Calcareous Deposits formed by Algae.

Amongst the material collected were a number of pebbles from a warm creek, a tributary to the Sadlerochit river, northern Alaska. The water of this creek came from some warm (sulphur?) springs further inland. The samples collected were pebbles of various sizes with a greenish incrustation upon the exposed surfaces. An examination of the incrustation showed it to be a deposit of calcium carbonate in which were embedded some blue-green algae and diatoms. Calcareous and silicious sinters with algae embedded in them are not uncommon in the waters of hot springs and geysers; and the embedded algae are almost exclusively members of the Myxophyceae. It is not surprising, therefore, that the blue-green algae were found upon the Alaska pebbles. Here *Calothrix parietina* was the prevailing species, but there were a few small colonies of a *Glococapsa* which could not be determined specifically, and a number of diatoms, mostly *Epithemia turgida* and *E. gibba*. There is no doubt that blue-green algae are responsible for the precipitation of the calcium carbonate which is retained in their gelatinous sheaths. However, to elucidate the precipitation a careful analysis of the water and of the deposit, as well as culture experiments made upon the algae under different conditions, would be needed.

The collections of freshwater algae made by the Canadian Arctic expedition add considerably to our knowledge of the distribution of species. There are a number of records new to this continent or to arctic regions. Some species recorded here, such as *Hyalotheca mucosa*, are well known in the warmer temperate and subtropical regions, yet, as these new observations show, they are able to thrive in some localities within the arctic circle. *Cosmarium Cucurbita* var. *attenuatum* hitherto has been recorded only from England, Germany, and the West Indies, and *Cosmarium subcxcavatum* var. *ordinatum* only from Switzerland and England, yet these and some others with very limited distribution elsewhere have been found in the collections I have examined. A number of species, including many species of *Micrasterias*, known from Alaska and Greenland, were not present in the material submitted to me. This seems remarkable. However, up to the present time very little attention has been paid to the freshwater algae of the Dominion either in arctic regions or in more temperate parts. Further work may show that many species, rare or apparently absent in our flora, are more generally distributed than hitherto supposed.

The following is a list of all species of Myxophyceae and Chlorophyceae found by the expedition. Accompanying this list are six columns which indicate the distribution of these algae as known from records made in Alaska, arctic Canada visited by the expedition, Greenland, the Faeroe islands, the United States of America exclusive of Alaska, and Canada exclusive of the arctic. The column for Canada exclusive of the arctic contains many new records made by myself. These I hope to discuss in another communication.

The following symbols are employed:

+: new record.
+: previously recorded.
−: not recorded.
*: an original record for Canada exclusive of the arctic not hitherto published.
t: identical in form with original type.
v: a variety of the species.
f: a form of the species.
*v: a variety of the species hitherto not recorded for Canada.