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The Freshwater Algae of the Canadian Arctic Expedition, 1913-18

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The Freshwater Algae of the Canadian Arctic expedition were collected by Mr. Frits Johansen, the marine biologist who accompanied the Southern Party. The collections were obtained in Alaska, from the arctic regions of the North-west Territories as far east as Bernard harbour, and from islands near the arctic coast. The algae were collected from as many different situations as possible - exposed rocks, warm streams, still and running water, lakes and tundra ponds.

In such latitudes as those in which these samples of waterlife were obtained, it is almost impossible to make an examination at the time of collection to determine which collections are likely to be of special interest and worth obtaining in considerable quantity, and which are going to turn out poorly. In consequence the collections varied greatly; some bottles containing but little material were rich in both species and numbers, while a few which seemed to be better filled were found to contain only sand particles and unrecognizable decaying organic matter.

The richest collection was secured from an *Hippuris* swamp at Herschel island, Y.T. (Plate II., fig. 2). This is a small island situated a short distance from the mainland in the Beaufort sea, and about halfway between the international boundary at Demarcation point and the mouth of the Mackenzie river. The swamp, which is about half a mile from the sea, at an elevation of approximately 200 feet, is a widened portion of one of the many creeks intersecting the island. The fact that the island is much visited by waterfowl may account to a large extent for the variety of algal species found there.

The low temperature in these northern latitudes makes it necessary to preserve all collections in alcohol almost immediately after they have been gathered. Alcohol, as is well known, is by no means a good fixing agent for algae and, as a consequence, the algae in the collections, for the most part, were poorly fixed. The protoplasmic contents of the cells were found to be much contracted and the walls of many of the desmids collapsed. Some of the desmids had even lost their original shape, owing to the fact that portions of their walls had become inverted. In many of the Myxophyceae the alcohol had altered the colour of the sheath and of the contents.

THE EXAMINATION OF MATERIAL FROM BRACKISH PONDS.

The examination of material from brackish waters was of special interest, revealing a green algal flora almost entirely freshwater in character. In samples collected from a brackish pond at Teller, Alaska, there were not only many species of algae but each species was represented by numerous individual plants. I therefore inquired of Mr. Johansen as to the pond's salinity, its nearness to the ocean, and as to its supplies of fresh water from melting snow. Mr. Johansen kindly furnished me with the following information.

There were two kinds of brackish ponds examined by the expedition: (1) very shallow lagoon ponds, from a few inches up to one foot in depth, in actual connection with the sea, at least at high tide, and (2) brackish ponds containing water all the year round, situated farther inland than the lagoons