Resumé of the Recent German Expedition, from the Reports of Captain Koldewey and Dr. Laube

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January, 1871, viz.:—No. 1. Paris und Umgebung. Bearb. von C. Vogel. No. 2. Frankreich, in seiner Politischen gestaltung zu Anfang Dezember, 1870. Von Hrn. Berghaus. No. 3. Geognostische Karte des Alleghany-Systems. Von Hermann Credner. No. 4. Geognostische Profile in Alleghany-Systems. Von Hermann Credner. Presented by Dr. Petermann. Johnston's War Register, No. 10. Presented by A. K. Johnston, Jun. A Map of South-East Africa, showing the Diamond and Gold Fields. By J. Wyld, F.R.G.S. Presented by the author. Admiralty Charts, 39 sheets, bringing this series up to January 14th, 1871. By the Hydrographic Department, through Admiral G. H. Richards.

The following Paper was read:—

Resumé of the recent German Expedition, from the Reports of Captain Koldewey and Dr. Laube. By Captain Sir LEOPOLD M'CCLINTOCK, R.N.

BEFORE entering upon the accounts of this expedition, it may be useful to state that the *Germania* was a screw-steamer of 143 tons and 30-horse-power, with a complement of seventeen officers and men, and that she started, in company with the *Hansa*, a sailing-vessel of 242 tons, with a crew of fourteen souls. Both vessels were supplied with two years' provisions and stores; but the *Hansa* was chiefly laden with fuel intended for the future supply of the *Germania*.

The main object of the expedition was geographical discovery. Captain Koldewey was directed, in the first instance, to make for the Pendulum Islands on the east coast of Greenland, and from thence to trace the northern continuation of that great continent as far as possible; if compelled to winter there, he was directed to travel by means of sledges onward towards the North Pole. Thus far, the instructions given to Captain Koldewey were sufficiently explicit; but Dr. Augustus Petermann, of Gotha, by whom they were drawn up, entertained hopes of far more extensive geographical discovery, as is apparent from these voluminous instructions, which contemplated Captain Koldewey's penetrating "the belt or girdle of ice which encircles the North Pole, and has hitherto barred all access to the Polar Sea." They desire him, should he reach the Pole, to winter there if possible, or, failing in this direction, they require him, should he reach Behring Strait, to proceed onward to the exploration of the Siberian Islands.

It was on the 15th of June, 1869, that those two vessels, being honoured by the presence of His Majesty the King of Prussia, sailed from Bremen on their lonely voyage.

Exactly one month later, when in lat. $74^{\circ} 49'$ N. and long. $10^{\circ} 50'$ W., they first met with polar ice. Fogs were now frequent, and the *Hansa* was lost sight of for a few days. On the 20th of July, in 75° N., the ships again separated, and this time finally.

Captain Koldewey found it impossible to penetrate the heavy pack-ice, until he sailed southward to 74° , where, on 1st August, it was sufficiently loose to steam through; and although also impeded by fogs and calms, he made such occasional progress, that on the 5th August the *Germania* reached Sabine Island, in $74\frac{1}{2}^{\circ}$ N. and 19° W., and anchored at its southern side. It may be useful here to state, that this island and the adjacent coast of Greenland were discovered by Captain Clavering, of H.M.S. *Griper*, in 1823; and that Captain—now General Sir Edward Sabine, the distinguished President of the Royal Society—who accompanied Clavering, made a series of very interesting observations for the purpose of determining the magnetism and compression of the earth, upon the island which bears his name.

On 10th August the *Germania* again pressed northward, keeping along the Greenland shore; when in $75^{\circ} 31'$ N. her progress was stopped by closely-packed ice, which pressed in against the land-ice. This land-ice extended unbroken from the coast of the mainland out to Shannon Island, a distance of 14 miles: it was of a very formidable description, margined in some places with a fringe of crushed-up floe-pieces, forming hummocks 40 feet high.

The *Germania* remained in this position for several days. As there was nothing but ice visible to the northward, and there appeared no prospect of any further progress in that direction, Captain Koldewey moved his ship to the south side of Shannon Island on the 16th August, and anchored her close to Cape Philip Broke.

Here the first exploit of the voyagers was the shooting of a musk-ox. Although there was but very little vegetation upon the island, yet small herds of these animals were seen upon it.

Eleven days were spent in the scientific examination of Shannon Island, during which time a constant watch was kept from a mountain-top upon the ice to the northward. But as it continued unmoved, and the close of the navigable season was at hand, Captain Koldewey returned southward, and anchored his ship on the south side of the lesser Pendulum Island on the 27th August.

Even at this early date the young ice was so strong that it was necessary for the *Germania* to charge it at full speed, in order to force her way through it.

Here, as at Shannon Island, scientific observations fully occupied Captain Koldewey and his companions, until it became necessary

to place the *Germania* in safety for the approaching winter. Therefore, on the 13th of September, she was moved into the same little harbour in which she had originally anchored on the 5th August, and which their subsequent experience proved to be the only safe one between the parallels of 74° and 77° .

Wintering preparations were now actively commenced; and on the 22nd September the ship was firmly frozen up.

The first of the autumn sledging-parties had been sent out on the 14th September, and remained absent for eight days; this party reached the mainland, and then travelled for four days up a newly discovered fiord, finding many petrifications and much lignite; large herds of reindeer and musk-oxen were seen, and the vegetation—chiefly *Andromeda*—was rich, when compared with that on Sabine Island. Shooting parties were now organized, and with most satisfactory results, for many musk-oxen and reindeer were shot within the next few weeks of remaining daylight; but after the beginning of November, neither these animals, nor the bears which had been their constant neighbours hitherto, were any longer to be seen; a supply of fifteen hundred pounds of good beef and venison had, however, been most fortunately obtained.

In the latter end of October a second sledge-journey was undertaken, this time to the southward; it returned on the 4th of November, having discovered another fiord. On the day following, the 5th of November, the sun disappeared altogether, and the arctic night of ninety days' duration commenced.

At the close of the year, after much stormy weather, the temperature rose to 25° (Fahrenheit); but it soon fell again below zero; and early in January, 1870, the thermometer indicated a temperature of -40° Fahrenheit, which was the greatest degree of cold observed throughout the winter. Captain Koldewey speaks of the exceedingly furious northerly storms which prevailed throughout December. The most severe of these lasted from the 16th to the 20th of December; it broke up the ice outside the harbour, and even to within three hundred yards of the ship, but fortunately she had been placed in its most sheltered part, and close to the shore in only ten feet of water, otherwise she would have been drifted away amidst the crushed-up ice, to almost certain destruction.

Yet these brave and simple-hearted men were not cast down by the gloomy terrors of their situation, for Captain Koldewey thus describes their Christmas revels:—"They danced by starlight upon the ice; they celebrated Christmas Eve with open doors, the temperature being 25° Fahrenheit; they made a Christmas-tree with

evergreen *Andromeda*; they decorated the cabin with flags, and laid out upon their tables the presents prepared for this occasion by kindly hands; each received his share, and universal cheerfulness prevailed."

After this festive season they set themselves to prepare the equipments for their spring sledging-journeys; the most important of these journeys having for its object the attainment of the highest possible degree of north latitude.

In February the bears returned simultaneously with the sun; and the daily excursions upon the island, now taken by the scientific gentlemen of the expedition, were rendered dangerous by their boldness; and although every one was required to go armed, yet some accidents occurred: one of the savans was severely wounded in the head, and was dragged for more than four hundred paces, before he was rescued from the bear. After the lapse of a few weeks this gentleman recovered from his wounds.

On the 8th of March a party, consisting of twelve men, with two sledges, left the ship; but their equipment proving inefficient, and their sledges too heavily laden, they were compelled to return almost immediately, in order to remedy these defects.

Starting again on the 24th of March, they sledged northward until they attained the latitude of $77^{\circ} 1'$ on the 15th of April. But northerly storms presenting insuperable difficulties to their further progress, they were compelled to retrace their steps. The travellers were now so fortunate as to shoot some bears, whose blubber afforded a timely supply of fuel with which to warm their food, and, the northerly storms amply filling the sails hoisted upon the sledges, such rapid progress was made upon the return journey that, on the 27th April, they reached the ship, the whole party being greatly exhausted by their severe exposure and exertions.

At the extreme northern point reached by this party, *i.e.* $77^{\circ} 1'$, the belt of land-ice which margined the shore was four miles in width, and appeared to be several years old; in fact it seemed to the travellers like "a bulwark built for eternity;" whilst all to seaward was an unbroken expanse of very heavy hummocky ice.

Two other sledge-parties were despatched from the *Germania* early in May: one of these was employed in making geographical and scientific explorations of the adjacent coast of Greenland; the other party was directed to attempt the measurement of an arc of the meridian.

About this time the bears were particularly numerous and bold; it almost seemed as if they had combined to besiege the few who now remained on board the ship: the greatest caution was neces-

sary to prevent accidents, and although several of them were shot, yet it was impossible to frighten the rest away.

Thawing commenced about the middle of May; towards its latter end the sledge-parties had to wade through the water which flooded the surface of the sea-ice.

On the 29th May, Lieutenant Payer and his party returned on board with many geological specimens, fossil plants, &c.; and during the spring several short journeys were made in various directions for the purpose of collecting zoological and botanical specimens.

In the month of June there was much open water to the south-eastward, and large portions of land-ice were continually breaking off.

On the 10th of July the ice immediately about the ship began to break up, and by the 14th boating became practicable; therefore an expedition was made to the Esquimaux village on Clavering Island, which is marked on the charts. Ruined huts only were found, and these had long been abandoned, apparently very soon after Clavering's discovery of them; and, although traces of their former abodes were found wherever the Germans landed, yet no Esquimaux were seen by them.

On the 22nd of July, the *Germania* once more steamed northward, to renew the attempt of the preceding year. Her boiler-tubes now began to leak seriously, and it became evident that the boiler would soon fail altogether; after some delay it was temporarily patched up, and by following a narrow channel between the firm land-ice and the loose pack, she penetrated as far as the north-east cape of Shannon Island, in $75^{\circ} 29'$ of latitude. Beyond this position, unbroken ice barred all progress; and, hope being extinguished in a northerly direction, the *Germania* turned southward on 30th of July, and in that direction continued her interesting explorations. The "Mackenzie Inlet" of Clavering was found to have no existence: its place being occupied by a low flat plain, on which reindeer were numerous; and so unaccustomed were they to the sight of man, that five of them were very soon shot.

On 6th August, when in $73^{\circ} 13' N.$ a large fiord was discovered and entered by the *Germania*; it was perfectly free from floe-ice, but many large icebergs were drifting out of it. It was soon noticed that the further they penetrated into the fiord, the warmer became the temperature of the air and of the surface of the sea. There were many branches to this fiord, and the scenery is described as being grand—resembling the Alps. An unknown land—the real interior of Greenland—revealed itself before their astonished gaze, ever becoming more beautiful and imposing. Numerous glaciers,

waterfalls, and cascades came from the mountains, which rose higher and higher towards the west.

A mountain 7000 feet high was ascended, and even from this elevation no limit to the western or principal arm of the fiord could be perceived. Mountains, in about 32° w. longitude, were ascertained to be 14,000 feet high. The *Germania* ascended this fiord for 72 miles, reaching 26° w. longitude, when her boiler almost ceased to act; and, fearing the consequences should it fail altogether, Captain Koldevey commenced his homeward voyage on the 17th of August. He re-entered the packed ice at the mouth of the fiord, and was occupied until the 24th in forcing his way through it, only reaching the open iceless sea in 72° N. and 14° w.

The *Germania* was compelled to make the rest of her voyage under sail, as her boiler had become useless; she safely arrived at Bremen on the 11th September, with all well on board. With the exception of two accidental wounds, this remarkable voyage was performed without any kind of sickness on board,—a circumstance which reflects the highest credit upon all those whose duty it was to equip, provision, and conduct the expedition; the abundant supply of fresh meat, amounting in all to 5000 lbs., so fortunately obtained at their winter quarters, doubtless contributed largely to maintain the health of the crew.

Second only in importance to extensive geographical discovery, did the projectors of this expedition seem to value scientific research. The thirty-one individuals composing the entire Expedition, included six scientific gentlemen; and every spare moment appears to have been usefully employed by these talented observers, in whose hands the very best instruments had been placed.

The series of magnetic observations appears to have been very extensive and complete; their amply filled meteorological journal will also contain some very interesting and remarkable notices of the Aurora Borealis: the auroral rays, we are told, were generally found to converge towards a point near the zenith; its angle of elevation above the horizon being exactly equal to that of the magnetic inclination, and its azimuth equal to the magnetic declination. A complete series of observations on the specific gravity and temperature of the sea, at its surface and at various depths, was also taken—nor did the glaciers escape the intelligent scrutiny of these industrious savans; the daily movement of one of those examined in the fiord was above five inches. It is remarkable that whilst the glaciers upon the seacoast were but few in number and inconsiderable in size, those far up in the fiord were magnificent: the length of one of these was about $4\frac{1}{2}$ English miles. In strict

accordance with Alpine experience, these Greenland glaciers were found to exhibit a very great decrease of magnitude.

This Greenland shore, under the 75th parallel of latitude, is not the icy desert which we have hitherto supposed it to be. Reindeer were abundant, as many as fifty having been seen at a time; musk-oxen were not rare,—they roamed about in small herds, sometimes numbering fifteen or sixteen; whilst smaller animals, including ermines and lemmings, were also met with. Birds were comparatively scarce; herds of walruses were often noticed, but no whales were seen.

Although the geographical discoveries of this voyage are not of very great extent, yet, as they relate to a region of which so little was previously known, they possess an unusual amount of interest for the geographer; and the vast number and variety of observations and specimens, so industriously collected, cannot fail to be regarded by men of science generally as possessing great value.

Hitherto the only trace of the musk-ox in Greenland has been limited to the finding of a few decayed skulls by Dr. Kane, on the shores of Smith Sound under the 79th parallel: it therefore seems fair to conjecture that these animals reached north-eastern Greenland by following the shore-line to the eastward, from the outlet of Smith Sound and Kennedy Channel, in 82° N.; and in this manner have rounded the northern extreme of the great central glacier of Greenland.

The absence of natives, and of all recent traces of them, is very remarkable. It will be remembered that, in 1829, Captain Graah found the southern Greenlanders inhabiting as far north as 64½°; that they did not know of any human beings existing further to the north, nor was it possible for them to travel in that direction, all their attempts to do so having been foiled by enormous and impassable glaciers. Graah tells us that in this dreary southern region the only land animal known to the natives is the fox!

In 1822, Scoresby partially explored the coast of East Greenland between the parallels of 70° and 72½°. He found many ruined habitations and graves, but no human beings nor recent trace of them.

In the following year, Clavering met with a party of twelve Esquimaux in 74° N.: but neither he nor Scoresby found reindeer or musk-oxen; and the fact of these animals being numerous and devoid of fear of man, in 1869, adds much force to the conjecture that but very few, if any, of this isolated tribe of Esquimaux any longer exist. Now, as the musk-oxen, and also the reindeer, appear to have wandered hither from the northward, and not from the southward, it seems most probable that the natives pursued

the same route also. If it be true that this migration of men and animals was effected from west to east along the northern shore of Greenland, we naturally assume that it does not extend far towards the Pole; that probably its most northern point is at the eastern outlet of Kennedy Channel, and that it turns from thence sharply towards the east and south-east—the distance in a straight line to the most northern point reached by Koldewey is not more than 600 miles. It is not less strange than sad, to find that a peaceable and once numerous tribe inhabiting a coastline of at least 7° of latitude in extent, has died out, or has almost died out—whilst at the same time we find, by the diminution of the glaciers and increase of animal life, that the terrible severity of the climate has undergone considerable modification. We feel this saddening interest with greater force when we reflect that the distance of Clavering's village from the coast of Scotland is under 1000 miles! They were our nearest neighbours of the new world.

We now return to the *Hansa*, which vessel became separated from the *Germania* on 20th July, 1869, when both ships were endeavouring to force through the loose pack-ice towards Sabine Island. The *Hansa* was driven far to the south by unfavourable winds and currents. Her commander, doubting the existence of any clear water along the Greenland coast, steered eastward out of the pack, and then to the north as far as 75° ; here he tried to reach the coast, and was so far successful as to approach within 18 miles of it, and, about the 24th of August, to gain sight of the Pendulum Islands. No coast water could be seen; and whilst waiting for the further disruption of the ice, the ship became surrounded and beset amongst vast fields of it, on the 5th of September. They could see the open sea to the eastward of them, but could not reach it. By the middle of September they were firmly frozen up, and all prospect of escape from a winter in the ice had vanished.

They did not, however, allow the gloomy prospect to discourage them, but, putting the best face upon it, set to work and made their vessel as secure as they could, by docking her in an ice-floe, the superficial area of which was upwards of three square miles. The best possible arrangements appear to have been made for both safety and comfort that such circumstances would admit of. As a temporary refuge, in the event of the destruction of the ship, a hut was built upon the floe, of the bricks of patent fuel which the *Hansa* had on board as a supply for the *Germania*.

The wintering preparations were hardly completed, when fierce storms burst upon them. They drifted south-westward, gradually nearing the Greenland coast, until about the middle of October and

in lat. 71° , when they were close to it. On 18th October the ice was in fearful motion, although the weather was calm. On the 19th it blew a storm; their sheltering floe was broken, and the ship was nipped (or squeezed), but she rose to the pressure until lifted fourteen feet above the sea, when she was thrown on her broadside upon the ice.

When the storm ceased, the crushed-up ice, together with the ship, sank back into the water; but it was now discovered that she had sprung a fatal leak. Every effort was made to save provisions from the sinking vessel; yet, had not their provisions been previously, and as it is stated accidentally, removed to the deck, it is hardly possible that enough could have been saved to preserve the crew from starvation.

The *Hansa* sank beneath the ice on the 22nd October, in lat. $70^{\circ} 50'$ N. and 21° W. Dr. Laube writes:—"We made ourselves as snug as possible, and, once our little house was completely embanked with snow, we had not to complain of the cold. We enjoyed perfect health, and occupied the time with long walks and with our books, of which we had many. We made a Christmas-tree of birch-twigs, adorning it with pieces of wax taper, and rejoiced in your kind Christmas gifts, which we had saved from the ship.

"In the name of all our crew I return you most hearty thanks, and beg you to convey the same to your honoured wife. It seemed to us as if you had visited us on that Christmas eve, and you gave us one happy hour in the midst of our gloomy situation."

The greatest cold recorded was $-29\frac{1}{2}^{\circ}$ Fahr., and it occurred in December. After Christmas they had frequent storms, and drifted close along the land amidst much ice-crushing; their floe was broken off all round them, insomuch that by the 4th January, 1870, it was reduced to one-eighth of its original size.

On 6th January, in lat. $66\frac{3}{4}^{\circ}$, the sun reappeared.

On the night of the 15th January, the floe cracked asunder under their house! The crew now fled to their last retreat—their boats; in which they lay, unable to clear out the snow, and but partially sheltered from the raging storm.

On the 17th the weather improved; they recovered from beneath the snow enough of the ruin of their hut to build a new, but much smaller, one. It could only receive half of the crew, so the other half had to live in the boats.

February was calm and fine, but very cold; they continued to drift along the land.

On 20th March they were off Cape Mostling, and found themselves amongst icebergs; there was more ice-crushing, but their floe

was not any further reduced: its circumference, subsequent to the 15th January, remained at 360 paces.

From the end of March to 17th of April, they drifted between Skioldunge Island and Cape Moltke, alternately to the north-west and south-east; a storm then drove them far to the south. Early in May, they were in lat. $61^{\circ} 12'$. Hitherto, they had never been able to reach the land, but on 7th of May some lanes of water opened a way for them; so they launched their boats, with the intention of progressing southward alongshore. It was not, however, until 4th of June that they succeeded in reaching the Island of Illuidlek, in $60^{\circ} 57' N$. They struggled onward continually, amidst ice and storms, and further checked by an incorrect chart, which led them into a deep fiord, instead of King Christian IV. Sound; and on 13th June they reached the Moravian missionary station of Friedrichstal, where these gallant men were most joyfully welcomed by their own countrymen, after their unparalleled sojourn of 200 days upon a drifting ice-field! They had not only experienced far more than the ordinary trials of an Arctic winter, but they had also suffered continually from hunger.

On the 21st June they reached Julianshaab, where they were received on board the Danish brig *Constance* for passage to Enropé, and were landed at Copenhagen on the 1st September.

It is melancholy to record that one of this heroic little band of fourteen souls was bereft of reason by the terrible sufferings and horrors to which they had so long been exposed, and of which the foregoing is but a very faint outline.

Under all the varied circumstances in which both crews were placed, we cannot but admire their calm, patient endurance of the greatest hardships, and the simplicity with which every event is recorded. Often in touching words, yet always in plain, manly language, such as we know and feel to be sincere, truthful and most accurate, they have given us faithful narratives of their adventurous voyages.

On the conclusion of the paper, the CHAIRMAN remarked that Pendulum Island, where the *Germania* wintered, was the very spot where Lieutenant (now General Sir Edward) Sabine first conducted those magnetic experiments which have since made his name famous throughout the world, and he was so much impressed with the importance of the German Polar Expedition, that he gave it a prominent place in his last anniversary address to the Royal Society, and spoke of it in terms of very great praise.

The meeting would be much interested in learning that Sir Roderick Murchison had taken the liveliest interest in the subject, and had suggested to him (Sir H. Rawlinson) that he should impress upon the Fellows the very great importance of following up these Greenland discoveries. Sir Roderick especially desired him to point out to the members of the Yacht Club, and to Alpine travellers in general, the great advantages that might be derived from

their turning their attention in that direction, especially in regard to the exploration of the deep fiord discovered near Cape Franklin. The climate appeared to be anything but disagreeable; the scenery was very fine, and the sport was of a most exciting description. Above all, there was a grand geographical problem to be solved in reference to the possibility of there being an open Polar Sea north of Greenland; and most likely, if it ever was solved, it would be by proceeding up one of these large fiords.

Captain SHERARD OSBORN said the drifting of the crew of the *Hansa* on the ice-floe, southwardly along the coast of Greenland, was a remarkable proof of the existence of the Polar current. A similar voyage had been made by two Arctic navigators, though not of the extent of this journey of the Germans. Sir Leopold McClinton, fourteen years ago, was drifted in the *Fox* right down into the open sea, after passing through no ordinary dangers; but on that occasion he saved his ship. The *Resolute* also was caught in the ice, and came right through to the open sea. The case of the *Hansa*, however, was the first occasion on record on which, after losing their ship, the crew had saved themselves on the floating ice, and it was a very creditable thing to find a young sailor-nation doing its work so well. He was not at all astonished at the abundance of animal life stated to have been observed in Greenland. At the Danish settlement of Upernavik, in lat. $72^{\circ} 48' \text{ N.}$, sufficient reindeer are shot every summer and autumn to feed the inhabitants throughout the winter. The Esquimaux are found as far as 80° N. , in Smith Sound, on the western side of Greenland, and they live upon animal food. These people speak of musk-oxen being found still further north. On Melville Island, which is surrounded by an almost impassable barrier of ice, Sir Leopold McClinton in 1852, with his sledge-parties, supplied all his crew with fresh meat nearly every day from the herds of musk-oxen and wild reindeer they found there. McClure, too, found abundance of animal life on Banks Land, though it also was surrounded by an impassable sea. The animals there seemed to wander into the interior at certain times, and at others to return towards the coast; but they remained on the land itself. There was, therefore, no reason to doubt that in Greenland these animals are indigenous, and probably in the interior there are vast plains sheltered by lofty mountain-ranges, affording plenty of herbage and means of supporting animal life. He did not think it was at all a singular thing that a large fiord had been discovered. It was a question whether the southern part of Greenland is not cut up by numerous fiords, some even running right across. The Esquimaux speak of one running across, and the old Norsemen traditions are to the same effect. The great object of Polar research is to penetrate that area which lies round the North Pole, for the purpose of settling at rest the long-disputed question of the existence or non-existence of an open Polar Sea. He firmly believed that there was no such open sea. Six years ago, in a paper read before the Royal Geographical Society, he had proposed as the best route for such an expedition the one by Smith Sound, making the starting-point 82° N. , the furthest which had hitherto been attained on the west side of Greenland. Professor Petermann, however, maintained that a route could be found between Spitzbergen and Greenland, and he was supported in that view by General Sabine and some Arctic authorities. The failure of all attempts in the direction pointed out by Dr. Petermann proved he was wrong, and although quite ready to bear witness to the heroism of the officers and men of the German Expedition, he (Capt. Osborn) asserted that their efforts had been entirely misdirected by Dr. Petermann, and the result was, as he had anticipated, no addition to our geographical knowledge of the Polar Basin.

Mr. E. WHYMPER said it was a very old notion that there is a fiord running from one side of the country to the other, and such a fiord was laid down in the map which accompanied the Danish edition of the first Egede's book

upon Greenland, published nearly a century and a half ago. In this map the fiord is made to run from Disco Bay down to about latitude $65\frac{1}{2}^{\circ}$ upon the east coast. The last time this notion was prominently brought forward was by Captain Scoresby, who supposed that communication existed between Jacob's Bight (Jakobshavn fiord), and Scoresby or Davy Sound. In 1867 he (Mr. Whymper) was in Greenland, and made it his particular business to inquire about this fiord; but, although he ascended several hills about 3000 feet in height in the vicinity of Jakobshavn, he saw nothing whatever of it. He would not say it did not exist, but at all events he did not see it. The country about 70° N. was completely covered with glacial ice up to a great altitude, and at the summit formed a dead level. There is, however, a considerable district to the south, between Holsteinborg and Egedesminde, which has never been surveyed, and here the western opening of the fiord may possibly be found. A notable instance of the extent to which the stream of ice down the east coast may obstruct navigation occurred in the winter of 1863-4, when the Danish ships which were at Godthaab and Julianahaab were unable to get through that stream of ice, while the ships from the northern settlements came home in safety. Musk-oxen were entirely unknown in the district he visited, and the natives said there were only two reindeer left, which knew everything, and would not let the men get near them.

Admiral COLLINSON said he was one of those who supported Captain Sherard Osborn in advocating the starting from the opposite or western side of Greenland, and he was glad to find that his surmises had turned out to be correct. The German expedition had proved that progress along the eastern side is impracticable. But the most important discovery in the late voyage was that of the existence of abundance of animals in that part of Greenland. The musk-oxen and reindeer had no doubt been driven from the coast of America by the Esquimaux, and they can be traced in Melville Island, but it is an important question how they got from Cape York to the opposite side. They may have gone round by the north, or by the south, or have followed a fiord penetrating far inland. The musk-ox has not found its way to Spitzbergen, though the reindeer has. No doubt some of the interior fiords, in consequence of their confined space and the heat of the sun penetrating into them, afforded grasses capable of sustaining these animals, and he was inclined to believe that there is a channel through the country.

Dr. RAE thought that the German expedition would have advanced some hundreds of miles further if they had put off their journeys until later in the year. They wasted their energies by trying to advance in the winter, when it was very cold and stormy. If they numbered fifty or sixty, they might have employed small parties in preliminary journeys, and kept the best men for more extended exploration in the spring. From his own experience, he had found it advisable to postpone his journeys till the end of March or beginning of April, and in consequence he had been able to make progress hauling heavy sledges 20 miles a day and travel upwards of 1000 miles—500 out and 500 back in one journey. He believed the musk-oxen which had been found by the German Expedition had been driven in that direction by the Esquimaux, seeking safety away from the haunts of men. The reindeer in Spitzbergen most probably came from Norway, as the American deer is, he thought, a variety distinguished by its slighter limbs. The musk-ox would never migrate to that distance across the ice. He was of opinion that a journey across the continent would be most interesting and practicable, although towards the south the country was a mass of ice.

The CHAIRMAN considered the reports of the German Expedition to prove that there was a great contrast between different parts of Greenland. No doubt Southern Greenland, which Mr. Whymper saw, formed one vast glacier, but in

the more northerly and easterly district visited by the Germans the glaciers appeared to be insignificant; in fact, there was very little footing for glaciers to hang upon, and the climate seemed quite different from that of the southern region. Probably, if Mr. Whymper had been in 75° N., instead of 70° , he would have enjoyed the ascent of the mountains, for the Germans found no difficulty in ascending a mountain 7000 feet in height, and they perceived another at some distance which they calculated at 15,000 feet. One curious fact connected with the animal life observed by the Germans was, that when General Sabine visited the same region in 1823, no musk-oxen or reindeer were to be found there, and, in fact, until this last visit, no traveller had ever seen them in that quarter. They must have come, therefore, either round the coast by the north or along some interior valley or fiord. The great problem to be now solved was, what is the northern coast of Greenland, and is there any open sea stretching thence to the Pole. This would probably best be ascertained by penetrating to the interior of Greenland by means of the fiords, and then striking northward until the coast was reached.

Sixth Meeting, February 13th, 1871.

MAJOR-GENERAL SIR HENRY C. RAWLINSON, K.C.B., VICE-PRESIDENT, in the Chair.

PRESENTATION.—*Rev. J. B. Harbord, M.A.*

ELECTIONS.—*Major N. M. Bell; H. M. Blair, Esq.; Henry Blyth, Esq.; Charles Wynne-Finch, Esq.; Rev. Richard Valpy French; Wilfred Huddleston, Esq.; Major W. W. Knollys; Henry Mawbey; Douglas Merritt, Esq.; Ernest A. C. Schalch, Esq.; John Taylor, Esq.; Thomas Sutton Townsend, Esq.; Captain E. F. Trivett, R.N.R.; Rev. James Wallace.*

ACCESSIONS TO THE LIBRARY FROM JANUARY 23RD TO FEBRUARY 13TH.—‘*Travels in South and Central America.*’ By Don Ramon Paez. New York, 1868. ‘*Paraguay.*’ By G. F. Masterman. 1869. ‘*Seasons with the Sea Horses.*’ By J. Lamont. 1861. ‘*The Magyars.*’ By A. J. Patterson. 1869. ‘*Notes on Corsica in 1869.*’ By T. M. A. Campbell. ‘*A Month in Russia.*’ By E. Dicey. 1867. ‘*Central America.*’ By Julius Froebel. 1859. ‘*Travels of A. M. Frere*’ (Mrs. G. Clerk).’ 1870. ‘*Travels of J. Van Lennep in Asia Minor.*’ 1870. ‘*Travels of G. M. Mackenzie and A. P. Irby.*’ 1867. ‘*Travels in the Levant.*’ By C. T. Newton. 1865. ‘*Sketching Rambles in the Alps.*’ By A. and M. E. Catlow. 1861. ‘*Scientific Guide to Switzerland.*’ By J. R. Morell. 1867. ‘*La Plata,*’ &c. By A. J. Kennedy. 1869. All the foregoing by purchase. ‘*Œuvres de Champlain.*’ Par l’Abbé C. H. Lavedière. Quebec, 1870. Donor M. George E. Desbarats. ‘*Trade Unions Abroad,*’ &c. By the Hon. T. J. H. Thurlow. 1871. Donor the author. ‘*Appendix to B. Anderson’s*