

as the limit between the shallow waters of the shelf and the descent to the ocean depths.

Some thirty or forty miles further north, or at least before he reached the 85th parallel, Peary's second sounding gave a depth of 325 fathoms, or 1950 feet. As nearly as can be determined from the data Peary has given in this preliminary account the place is probably not more than 80 or 90 miles to the north of the coast of Grant Land. At this distance from the coast he had certainly passed the utmost limit of the continental shelf, and the ice upon which he stood was over oceanic depths.

COOK CLAIMS TO HAVE SEEN LAND.

Doctor Cook reports that, considerably to the west of Peary's route, he saw some land on the western horizon to the south of the 85th parallel. If this is correct there is land there, probably of no great extent, standing near the outer limit of the continental shelf. It is not likely that the land is very large, for if it were it would have a tendency to modify the easterly drift of the ice, which seems to have much persistence.

The last sounding which Peary reports was within five miles of the Pole, where all his wire, 1,500 fathoms, was sent down without touching bottom. The depth of the ocean near the North Pole exceeds 9,000 feet, and the northern apex of the world is amid waters that descend to a deep oceanic basin, such as those which Nansen discovered in the Asian Arctic.

This is the first decisive proof obtained of the existence of great oceanic depths to the north of the American Arctic lands, though the short series of soundings taken by the Mikkelsen-Leffingwell expedition seem to indicate that the same conditions exist to the north of Alaska at a distance not very far from the coast.

In Peary's long sledge journeys over the sea ice in 1902 and 1906, to the north both of Grant Land and Greenland, he saw no land. From his work on those occasions and his soundings and advance to the Pole, scientific men will undoubtedly think the inference justifiable that in a wide segment of the American Arctic ocean, to the north of Greenland, the continental shelf ends at a comparatively short dis-

tance north of the land, that the existence of any land further north, as far as the Pole, is highly improbable, and though some small islands may yet be discovered rising from the continental shelf, it is not at all likely that any land mass of important area remains to be brought to light in this segment of the American Arctic. This is one of Peary's greatest contributions to geography.

The light that Peary has thrown on the extent of the continental shelf to the north of Grant Land is of even more scientific value than his attainment of the Pole itself, for this is really the most important question of north polar geography to-day, and is of much more moment, in a scientific sense, than the possible existence of unknown islands on this shelf.

Other scientific work of this expedition is sure to be welcomed as of much importance. Commander Peary barely mentions these features, but they are of great interest. Scholars have told of the lamentable dearth of tidal observations along these northern coasts.

VALUABLE OBSERVATIONS.

They are of much significance in their bearing upon other problems, and Peary now has a series of these observations at widely separated points, from the coast of Greenland west to Cape Columbia. Professor McMillan and the lamented Marvin obtained a large amount of scientific data.

We need not imagine that Arctic endeavor will cease, now that the Pole has been discovered. Amundsen, Baldwin and others are already making plans which may carry them across the Pole itself. The quest for the Pole is over, but scientific work there has only begun; and it is necessary to make deliberate and scientific study of many natural phenomena in the polar areas before we can fully understand their nature and operation in other parts of the world.

From 1910 onward will probably see Amundsen in the field, his vessel tight in the ice north of Alaska, prepared for a drift of four or five years across the Arctic Sea. He will be equipped to analyze sea water and sea temperatures at different depths down to the ocean bed; to study the tidal waves and tidal currents; the winds and the sea currents of which they give rise; the quantity of air and gases in the sea and their

effect upon sea life, and many other matters which have no sensational interest, but some of which may, in time, be of much importance to the world if their study in the polar zones may help to a better understanding of them in the habitable and commercial regions.

Another eminent explorer discussed at length the reports made by Peary of the natural phenomena observed by that explorer upon his trip to the North Pole.

"I think it surprising that Peary found no islands upon his journey. I do not mean great bodies of land. No one expected that. But I did think he would probably find small islands. Fifty years ago, in the time of Kane, scientists and explorers held to the theory of an open Polar Sea. That is the old theory. Scientists and geographers have now concluded, owing to the amount of ice coming out of the Arctic Ocean at all seasons, that Arctic Ocean currents are running, carrying the ice out. At the same time there is probably more ice made in the winter season than can possibly melt in the summer season. That would account for the immense ice fields in the Arctic Ocean that are encountered all the year round.

"Again, in summer there is a constant blanket of fog that lies between the sun and the surface of the ice. This fog blanket prevents rapid disintegration of the ice to a degree that makes the presence of an open polar sea impossible.

COMMANDER PEARY FOUND NO LAND.

"If Peary did not find land—and he did not—it is then evident that the water must be very deep. When the *Jeanette*, the ship of the De Long expedition, which entered the Arctic regions in 1879 and remained until 1882, took soundings of from 30 to 35 fathoms less than 500 miles off the coast of Siberia, we knew the ice had a strong drift to the northward, carrying the ship along with it. The farther north we got the deeper the water became.

"Although soundings were 30 to 35 fathoms, once on that northward drift we found a depth of 80 fathoms. Of course the water was shallow compared with the soundings reported by Peary. We know, however, that the Gulf Stream in the Atlantic Ocean is sometimes as deep as 5,000 fathoms.

"This immense ocean stream of warm water runs into the

Arctic Ocean between the coast of Greenland and the west coast of Norway and Sweden. It must of necessity have a very deep sea into which to pour. Our ocean soundings show that the Gulf Stream begins to lose its high temperature soon after it crosses the 80th degree north latitude. It then becomes chilled and drops to the ocean depths.

"It then runs along the bed of the ocean to the equator, where the heat of the sun warms the water, and it rises again. Thus the stream goes on forever.

"One thing that must now be defined is the way the currents running toward the Pole turn, are deflected or directed. Only a short way to the west of Grant Land there has been found a current going westward, while just north of Grant Land Peary found a current going eastward. The question to be decided now is this—are these currents warm or cold currents, or are they tidal currents?

"It is quite evident from what Peary has said that the ice moves a great deal directly at the Pole. He describes great fissures in the ice, long lanes and canals, all of which can only be caused by ocean or tidal currents.

ARE CURRENTS AT THE POLES IN A SWIRL?

"It would be a great problem for scientists to decide whether the ice at the Poles and the currents there are in a swirl, or whether there are ocean currents passing directly across the Poles.

"It is quite evident from the rapid sledging done by Peary north of the 85th degree that there were not many conflicting currents that threw the broken pack up in ridges like winnows. Heretofore, to the southward of that latitude, the pack, or ice floe, was so broken into ridges that roads had to be cut nearly all the way for the sledges, if any great weight was to be carried.

"Comparing the relatively smooth ice on which Peary is said to have traveled with the broken pack to the southward, gives some idea of the motion of the ice. If the ice is obstructed by land or islands, it would show the existence of this land by the broken condition of the pack. These are all interesting problems that will occupy the attention of scientists for many years to come.

"I do not suppose it would pay to expend the time and

energy necessary to go to the Pole again, but there should be expeditions sent from the islands now known toward the Pole from all directions up to 85 degrees latitude in order to ascertain whether there are islands in or about those latitudes, and to indicate the direction of the drift ice. When our party on the Jeannette rested a week at Bennett Island, we observed regular tides east and west along the coast of Siberia. To observe how far north these tidal currents flow is a problem for the future.

"The party on board the Jeannette passed through Bering Strait to the Pacific Ocean, moving to the Northwest until our ship was crushed in the ice. This was the first indication of a drift. Nansen followed this idea and when near the position of the Jeannette when she was broken up, he prepared his ship for a long drift, knowing that if the vessel held together she would drift to the Atlantic Ocean between Greenland and Spitzbergen. The Bryant drift casks have confirmed this theory."

The De Long expedition was commanded by Lt. Commander De Long, U. S. N. The speaker accompanied the expedition and was one of the survivors. Out of 66 men in the Jeannette 2 were lost, among them being De Long himself.

Elsewhere in this volume will be found the records of not only this, but also all other important expeditions Poleward.

CHAPTER XII.

PATHOS IN LIVES OF EXPLORERS' WIVES.

From Pictures of Faith and Love—Heart Calls up Ghostly Honors—A Delirium of Delight at Success—A Patient Wife's Story as Revealed to visitors—Seedy Men Solicit Aid—Women under the Guise of Congratulations Plead for Help—Driven in Seclusion to Escape Interviewers and Mendicants—A Talk in Chair Car with Mrs. Peary—Expresses Faith in the Ultimate Success of Her Husband's Search for the Pole—Insists that Now He must Give up Explorations.

Two pictures are etched deep on the heart by the human side of the discovery of the North Pole. They are companion pictures, two sides of the shield achievement. And they are pictures of faith and love.

One is set in a field of endless ice, overspread by a bitter sky, where the stars glitter like frozen diamonds. It is cold with the cold of eternity. And through this barren desolation, where God seems a mockery and nature has raised her last ramparts of inaccessible ice, crawls a tiny human train. It is made up of a single white man, a few Eskimos, a handful of dogs. It stumbles and staggers to the North, always to the North.

The second picture is of a little home, where a woman sits with her children. For years she has seen her husband but a few months at a time when he returned from one more daring, hazardous trip of exploration. Each time he has declared "This will be the last," and each time his pride and his courage have sent him back to risk death in search of everlasting fame. And though her heart yearned to have him with her always she accepted his choice with a woman's heroic courage. Without a word she has accepted woman's tragic destiny—waiting.

Now she has not heard from him for a year, two years. He may have died long since; he may be even now starving alone on the relentless ice. Her heart calls up a score of ghostly horrors. She can do nothing; she can know nothing. She can only wait—and hope. Through her tears she sees