirited fellow, who had been after whales on the ‘nor’-west coast,’ was given the harpoon, and he took his station in the bows; while Knorr, Jensen, and myself kept our places in the stern-sheets, and held our rifles in readiness. Each selected his animal, and we fired in concert over the heads of the oarsmen. As soon as the rifles were discharged, I ordered the men to ‘give way,’ and the boat shot right among the startled animals as they rolled off pell-mell into the sea. Jensen had fired at the head of one of the bulls, and hit him in the neck; Knorr killed a young one, which was pushed off in the hasty scramble and sank; while I planted a minie-bullet somewhere in the head

of the other bull and drew from him a most frightful bellow – louder, I venture to say, than ever came from wild bull of Bashan. When he rolled over into the water, which he did with a splash that sent the spray flying all over us, he almost touched the bows of the boat, and gave Miller a good opportunity to get in his harpoon, which he did in capital style.

“The alarmed herd seemed to make straight for the bottom, and the line spun out over the gunwale at a fearful pace; but having several coils in the boat, the end was not reached before the animals began to rise, and we took in the slack and got ready for what was to follow. The strain of the line whipped the boat around among some loose fragments of ice, and the line having fouled among it, we should have been in great jeopardy had not one of the sailors promptly sprung out, cleared the line, and defended the boat.

“In a few minutes the whole herd appeared at the surface, about 50 yards away from us, the harpooned animal being among them. Miller held fast to his line, and the boat was started with a rush. The coming up of the herd was the signal for a scene which baffles description. They uttered one wild concerted shriek, as if an agonised call for help; and then the air was filled with answering shrieks. The ‘huk! huk! huk!’ of the wounded bulls seemed to find an echo everywhere, as the cry was taken up and passed along from floe to floe, like the bugle-blast passed from squadron to squadron along a line of battle; and down from every piece of ice plunged the startled beasts, as quickly as the sailor

drops from his hammock when the long-roll beats to quarters. With their ugly heads just above the water, and with mouths wide open, belching forth the dismal 'huk! huk! huk!' they came tearing toward the boat.

"In a few moments we were completely surrounded, and the numbers kept multiplying with astonishing rapidity. The water soon became alive and black with them.

"They seemed at first to be frightened and irresolute, and for a time it did not seem that they meditated mischief; but this pleasing prospect was soon dissipated, and we were forced to look well to our safety.

"That they meditated an attack there could no longer be a doubt. To escape the onslaught was impossible. We had raised a hornet's nest about our ears in a most astonishingly short space of time, and we must do the best we could. Even the wounded animal to which we were fast turned upon us, and we became the focus of at least a thousand gaping, bellowing mouths.

"It seemed to be the purpose of the walrus to get their tusks over the gunwale of the boat, and it was evident that, in the event of one such monster hooking on to us, the boat would be torn in pieces, and we would be left floating in the sea helpless. We had good motive, therefore, to be active. Miller plied his lance from the bows, and gave many a serious wound. The men pushed back the onset with their oars, while Knorr, Jensen, and myself loaded and fired our rifles as rapidly as we could. Several times we were in great jeopardy, but the timely thrust of an oar, or the

lance, or a bullet saved us. Once I thought we were surely gone. I had fired, and was hastening to load; a wicked-looking brute was making at us, and it seemed probable that he would be upon us. I stopped loading, and was preparing to cram my rifle down his throat, when Knorr, who had got ready his weapon, sent a fatal shot into his head. Again, an immense animal, the largest that I had ever seen, and with tusks apparently 3 feet long, was observed to be making his way through the herd with mouth wide open, bellowing dreadfully. I was now as before busy loading; Knorr and Jensen had just discharged their pieces, and the men were well engaged with their oars. It was a critical moment, but happily I was in time. The monster, his head high above the boat, was within 2 feet of the gunwale, when I raised my piece and fired into his mouth. The discharge killed him instantly, and he went down like a stone.

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