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Himalayas. These Ghurkhas, I am glad to say, are going to receive from the Alpine Club special rewards, which will mark them in the estimation of their comrades and in their own, and will encourage others to undertake, with the assent of their officers, similar work.

The PRESIDENT : We have had a great many pleasant evenings and excellent papers this year—better than any year since I have occupied this Chair—but none better than the one we have listened to this evening. You will instruct me, I am certain, to give your very warmest thanks to Mr. Conway, and unite with Mr. Conway all those gentlemen who have addressed us.

LIEUTENANT PEARY'S ARCTIC WORK.*

By CYRUS C. ADAMS.

CIVIL ENGINEER R. E. PEARY, lieutenant in the United States Navy, was compelled to return to his field of Arctic work, in July last, without publishing a detailed record of his labours in the region of Inglefield Gulf, North-west Greenland, and of his journey on the inland ice to Independence Bay on the north-east coast ($81^{\circ} 37' 5''$ N. lat.), all of which occupied him from July 27th, 1891, to August 6th, 1892. The reason can be briefly told.

He arrived home in September 1892. He had only nine months in which to raise funds and make preparations for his next expedition. He desired, if possible, to earn, by his own efforts, the money he needed. The lecture platform seemed to offer the best opportunity. For six months he addressed audiences nearly every week-day and often twice a day. He augmented his receipts by well-paid articles for the periodical press and in other ways. In nine months he accumulated about £6000, and he had asked no man for a shilling.

Meanwhile he had devoted all the time he could spare to the preparation of his book. The manuscript was about four-fifths completed when, on July 2nd last, his vessel, the steam sealer *Falcon*, started north from New York with the second expedition. He had some thought of leaving the completion and publication of the book in competent hands, but he finally decided to defer the work until his return. He was also unable to visit England and address the Royal Geographical Society in compliance with their invitation, an opportunity he had hoped to improve, until two months before his departure.

Soon after he returned home he addressed the Academy of Natural Sciences, Philadelphia, on the geographical and scientific results of his work. This address has not been published. He prepared a fuller

* Map, p. 384.

though much condensed statement of these results for the American Geographical Society, which has been printed (*Bulletin of the American Geographical Society*, vol. xxiv. No. 4, pp. 536-558, 1892). The writer was permitted to read the entire series of notebooks kept by Mr. Peary during his year of Arctic service, and, with the consent of the explorer, he has prepared this statement of some phases of the work. Much of the detail here given has not been published in any form.

The main purposes of the expedition were, if possible, (1) to outline the unknown Northern Coast, and to reach it by using the inland ice as a highway; and (2) to study the Smith Sound Eskimos. The base of operations was McCormick Bay, the first indentation of the coast north of Murchison Sound. The position of the camp, Redcliffe House, was $77^{\circ} 43'$ N. lat. The party of seven persons included Mrs. Peary.

In the house which was erected on a slight eminence about 100 feet from the waters of McCormick Bay, Mr. Peary seems to have solved the problem of a comfortable Arctic abode. He has fully described it in the article above referred to (*Bulletin Amer. Geog. Soc.*, pp. 547-548). In brief, the house was a light 12×20 feet structure (inside measurement), with double walls, inclosing a 10-inch air space. There was a triangular air space between the ceiling of the two rooms and the roof sheathing, and the rooms had three layers of tarred paper between them and the exterior air. The interior walls were hung with blankets. The house was surrounded by a wall of provision boxes and stones, banked up with snow, leaving a narrow passage around the structure. The ventilation secured by an air-shaft through the roof was excellent. No frost found lodgment on the interior walls, and by sinking the fire-bed of the stove below the level of the floor the temperature of the lower part of the two rooms did not fall below the point of comfort, and there was no complaint of cold feet. The average temperature for twenty-four hours, measured on a cold winter day by six thermometers, from the floor to 6 feet above, was over 58° Fahr. During some of the coldest winter weather only seven pounds of coal were consumed in twenty-four hours.

Most of the time, until darkness set in, about November 15th, was devoted to hunting. The natives gave much assistance. The Nimrods of the party were not successful in securing seal for dog-meat, but the Eskimo hunters procured an ample supply. The Eskimos pay little attention to hunting the reindeer with their rude weapons. The animal is comparatively abundant, but plays a very small part in the domestic economy of the Arctic Highlanders. The white hunters, however, derived from the natives some very useful hints for stalking the reindeer. They secured nearly fifty animals, which gave an ample supply of fresh meat and skins for clothing.

In addition to the ethnological, meteorological, and other studies

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of the winter season, the entire period was devoted to minute experimentation, covering every phase of the equipment and preparation for the spring sledge campaign. The result of Mr. Peary's study of Eskimo clothing was that he discarded all wearing apparel he had taken from home except a suit of underclothing and light woollen socks. His complete winter outfit consisted of a kooletah, a coat of reindeer skin with attached hood, draw-strings about the face, waist, and wrists, and sleeves large enough to allow the arms to be withdrawn and folded across the breast; a timiak, a garment made like the kooletah but of seal-skin; nannookes, or short trousers made of bear-skin reaching from the waist to just below the knees; and kamiks, or native boots of tanned seal-skin, with soles of oogsook seal and legs reaching to just below the knee. In his opinion Polar travellers should avail themselves of deer-skin clothing as the only thing that will exclude the searching Arctic wind. The entire outfit weighed about 13 lbs. The spring deer-skins were much lighter and thinner as to leather than those secured in autumn; but the fur was as heavy and in as good condition as in autumn.

As Mr. Peary expected on the inland-ice trip to sleep on the snow surface or in snow dugouts, all the men had ample experience, on some of the coldest nights, sleeping in their reindeer bags in a snow igloo, or hut, which was built for this purpose. In a temperature of -35° Fahr. Mr. Peary, wearing only a Jaros undershirt and a pair of short reindeer-skin stockings, was perfectly comfortable inside his bag. His experiments led him to discard the sleeping bags made of reindeer skins of Norway and Sweden which he had taken with him, and which weighed 20 lbs. each, and he substituted bags weighing only half as much, and cut after his own pattern, which proved in every way more comfortable. He thinks single sleeping bags are decidedly superior to bags holding several men like those of Dr. Nansen. When several men occupy a bag the movements of one disturb all the others. He found that his one-man bags of the winter skins of the Arctic reindeer were quite comfortable in temperatures of -35° and -40° , even when the occupant wore no clothing whatever in the bag.

Mr. Peary went north believing that the toboggan style of sledge was best adapted for inland-ice work. His experiments convinced him that this was a mistake. The party made ten sledges of seven different styles, and the three that were taken north were those which best stood the test. The three sledges were designed after the McClintock pattern, but were very much lighter, weighing respectively 48 lbs., 35 lbs., and 13 lbs., and adapted for loads of 1000 lbs., 600 lbs., and 400 lbs. Peary took to Greenland both ash and spruce timber for sledge-making. He soon found that spruce was not strong enough for a team of powerful dogs, and the sledges he took north were of ash throughout. He used reindeer horn for knees or braces at the intersections of the crossbars

and uprights, and the bed on which the load rested was of seal-skin lashings.

Two weeks were spent after May 1st in carrying the supplies up the mountain slope at the head of McCormick Bay, and far enough up the slope of the inland ice to make good progress possible. The journey proper began on May 15th, and ended at McCormick Bay on August 6th. As a feat of sledge travelling it ranks among the notable journeys. Peary started north with four sledges, three companions, and dog-teams. The supporting sledge with two men turned back after reaching the basin of the Humboldt Glacier. Peary, with Astrup, three sledges, and the dog-teams, made the round trip of about 1300 miles, including 52 miles of land travel at the north-east coast. From the start on May 15th until he reached the northern edge of the ice-cap, where he left his sledge to travel 26 miles overland to Independence Bay, Peary was forty-eight days on the way. During this time he was snow-bound four days, fog-bound one day, and a broken sledge and high temperature, softening the snow beyond the marching-point, cost him three days more. The actual marching-time was forty days. The distance travelled was about 650 miles, which gives an average of $16\frac{1}{4}$ miles for every day of sledging.

The return sledge journey occupied thirty-one days, during three of which the explorer was detained in camp by the severest storm he encountered. He was also embarrassed for two weeks while travelling along and crossing the divide between the eastern and western slopes of the ice-cap by almost perpetual fog. The sledging work of the homeward journey was performed in twenty-eight days. The distance was about 600 miles, a daily average of about 21 miles. For several days after emerging from the clouds Peary, with two sledges (one having been abandoned), made from 30 to 40 miles a day. The round trip was made without any previous establishment of supply depots, and every ounce of food, except two musk oxen and a calf secured on the north-east coast, was carried on the sledges.

Mr. Peary started with twenty dogs, reached Independence Bay with fourteen, and returned to camp with five. The others, excepting two with which the supporting party returned home, succumbed or were killed from time to time for dog food. They were all North Greenland animals, and Mr. Peary believes that no dogs can surpass them for sledge hauling. They may be made to work very hard, and for long journeys, and will keep in good condition on a daily ration of a pound of first-class pemmican apiece. It is his experience that an Eskimo dog will haul just about half the weight that is regarded as a good load for a man, and that he will take it about twice as far as the man would in a day. Two hundred pounds is considered the maximum load for a man, though 238 lbs. were hauled per man during the Nares expedition. Dr. Nansen, with a load of about 200 lbs. per man, averaged

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7 miles a day across the inland ice. The adult male dogs of Whale Sound will pull a load of 100 lbs. each under almost any conditions, except where the snow is so soft that they sink into it deeply; and they will drag this load from 10 to 20 miles a day, and much heavier loads a far greater distance a day under exceptionally good conditions of travel.

Mr. Peary had the best of success in dog-sledging on the inland ice. In 1250 miles the dogs, assisted to a very small extent by sails, supplied the entire motive force fully five-sixths of the time. The men got into harness themselves invariably after a fresh fall of snow, and during the climb up the slope of the ice-cap both from McCormick Bay and from Independence Bay.

Peary used both ski, or Norwegian snow-skates, and Indian snow-shoes, but Astrup confined himself entirely to ski. These accessories were all-essential. The ski far surpasses the snow-shoes in speed and ease of locomotion; but there are times when the snow-shoes are preferable, particularly after a fresh fall of snow before the meridian sun has shone upon it a few times, or it has been packed by the wind. At such times the ski drag as if over sand.

Peary usually trudged on in advance, laying the course and breaking a path for the dogs, following in single file, and encouraged now and then by Astrup's whip. It was fairly heavy going nearly all the way, though on the return journey, near the end, and at an elevation of 5000 to 4000 feet, a hard and not very rough snow-crust was struck, over which as rapid progress could be made as over most bay ice. The lowest temperature throughout the journey was -5° Fahr. on July 18th. The sleeping-bags were not used after the third week in May except to lie on, and one of them was thrown away. Usually the men simply lay down upon the snow in their fur clothing, after tightening all the draw-strings to keep out the wind and snow, and slept in perfect comfort. While using their sleeping-bags, they wore in them only their undershirts or nothing at all. Alcohol was the fuel used, and that simply for cooking purposes. They carried no tent and built no shelter, except in very stormy weather, at the camps, when a low wall of snow-blocks was thrown up around three sides of a narrow rectangle, the open side away from the wind, and a cotton sail forming the roof.

The wind blew strongly and incessantly, and its almost invariable direction was down the slopes of the ice-cap. When they were west of the great divide, or backbone of the inner ice mass, the wind swept down the gentle slope from the east, and *vice versâ* when they were east of the divide. The wind was more variable in direction, and not so strong at the summit of the divide, though strong enough rapidly to drift the fog that constantly enveloped them.

Mr. Peary desired, on his northern route, to travel near enough to the western edge of the ice-cap so that if possible he could look down

on the continuation of the Smith Sound outlet to the north and map the north-west coast of Greenland. He failed in this purpose, and the reasons are interesting.

He found that behind Petermann, Sherard Osborne, and other fiords, are glacial basins widening, fan-shaped, from the heads of the fiords, extending inland 30 to 50 miles east of the fiord heads, and considerably depressed below the general level of the ice-slope. These basins are separated one from another by very prominent divides, whose summits are from about 5000 to over 6000 feet in height, while the basin plateaus are only 3500 to 4200 feet above sea-level. In his desire to skirt the edge of the ice-cap he attempted to cross these basins, and became involved in the phenomena that mark more rapid ice movement and the birth of glacial rivers. In other words, he met numberless crevasses, yawning for the destruction of his little party, and he was put to no end of trouble to circumvent them. Some of them were impassable, and in all cases he was eventually compelled to turn inland to get around the heads of the basins. Fortunately, at the place where he reached the northern edge of the ice-cap, he was considerably nearer the west coast than at most points along his route; and he has no doubt that, from his lofty elevation of over 5000 feet, he saw the entrance to Victoria Inlet where it joins Lincoln Sea.

The nunataks, or land-masses appearing above the inner ice, which are so characteristic of the region of the ice-edge in South-west Greenland, are almost wholly lacking along the north-western and northern peripheries of the ice-cap.

Sastrugi, or ridges of snow heaped up by wind action to a height of 2 to 5 feet, their main axis usually extending at right angles to the prevailing direction of the wind, were very common along the northern journey, but were not met on or near the summit of the ice-cap. Crevasses were not encountered except in the glacier basins. Mr. Peary knows of no obstacle on the inland ice away from the glacier basins of the coast regions that can defeat a well-equipped sledge party. He believes he can reach the north coast of Greenland on the inland ice every time he makes the attempt.

He proved that the northern extension of the great interior ice-cap ends below 82° N. lat. He followed its edge about 60 miles, and he saw it stretching away west and east for a considerable distance. A few glacier arms extend from it to the inlet north of the mainland, and the largest of them, Academy Glacier, which empties into Independence Bay, compares in size with the largest of the South Greenland glaciers.

The western slope of the inland ice from the divide, or main axis of the ice-cap, is extremely gentle and, to some extent, undulatory. The angle of slope from the divide to the northern edge is much greater, though the slope is still very gentle. In ascending from the northern edge to the summit plateau on his homeward journey he climbed on the

first day 1000 feet in 10 miles, on the second day 1300 feet in $21\frac{1}{2}$ miles, and on the third day nearly 1000 feet in 20 miles. When he descended from the divide, diagonally down the west slope, about 30 miles' march was required before he was certain that he was getting nearer the sea-level.

He was able to make out both shores of Victoria Inlet in the neighbourhood of its entrance into Lincoln Sea. He traced the higher mountains that border the northern side of the channel all along from Lincoln Sea to Independence Bay. He was unable, at his distance from the western edge of the ice, to see the southern border of the channel between 45° and 40° W. long.; but in his march along the edge of the ice-cap to the south-east he was able now and then to see the channel through rifts in the mountains that border it. He has no doubt that he has traced the northern border of the mainland and established the insularity of Greenland.

The northern edge of the ice-cap, at the point where Peary left his sledges to descend to the land, was about 4000 feet above *terra firma*. The landward slope stretched away for over 2 miles before its foot rested on the land, and the descent of this steep face of the ice-cap was very difficult. As far as the explorer was able to determine, the northern ice edge offers generally about these same characteristics as to height and slope. Many azure blue streams were tumbling down the ice face.

The route across the land to Independence Bay was strewn with big and little boulders. Much damage was done to the foot-gear, and some of the dogs' feet were cut. The country was much broken with hills and valleys, and the rock fragments and ground of igneous origin were reddish-brown in colour. Besides the large boulders, the surface was covered with small angular stones compressed and half cemented together by the enormous pressure of superincumbent ice-fields ages ago. There was a good growth of grass in some sheltered valleys on which the musk-oxen that were seen, twenty in number, were browsing.

On the edge of the north-east coast of Greenland, Peary climbed a giant trap cliff (Navy Cliff), whose north-east face drops almost vertically to the level of Independence Bay, 3800 feet below. Looking to the west he saw the eastern opening of the inlet that he had followed across North Greenland. To the north, north-west and north-east, stretched steep, red, brown bluff, on the other side of Independence Bay with a flat foreshore reaching to the water's edge. Two broad fiord or channel entrances were made out, one far to the north-west and one to the north-east of Observation Point. The unbroken bay ice stretched away to the white horizon of the Arctic Ocean. Peary could distinctly discern the broad expanse of the ice-covered sea, but the distance was too great to make out any details of the surface. The most distant land was far

to the north-east and must have been 60 miles away. It showed no ice-cap, and there were no signs of ice-cap on the lands west and north-west. Mr. Peary has no doubt that these lands are parts of an archipelago of unknown extent.

It was July 4th, 1892. The day was delightfully warm and calm. The position of Observation Point on Navy Cliff was fixed as $81^{\circ} 37' 5''$ N. lat., and $34^{\circ} 5'$ W. long.

Of the flora and fauna of this northern land, Mr. Peary has written:—

"I found flowers of numerous varieties blooming in abundance, conspicuous among them the ever-present Arctic poppy. Snow-buntings, two or three sand-pipers, a single gerfalcon and a pair of ravens were observed. Two bumble-bees, several butterflies and innumerable flies were also noted. As for musk-oxen, their traces are to be found on every mountain and in every valley; without making any search whatever for them we saw twenty, and all of these could have been obtained without the least difficulty" (*Bulletin of the Amer. Geog. Society*, vol. xxiv., No. 4, 1892).

During the ice journey, the only signs of animal life were a few puffins, birds of the auk family, that were seen nearly a hundred miles inland.

The distinctive feature of the homeward journey was the march along and across the summit plateau, about 8000 feet above the sea, during which Peary and Astrup travelled for nearly two weeks in a dense fog which hung to their garments like rain-drops. This top of the ice-cap is a comparatively level plateau. These were the most trying days on the inland ice. The men could scarcely see the length of their sledges, and most of the time it was possible to keep a course only by stopping every fifteen minutes to take the compass direction of the wind and following the indications thus obtained. Men, dogs and sledges were coated with minute opaque white frost crystals. Parhelia, fog-bows and sun-pillars on the fog were continually forming and vanishing, but all the gorgeous pageant could not recompense the travellers for the blanket shroud that enveloped them.

Another feature of the inland ice surface is the numerous snow hummocks, some of them 50 feet in height, formed where drift settles around some protruding bit of ice, and builds up snow hills. On July 31st and August 1st, when on the home stretch, about 5000 feet above the sea, the men travelled over the hard frozen surface without snow-shoes or ski, the only occasion when they dispensed, for any considerable distance, with these accessories.

By this journey the insularity of Greenland was established, the northern extension of the ice-cap was determined, the existence of detached ice-free land masses north of the mainland was ascertained, and the fact that the east and west coasts rapidly converge north of the

seventy-eighth parallel was proved. With regard to his geographical methods on the journey, Mr. Peary says:—

“My daily reckoning was kept by the compass, and an odometer wheel attached to the rear of the sledge. The circumference of this wheel being a trifle less than 6 feet 1 inch, one thousand revolutions of it made 1 nautical mile, and the revolutions were registered by the ordinary odometer mechanism.

“At four camps on the upward journey, and three on the return, not including the observations at Navy Cliff overlooking Independence Bay, this daily reckoning was checked by a complete series of solar sights, taken with a small travellers' theodolite, with a special vertical arc of large radius.

“The time was obtained from two pocket chronometers and a high-grade watch, all of which were carefully rated before my departure and after my return, and were compared with each other almost daily during the journey.

“That these observations were not taken more frequently was due to the fact that, travelling as we did when the sun was north, and sleeping when it was south, the taking of a set of observations meant for me either no sleep at all, or, at best, but two or three hours of it. That even the field working of my sights was, however, not very far out of the way, may be inferred from the fact that, running on a compass course from my last observation camp, 150 miles north-east of McCormick Bay, and supposing myself to be 10 miles to the eastward of my outward course, I found myself, on reaching the head of McCormick Bay, but 5 miles to the eastward; in other words, I was 5 miles out in my reckoning.

“The freedom of the inland ice from all local attraction, and the consequent reliability of the compass, if its constantly changing declination be carefully watched, is of great assistance to the traveller.

“Elevations were determined by aneroids only, a special boiling-point apparatus, which I had ordered for the purpose of checking the aneroid readings, having proved on trial to be perfectly worthless” (*Bulletin of the Amer. Geog. Soc.*, vol. xxiv., No. 4, 1892).

The ethnological work of the expedition was the most noteworthy yet done among the Arctic Highlanders. Dr. F. A. Cook, who was in special charge, brought home the names of two hundred and forty-three natives living along the coast from Cape York to Peterawik, a little north of McCormick Bay, the most northern point where the natives of to-day are living. This is believed to be practically a complete census. Seventy-five natives spent more or less time at the winter camp, some of them coming from Cape York, nearly 200 miles away. All of them were photographed in the nude, and anthropological measurements were taken. In recent years the movement of population has tended towards Cape York, where the natives meet the whalers, and exchange their

walrus and narwhal ivory for wood, knives, needles, and other articles of great value to them. Mr. Peary does not believe they are decreasing in number at present. There were more births than deaths in 1891-92. Evidence was found that, at rare intervals of great scarcity of food, cannibalism has been practised to a small extent. While the natives are as nearly pure-blooded as any aboriginal tribe, one young man was found who showed unmistakable traces of white blood. He is believed to be a relic of the Polaris party at Lifeboat Cove. Peary found the natives helpful, gentle, and faithful, and he gives them a far better reputation than some earlier explorers have done. He had an Eskimo settlement around him all the winter. He insisted that every adult should work for him, and he paid them well in goods. All his skin garments were made by native seamstresses, and the men built snow entrances and huts, lashed the sledges, scraped skins, cared for the dogs, and did much other work.

There are seven guns in the tribe, some of which have been repaired with remarkable ingenuity. Their dialect differs considerably from that of the Eskimo of the American mainland, and still more from that of the South Greenland Eskimo, which would seem to indicate that they are derived from immigrants, who came north across the archipelago directly to the Smith Sound region. The average height of the male adults is $5\frac{1}{2}$ feet; of the female adults, 4 feet and 8 inches; average weight (nude) of the men, 135 pounds; women, 118 pounds. The natives took very kindly to civilised food, showing that their taste has been cultivated since they declined to eat the bread they found in Kane's stores. All the men in Peary's party excelled the most robust natives in contests of strength. They have a large fund of hunting stories, and celebrate the prowess of past and present Nimrods of the tribe both in narrative and song. They are very full-blooded, and when their faces are washed their cheeks have a rosy tinge. In the spring of 1892, there was a mild attack of influenza or *grippe* in the tribe, and the Danish records show that the same disease prevailed in South-west Greenland. The natives encounter but few dangers, and deaths by accident are not common. Deaths resulting from childbirth are quite common, though the average length of life compares favourably with our own longevity. The mortality among young children is small. The oldest person met was not over seventy years of age; among a hundred men and women ten or twelve were over sixty years of age. There is only one bachelor in the tribe; he is feeble-minded, and no woman will live with him. Mr. Peary's ethnological chapters have been prepared and are full of the most minute information.

In the latter part of April, 1892, Mr. Peary, accompanied by Mrs. Peary and a native driver, made the round of Inglefield Gulf, travelling 250 miles in a week. He made as careful a survey of the unknown shores of the Gulf as the circumstances permitted. He thinks that the

scenery around the head of the gulf, with its snow-capped mountains and glaciers, as large as any in South Greenland, is unsurpassed in Arctic regions. The few glaciers he was able to visit were remarkable for the fact that only one showed a terminal moraine. A few families of natives live about half-way up the gulf.

Mr. Peary says that the mapping of the whole Sound region and the adjacent coasts is inaccurate, and in some respects quite misleading. He was not able with his small force and limited time to make wholly satisfactory rectifications, and the survey and mapping of this region is a part of the programme of his present expedition.

The winter of 1891-92, on the whole was very mild in North-west Greenland. There was an unusual amount of open water in Smith Sound; Mr Peary thinks the snow-fall was exceptionally heavy, and this kept the ice comparatively thin. Natives from Cape York reported a moderate winter, and shore-ice not over 15 inches thick. In the third week of February a great Föhn storm occurred, which was marked by a very high warm wind and torrents of rain, that swept the shores of McCormick Bay clear of snow and nearly washed the little settlement away. The storm continued for two days. Lieutenant Ryder reported a Föhn storm in Scoresby Sound on the east coast in the same month. The highest and lowest temperatures observed by Peary occurred in February, and showed a range of 90°, from - 50° to 40° Fahr.

I have not seen the results of the tidal observations, recorded by means of a tide gauge in McCormick Bay. This work was in charge of Mr. Verhoeff, who is believed to have perished in a crevasse a short time before the expedition sailed home. Mr. Peary says the tidal influence is not a very conspicuous phenomenon in the neighbourhood of McCormick Bay, though there was a tidal track in the ice along the shore, and a consequent overflow of water upon the ice.

Mr. Peary's collections illustrating ethnology were large and comprehensive. Most of them have gone to the Academy of Natural Sciences, Philadelphia, and there is also a fine display in the Ethnological Exhibits at the World's Fair in Chicago.

Mr. Peary's desire to complete the work he had carried so far in the Smith Sound region and on the North coast, led him to organise and equip the expedition which sailed from New York on July 2nd, and from Portland, Me., on July 8th. Practically everything he desired for his equipment was procured. The party numbers fourteen including Mrs. Peary and her maid. Mrs. Peary is a good shot, is fond of out-door sports, is not averse to roughing it, and is in the prime of health and vigour. The results of her participation in the first expedition were fortunate. She will, of course, remain with her maid at the house, which will be erected on the north shore of Murchison Sound or Inglefield Gulf.

Mr. Peary expects to visit every Eskimo settlement from Cape York

to Peterawik, for the purpose of making the most thorough study possible of this isolated branch of the Eskimo family. He also intends to make a careful survey of the coast-line from Cape York to Smith Sound.

It is probable that his house will be erected in Bowdoin Bay, Murchison Sound, within a few rods of a tongue of the inland ice, up which he will ascend to the ice-cap.

It will take only two or three days to erect the house, and then three parties will be put in the field for the fall work. One party will take a large sledge-load of provisions upon the ice-cap, and as far north as possible, where it will be *cached* for the use of the spring sledging expedition. Another party will go out for reindeer to secure fresh meat and skins for clothing. The hunting will be chiefly along the shores of Inglefield Gulf, which were not touched by the hunters of the first expedition. The third party will make a careful survey of Inglefield Gulf to replace the reconnaissance survey of 1892. Mr. Peary desires to bring home much material for accurate mapping. A steam launch will be used in coast exploration.

Meteorological, tidal, and other observations will be carried on during the winter. Mr. Peary will participate in the simultaneous auroral observations that are to be made within the next year by many observers, on the system devised by Dr. M. A. Veeder of Lyons, New York State.

The spring sledging campaign will begin about the middle of March next, two months earlier than in 1892. Eight or nine men with dogs and sledges will start for Independence Bay. The route to North Greenland will be a mean between Peary's northward and return routes in 1892. Keeping at an elevation of about 5000 feet, the explorer expects to avoid both the crevasses in the glacier basins of the west, and the fog of the summit plateau.

Mr. Peary has taken with him eight burros or Mexican donkeys. These hardy little animals are accustomed to carrying heavy loads of silver ore through the snow of the Rocky Mountains in Colorado. Snow shoes will be fitted to their feet as has been done with horses in Alaska. It is hoped they may be successfully used in sledge-hauling on the inland ice. If the experiment fails they will furnish food for the dogs. Carrier-pigeons are also a small feature, and it is hoped to use them to send messages from the inland ice back to the camp.

Mr. Peary thinks he will reach Independence Bay not later than May 1st to May 5th. Here the party will divide into three sections. One of them with three men will sledge south-east along the coast, and complete the survey of that unknown shore to Cape Bismarck. It will then strike straight across the ice-cap for Inglefield Gulf, returning as soon as possible to the winter camp.

The work of the other five or six men will depend upon circumstances. Peary has two prime objects in view for his work north of the

Greenland mainland. He wishes, if possible, to make a complete survey of the land masses north of Victoria Inlet, whose southern edge he has seen. While this work is in progress he desires also to reach the highest attainable north. Two or three men will at once set about the exploration of this supposed archipelago. If the ice conditions on the frozen sea are at all favourable for sledging, two or three men with a sledge will start towards the Pole and travel as far as they can, the intention being, in any event, to return to Inglefield Gulf the same season. The explorer believes that if he is at all fortunate he can complete the work there is for him to do on the north coast of Greenland in a single season.

Whether the expedition will come home next autumn it is impossible to say. It depends upon whether Mr. Peary decides that still unattained results will make it profitable to remain another year. At all events a vessel will visit the camp next summer.

By means of a phonograph Mr. Peary expects to bring back specimens of the spoken language of the natives. His house will be lit by electricity and heated by kerosene oil. Among the members of his party are Eivind Astrup, the young Norwegian whose courage and fitness were tested on the long sledge journey of 1892, Dr. Edward Vincent, surgeon and ethnologist, E. B. Baldwin, meteorologist, and F. W. Stokes, artist. Three members of the party, besides the leader, are qualified for surveying and map work.

Robert E. Peary, C.E., U.S.N., is about forty years old. He is a native of Maine, where he was educated at Bowdoin College. A fine specimen of physical manhood, he has long been a student of Arctic research, and had been planning for years to engage in the work. He is a civil engineer by profession, and for several years has been a member of the Engineer Corps of the United States Navy.

THE INFLUENCE OF GEOGRAPHICAL POSITION ON THE DEVELOPMENT OF THE AUSTRALIAN NATIVES.

By ERNEST FAVENC.

It has been customary hitherto to regard the Australian aborigines scattered throughout the continent as forming one common family of equally low type and doubtful descent. This hasty conclusion leaves out of sight the influence of locality which has been at work amongst them, an influence so strong, that centuries of improvement separate the native inhabitants of some portions of Australia from those of other portions. As a rule, ethnologists who have made a study of the natives have largely confined their observations to the blacks of certain districts, whereas, in order to arrive at any just conclusion as to the highest

MAP SHEWING ROUTE OF THE N R.J.

TRAVELING ROUTE OF THE NORTH GREENLAND EXPEDITION OF 1891

R.E. PEARY, U.S. NAVY.

LAND EXPEDITION OF 1891-92. NAVY.

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