

The Algæ.—The normal vegetation of the sea consists of the seaweeds or Algæ, of which there are some 770 species on the coasts of Britain.¹ These plants fall into four groups according to their colour—blue-green, green, brown, and red, and they occur in the greatest profusion where a rocky shore provides a firm substratum for attachment. The majority of Algæ, in contradistinction to land plants, have no need of an absorbing root to penetrate the ground in the case of attached forms; a disk or attachment sucker suffices to hold them to the rock, whilst the operation of absorption of water and dissolved salts is effected by the whole surface. The capacity of marine Algæ to exist in sea water, which contains in solution nearly 3 per cent of common salt, is rendered possible by the high internal pressure of their sap. If, for example, freshwater Algæ are transferred to sea water, they undergo collapse and disorganization, because the relatively high concentration of the sea water brings about the outflow of the water of the cell sap of the Algæ. The higher concentrations normal to seaweeds, however, render them immune from this danger.

Salt marshes and other aggregations of coastal detritus are physically unsuited to the requirements of most seaweeds. The great majority of such as are met with occur attached to the shells of mussels, which afford a firm anchorage. A few occur on pebbles in sheltered positions, but in the case of Algæ attaining any considerable dimensions the pebbles are liable to be drifted up to high-water mark, which is a position not usually suitable for most Algæ.

A certain number of Algæ, however, have fitted themselves for existence on muddy shores, and these, though specifically few, occupy a great expanse of ground. Biologically, it is convenient to distinguish two groups: (1) those that merely cling to the surface of the mud; (2) those that penetrate into the mud, becoming, as it were, part of its fabric.

Of the surface dwellers the most conspicuous are Enteromorpha, Rhizoclonium, and Ulva.

Enteromorpha forms tiny ribbons which may expand into hollow tubes. It occurs on low marsh reaching down to the

¹ We are indebted to Mr. A. D. Cotton of Kew for this estimate.