

The importance of the class Chlorophyceæ is much greater in fresh water than in salt. The whole of the order Conjugatæ, including the unicellular Desmidiaceæ, is confined to fresh water, in which there are no more characteristic types than such as *Spirogyra*, *Zygnema*, *Cosmarium*, *Staurastrum*, *Micrasterias*, and *Xanthidium*. Other characteristic fresh-water Chlorophyceæ belong to the genera *Scenedesmus*, *Pediastrum*, *Oedogonium*, *Cladophora*, and *Vaucheria*. Familiar marine forms are *Ulva*, *Caulerpa*, and a species of *Cladophora*.

The two groups Diatomaceæ and Peridineæ together furnish the main mass of the vegetable plankton in the sea, but while the Diatoms are also of some importance in fresh water, the Peridineæ are represented by comparatively few forms. Among the latter, mention may be made of a cosmopolitan fresh-water type, in *Ceratium hirundinella*.

The Myxophyceæ and Bacteria are both more generally distributed in fresh water than in salt. Of the former, the Oscillatoriaceæ are represented in the sea, and certain Bacteria are abundant in shallow water near the coast. Still, these two groups are more prominent in fresh water, both as regards the number of forms and the number of individuals, there being among the Myxophyceæ several genera (*Oscillatoria*, *Gomphosphæria*, *Clathrocystis*, *Anabæna*), species of which may appear in such quantities in lakes as to produce the phenomenon known as "water-bloom."

We may now, as in the case of the animal kingdom, briefly gather together the most striking points in the distribution of fresh- and salt-water plants. In the sea we find no Dicotylæ, Pteridophyta, Bryophyta, Characeæ, or Conjugatæ, and only comparatively few Monocotylæ. In fresh water there are no groups containing aquatic plants which are quite unrepresented, but the Peridineæ occur only to a limited extent, and the Phæophyceæ and Rhodophyceæ in very small numbers.

By our rather detailed examination of the organisms of fresh and salt waters, it has become clear that there is a very definite series of forms perfectly characteristic of the one medium or of the other. There are, however, some striking cases known, which would seem at first sight to entirely disprove this statement. The Caspian Sea, in spite of its name, is in some regions, and particularly in the surface layers, less than one-fifth as salt¹ as the ocean, and thus may almost be considered a fresh-water basin. Yet the fauna includes many forms which we cannot but regard as typically marine. In addition to characteristic fresh-water animals (*Silurus*, *Cyprinus*, *Astacus*), we

¹ Quinton, *op. cit.*, p. 215.