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## *THE ARCTIC EXPEDITION OF 1895, AND LIEUTENANT PEARY'S WORK.*

THE North Greenland Expedition of 1895, s. s. Kite, the primary object of which was to bring Lieutenant Peary and his companions back to the United States, left St. Johns, N. F., on the 11th of July. At this time the members of the party were Mr. Emil Diebitsch, Dr. J. E. Walsh, Mr. Theo. Boutillier and the writer. A little later we were joined by Prof. L. L. Dyche, who had preceded us to the coast of Greenland. The chief scientific work undertaken by members of the party was the collection of birds and mammals by Prof. Dyche, and the study of glacial geology by the writer.

After brief stops at Holstenberg, Godhavn, Jakobshavn, Atanikerdluk and Dalrymple Island, Inglefield Gulf, or perhaps more properly Whale Sound, was reached on the morning of the 31st of July. To this point, but little floe-ice had been encountered, even Melville Bay being essentially free from it along the line of our route. In Inglefield Gulf, twenty-five miles or so from Mr. Peary's headquarters, the ice stopped further progress. From the natives who soon boarded the Kite from the settlement of Karnah, it was learned that Mr. Peary had returned from his journey across the inland ice, and that he, together with Messrs. Lee and Henson, was now at the lodge at the head of Bowdoin Bay. After an unsuccessful attempt to reach the

head of the bay by crossing the ice on dog sledges, the lodge was reached on the 3d of August, after an overland journey from the head of McCormick Bay.

The main facts concerning the work of the year were soon learned. The provisions which had been cached on the ice cap for the trip of 1894, not being used that year, were relied upon for the journey of the succeeding season. In September of 1894, after the departure of the Falcon, an attempt was made to visit the nearer caches. One of the objects of the visit was to get the provisions out from beneath the season's snow; so as to make them more accessible when the journey of the following spring should be begun. Although the same caches had been visited in the preceding July and the provisions then raised to the surface of the snow, it was found in September that the snowfall of the summer had been so heavy that neither of the two caches nearest the boarder of the ice could be found, the signals having been completely buried. After this discovery, little hope was entertained that search for the caches would be more successful in the following spring. As the caches on the ice contained the pemmican, which was to have been the chief article of food, and the alcohol which was to have served as fuel, Mr. Peary was obliged to face the prospective loss of both. With this unpleasant outlook, the winter was passed.

Instead of giving up the proposed journey across the ice cap, Mr. Peary made such provision for the trip as was possible, and on the 1st of April, accompanied by Lee and Henson, started for Independence Bay. As had been expected, the important caches were not found. In spite of this the crossing of the ice cap was successfully accomplished, the distal edge being reached on the 13th of May. The rest of the month was spent on the land about the bay. From lack of provisions a longer stay was impracticable, and the return journey across the ice was begun on the 1st of June and ended on the 25th.

The enterprise and courage with which Mr. Peary conceived and attempted to execute his plans would seem to have entitled him to more consideration at the hands of the powers that be. On two successive years his well matured plans have been thwarted by circumstances over which he had no control, and upon which he could in no way count.

While adverse circumstances have made it impossible for him to carry out, in full, his plans with reference to the north coast of Greenland, he has nevertheless accomplished much during his Arctic residence. He has twice (in 1892 and 1895) crossed the ice cap from Inglefield Gulf to Independence Bay, and has gathered information concerning the inland ice and the ice-free territory beyond, which possesses unique value. Further he has mapped a considerable stretch of the coast of West Greenland, in the vicinity of his headquarters. The full value of this work will first appear when the map is published, but a few general statements concerning it will indicate something of its scope. It covers the coast from Cape Alexander (lat. 78° 10′) on the north to Cape York (lat. 75° 55′) on the south. Within this latitude the range in longitude is nearly 8°. The coast is very irregular, as may be inferred from the fact that its actual length, including the islands near the mainland, is about 1,000 miles. A comparison of Mr. Peary's MS. map with the earlier charts of the same region reveals the extent and the importance of the changes, which are so great as to make it apparent that the new map is really such, and not merely a corrected copy of the old. The modifications are so extensive that, were it not for the names, the new map, and the last edition of the chart of the same region, issued by

the Hydrographic Office, would hardly be taken to represent the same coast. In some places the general trend of the coast is altered many degrees. Many bays are mapped which have not hitherto found representation, and many indentations of the coast which have heretofore appeared upon the charts, have been changed in position and size. Eleven islands which do not appear on the published charts referred to have been accurately located, and the position, shape and size of those heretofore represented have been corrected. A large number of glaciers, probably as many as 100, have been located with approximate accuracy within the region where but ten were represented on the published chart, and even these were in some cases in false positions, and greatly exaggerated in size. Astrup's map of Melville Bay, already published, should be mentioned in this connection, since it was prepared while its author was a member of Mr. Peary's corps. Geographers will not fail to appreciate the magnitude and the importance of this cartographic work.

In addition to the map, Mr. Peary has kept a series of meteorological records, probably the most accurate and elaborate which have ever been secured in so high a latitude. Besides the more formal records, he has been observant of the behavior of winds about the ice sheet, and in this way has come into possession of facts which are not without significance in connection with the problems of glaciology. He has made careful measurements of the rate of motion of one of the most active glaciers of the region, and has carried them through a sufficiently long period of time to give them especial value. He has brought back two large and choice meteorites from the coast east of Cape York, the study of which will possess much popular as well as scientific interest.

In quite another line, important studies have been prosecuted to a successful issue. During his three years and a half of Arctic residence—adding the time of the earlier visit to that of the later—Mr. Peary has made a study of the Eskimos of North Greenland. During this time he has personally come into contact with almost every man, woman and child on the west coast north of the Danish possessions. He has lived among them in such a way as to get from them data which no temporary visitor could secure, and which no one, not understanding their language, and not commanding their confidence, could hope to gain. As a result, he is in possession of much fuller knowledge of these people than any one else has ever been. The results of his study, when published, will be an important contribution to ethnology.

Indirectly, the expeditions which Mr. Peary has caused to be made into northern waters have not been without result. Five successive voyages, without accident, have shown that Arctic navigation, under proper management, is not so dangerous as has been supposed. Through those who have accompanied these expeditions, much information has been secured touching the natural history, the geography and the geology of the regions visited. Some of these data have been published, while others have not yet appeared, but they must nevertheless be taken into account in enumerating the results of the several expeditions for which Mr. Peary has been responsible. It will be readily seen that the returns are, in the aggregate, very considerable, and that, although the object which was first in mind when the last expedition was planned has not been fully attained, the results which have been achieved cannot be looked upon as incommensurate with the outlay.

So far as concerns the results accomplished by the members of the party of 1895, it may be said that Professor Dyche

was successful in getting large numbers of birds and mammals at various points along the coast. He was especially fortunate in securing an abundant supply of walruses, both bulls and cows, goodly numbers of reindeer and seals, and a smaller number of narwhals.

The writer saw much of the west coast of Greenland between latitude 64° and 78° 45′, at close enough range to study its geographic features to advantage. Stops were made near the parallels of 67°, 69°, 70°, and at many points between 75° 45′ and 77° 45′. At all these points geographical and geological studies were carried on. The eastern coast of America was also seen for a considerable distance, especially from Ellsmere land south to 71° 30′, and most of the coast of the island of Disco. On the Greenland coast many glaciers between 75° 45′ and 77° 45′ were studied in detail, and some determinations of significance concerning glacier motion made. A considerable body of evidence was gathered touching the former extension of the ice cap of Greenland. Determinations were also made at several points concerning recent changes of level of the land.

Rollin D. Salisbury.
University of Chicago, October 4, 1895.

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*ON OYSTERS AND TYPHOID.**

Our motives in undertaking this investigation have been:—

1. Purely scientific—the elucidation of the life conditions of the oyster, both under normal and abnormal environment.

2. Economic or technological—to trace the causes and effects of diseased conditions, with the view of determining what basis exists for the recent 'Oyster and typhoid' scare, (*a*) in the interests of the oyster fisheries, and (*b*) in the interests of the general public.

A. The objects, in detail, we had in view in entering on the investigation were as follows:—

1. To determine the conditions of life and health and growth of the oyster by keeping samples in sea waters of different composition—*e.g.*, it is a matter of discussion amongst practical ostreiculturists as to what specific gravity or salinity of water, and what amount of lime are best for the due proportionate growth of both shell and body.

2. To determine the effect of feeding oysters on various substances—both natural food, such as Diatoms, and artificial food, such as oatmeal. Here, again, there is a want of agreement at present as to the benefit or otherwise of feeding oysters in captivity.

3. To determine the effect of adding various impurities to the water in which the oysters are grown, and especially the effect of sewage in various quantities. It is notorious that oysters are frequently grown or laid down for fattening purposes in water which is more or less contaminated by sewage, but it is still an open question as to the resulting effect upon the oyster.

4. To determine whether oysters not infected with a pathogenic organism, but grown under insanitary conditions, have a deleterious effect when used as food by animals.

5. To determine the effect upon the oyster of infection with typhoid, both naturally—*i.e.*, by feeding with sewage water containing typhoid stools, and artificially—*i.e.*, by feeding on a culture in broth of the typhoid organism.

6. To determine the fate of the typhoid bacillus in the oyster—whether it is confined to the alimentary canal, and whether it increases in any special part or gives rise

*An experimental inquiry into the effect upon the oyster of various external conditions including pathogenic organisms. A paper presented before Section D. at the Ipswich Meeting of the British Association, by R. W. Boyce, Professor of Pathology in University College, Liverpool; and W. A. Herdman. Professor of Zoölogy in University College, Liverpool,