

THE NORWEGIAN GREENLAND
EXPEDITION.

INFORMATION having been received by the sealer *Jason* of the Norwegian Expedition under Dr. Fridtjof Nansen, which is to attempt traversing Greenland from the east coast to the west coast, having left that vessel on July 17 in lat. $65^{\circ} 2' N.$, and by this time is no doubt fairly on its way across the inland ice, some particulars of the plan and aim of this expedition, furnished by the leader himself, will doubtless prove of interest, and tend to correct various erroneous statements which have appeared.

When leaving the *Jason*, an ice-belt about ten miles in width separated the vessel from the mouth of the Sermilik Fjord, and the Expedition was seen to make good progress, either walking over the ice or rowing through it, and at 6 a.m. it was out of sight. It was Dr. Nansen's intention to land in this fjord, which is inhabited, and proceed to the bottom, where he would attempt to ascend to the inland ice plateau. The mountains around the fjord are very steep, and upwards of 6000 feet in height, but still this spot was recommended by the Danish explorer, Captain Holm, as the most suitable. It is agreed by all competent authorities that once on the inland ice plateau the rest of the journey will be comparatively easy, Dr. Nansen and his followers purposing to journey on the so-called Norwegian *Ski* across the smooth snowy surface of the inland ice. These adjuncts of locomotion are highly recommended by Baron Nordenskiöld in land journeys in the Arctic regions; and as a proof of their utility it may be mentioned that when on the inland ice in 1883, the two Lapps in his train were sent forward, and covered in fifty-seven hours twice as much ground as the rest of the expedition in twenty-seven days. Before, however, describing these means of locomotion on snow, a brief reference to the members of the Expedition should be made.

The Expedition, for which there were thirty-five volunteers, including one Englishman, consists of Dr. Fridtjof Nansen, of the Bergen Museum, leader; Lieutenant in the Norwegian army, Herr O. C. Dietrichson; Herr Otto Sverdrup, an officer in the Norwegian mercantile marine; and Herr Kristian Kristiansen, a land-owner; with two Lapps, Samuel Bulto and Ole Ravna, the latter of whom was "on view" at the Exhibition in London in 1883. All the members are men in their best years, powerful, and accustomed to hardships of all kinds, and last, not least, experts in the craft of *Skiløbning*, or Norwegian mode of journeying on snow. This mode is entirely different from that practised in Canada under the name of "snow-shoeing," and therefore deserves special mention. The *Ski*, or snow "runners," as they might more justly be called, are long strips of carefully selected pine-wood without a flaw, those used by Dr. Nansen being about 8 feet in length, 1 inch in thickness, and 4 inches in width. In the middle is a leather strap covered with sheep's wool for the foot, and a slight catch for the heel, whilst the edges are (in this particular case) protected by means of a steel band. The wood has been carefully seasoned and soaked in tar to prevent the penetration of moisture, whilst underneath the *Ski* are lined with reindeer skin, the hair of which gives the runner a better "grip" on the snow when going up hill. In front they are pointed and bent slightly upwards, so as to pass more easily over obstacles. A good pair of *Ski* will, when carefully prepared, have the elasticity almost of a Toledo blade, and jumps of 25 or 30 feet, when such may be necessary in the mountains, are frequently performed by good *Ski* men, without breaking their *Ski*. The most remarkable feats of agility are performed by experts on these means of locomotion; in fact, many a Norwegian is as much at home on his *Ski* as a Red Indian on his

horse. As to the progress made on *Ski*, it is simply astounding, a good runner on dry snow, and across a fair country, being capable of covering a hundred miles a day, and down hill the speed rivals that of the fastest express. Dr. Nansen and his party, who are all celebrated for their achievements in the *Ski* sport, carry with them nine pairs of these. For the conveyance of provisions he has with him five hand sledges of novel construction, being only half the weight of those generally carried in Arctic journeys. They are 9 feet long, and 2 feet wide, greatly curved at both ends, and shod with steel bands, whilst at the back is a steering-pole. The weight is 25 pounds. Dr. Nansen had occasion to test the quality of one of these sledges when travelling last winter alone across Norway on *Ski*, from Eidsfjord to Nummedal, a distance of about fifty miles. The adoption of this kind of sledge has been made at the instance of Baron Nordenskiöld, who, during his journey across the inland ice, found those then used too heavy. The Expedition is also provided with a tent, brown in colour, in order to afford a rest to the eye on the vast dazzling snow-fields, and it may be separated into five pieces, each forming a sail for the boats. Naturally it was absolutely necessary that the baggage of the Expedition should be as small as possible, consequently only what is absolutely required has been included, such as the usual scientific apparatus, a camera, cooking utensils, and provisions, the latter consisting chiefly of pemmican, meat cakes and biscuits, preserves, tea, chocolate, &c. Every article carried has been specially prepared, some in Christiania, and others in Copenhagen, London, and Paris. One article which previous Greenland Expeditions have been much in want of are Alpine ropes for use in climbing, and these have been specially made for Dr. Nansen in London.

Having reached the inland ice plateau, Dr. Nansen purposes travelling in a north-westerly direction, with Disco Bay on the west coast for his goal, as further south the land is intersected by deep fjords and mountains, which may cause difficulties in crossing. The distance from coast to coast is estimated at 425 miles, and allowing for a rate of progress of only fifteen miles a day, the whole journey should be accomplished in about thirty days. The leader considers it a great advantage to cross from east to west, and not *vice versa* as previously attempted, as in the former case provisions need only be carried for *one* journey, the west coast being well provided in this respect. The most serious obstacles expected by Dr. Nansen on the inland ice are crevices in the ice, which are formed by the water from the melting snow, and wet snow. The former he intends to attempt evading by sending the Lapps forward as scouts, and on the latter Canadian snow-shoes will be used, as in wet snow the *Ski* are of little use, the snow clogging to them and retarding progress. It is, however, expected that at this season the snow will be crisp and dry. It should also be mentioned that by crossing from east to west the Expedition will have the advantage of travelling continually down an incline, as the country slopes gradually down from a height of 6000 feet on the east coast to only a few hundred on the west coast, whilst the wind also nearly always blows from that quarter.

Dr. Nansen further anticipates that the curious lofty basalt rocks of Disco Island will be seen a good way inland, and serve as a landmark.

As regards the scientific aspects of the expedition, not too great results may be expected, although Dr. Nansen has especially qualified for his task, and visited Greenland some years ago; as with the means at his disposal, and in view of the mode of travelling, the number of members and the weight of the baggage had to be strictly limited. However, the leader feels confident that it will contribute in some degree to solve the scientific problems facing us in that continent, which has always had such

fascination to the geographer, geologist, and botanist in particular, and may lead to the despatch of an Expedition on a larger scale and with a wider scientific scope.

It may be of interest here briefly to recall the attempts which have been made from time to time to cross the Greenland continent.

As is well known, Greenland has never been crossed by human being, although there is a tradition, confirmed by Holm and Garde, that a young girl from Pikiudelek, on the east coast, driven from home by cruelty, wandered on foot across the ice to the west coast. However, in modern times many attempts have been made, as, for instance, by Dalager (a Dane), Dr. John Rae, Messrs. Whymper and Brown, Messrs. Jensen, Kornerup, and Groth, and Nordenskiöld in 1870 and 1883. All of these attempts were failures, with the exception of that of Nordenskiöld in 1883 referred to, when he succeeded, in lat. 68½° N., in reaching 75 miles inland, and his two Lapps 140 miles further, or 215 miles, *i.e.* a little more than half the width of the country. Finally, we have the scantily-known wandering, in June of last year, of Mr. Peary, an American engineer, and Herr Maigaard, a Dane, who claim to have reached about 100 miles inland on the ice from Jakobshavn, and reached an elevation of about 7000 feet above the sea; but the weather was unfavourable. It is worthy of note that this elevation is far higher than that recorded by Nordenskiöld a little further south, *viz.* about 6000 feet.

It is impossible to close this *résumé* of Dr. Nansen's plans without referring to the much-disputed theory of there being, if not a fertile interior somewhere in Greenland, at all events land free from ice and snow, as advocated by Nordenskiöld, but which he failed to find. We have it however now, on the authority of Dr. Nansen, that in spite of this failure the famous Swedish explorer is still of opinion that such conditions may exist somewhere to the north or south of the track followed by himself. Dr. Nansen also supports this theory, which is, leaving the "Föhn" wind theory out of the question, based, firstly, on the circumstance that the reindeer herds on the west coast disappear from the coast in the summer, when it is surmised that they proceed to this interior "oasis," as it has been termed; and, secondly, on the discovery by Nordenskiöld of reindeer horn far in on the ice; thirdly, the theory is claimed to be supported by the fact of Nordenskiöld's two Lapps having in the middle of Greenland seen two ravens coming from the north to "have a look at them," and return in the same direction. Hence, it is maintained, some ice-free land must exist further north. But as to the wanderings of the reindeer, such take place every summer in Norway, when the animals repair to the glaciers in order to escape from their dread tormentors the gadfly and the heat. It is, however, curious that the Greenlanders themselves, as well as the Eskimo, according to Captain Holm, firmly believe in an ice-free and populated interior, the inhabitants of which are of enormous stature, fierce, and dangerous magicians, and it is this latter belief which is the cause of the natives refusing to act as guides or participate in explorations of the interior. The east coast natives by the way maintain, too, that Scoresby Sound in the extreme north (Holm, "East Coast Expedition, 1883-85") is a fjord separating Greenland from the rest of the Arctic regions; that once a Greenlander sailed through it from west to east, and that near its southern shores resides a warlike tribe of Greenlanders.

It was Dr. Nansen's intention to have attempted to land in the neighbourhood of Scoresby Sound, where no European has ever set foot, but it was impossible to get further north than Cape Dan on account of ice. It should be mentioned that the present expedition is in a great degree due to the munificence of Herr Augustus Gamél, of Copenhagen, who despatched Lieutenant Hovgaard's Arctic Expedition of 1880, and has received valuable

assistance from such Greenland explorers as Nordenskiöld, Rink, Holm, Ryder, and Marigaard, as well as the Royal Geographical Society.

If all goes well, it may return to Europe before the last vessel leaves Greenland at the end of September.

If successful, it cannot fail to throw some further light upon the interesting scientific problems of that mystic northern continent, and incite other explorers to follow in Dr. Nansen and his colleagues' footsteps.

THE CENTENARY OF THE CALCUTTA BOTANIC GARDEN.

THE Report of Dr. George King, the Superintendent of the Botanic Garden of Calcutta, for the past year gives a brief history of the work of that institution during the century of its existence, which has just been completed. The suggestion for its foundation was made to the Government in Calcutta in 1786 by Colonel Robert Kyd, then Superintendent of the East India Company's dockyard at Kidderpore. The adoption of the proposal was urged upon the Board in London by the Governor-General, and upon their sanctioning it a large piece of land at Shalimar was chosen as the site, and Colonel Kyd was elected the first Superintendent. He held the post till his death in 1793. At the outset it was understood that the Garden was to be made a source of information for the Company's servants, and a place in which experiments could be made on those exotics which were of economic value. It was also intended to be a horticultural and agricultural garden, which would assist in introducing indigenous Indian products to new markets. The earliest efforts of Colonel Kyd were directed to the introduction of trees yielding nutmeg, cloves, and cinnamon, and to attempt to cultivate them. This, however, was a failure, the climate being shown to be quite unsuitable to them. The equatorial fruits, such as mango-steen and bread-fruit were tried with a similar result, and also the temperate fruits of Europe, and thus at an early stage it was demonstrated that any such effort was quite useless. Colonel Kyd introduced tea cultivation, and in this he was highly successful, and it was owing to his efforts that the tea-industry has become one of the most important in India. On the death of Colonel Kyd, Dr. William Roxburgh, the Company's Botanist in Madras, was appointed to the post, and continued in it till 1814. He was an ardent botanist, and was the first who attempted to draw up a systematic account of the plants of India. His *Flora Indica* contained descriptions of all the indigenous plants he had met, and also of the exotics in cultivation at Calcutta. This book was not published till 1832, and it was, till Sir Joseph Hooker commenced his work on the "Flora of British India" in 1872, the only book from which a good knowledge of Indian plants could be acquired. Besides his "Flora Indica," Roxburgh published "*Plantæ Coromandalianæ*," descriptions of three hundred of the most representative plants on the Coromandel Coast. Dr. Roxburgh, who left India on account of failing health, was succeeded by Dr. Buchanan-Hamilton, who collected a mass of information about the fauna and flora of India, a portion of which he published in his own name, but the greater part was issued in Montgomery Martin's "History, Topography, and Statistics of Eastern India." In 1817, Dr. Wallich became Superintendent. Wallich was a most energetic man, and during his term of office he made collections in Kumaon, Nepal, Tenasserim, Singapore, Penang, and other places. His collections of dried plants were taken by him to London, and after their classification they were distributed to the chief botanical institutions in Europe. Dr. Wallich published three fine volumes, "*Plantæ Asiaticæ Rariores*," illustrated with excellent figures. On Dr. Wallich's retirement in 1846, Dr. Hugh Falconer, who