CHAPTER IV

The Function of Vegetation

Now that the physical conditions of the shore have been outlined, together with some of the problems which confront the maritime engineer,[1] it will be convenient to consider the relation of coastal vegetation to the phenomena of the shore, with particular reference to those special features which render plants pre-eminent as agents in the protection and growth of tidal and coast lands. Before proceeding further, there are certain general characteristics of the plant mechanism which must be clearly understood. A plant is a sedentary organism, and the first effective act of a seed or other plant germ is to take up a fixed abode. With the typical animal the procedure is quite different. An animal is largely a mobile pouch, or stomach, for the storage of the organic matter which forms its food. It hunts and collects its food, and this accounts for many of its outstanding characteristics.

The plant, however, is sedentary and draws nourishment from its surroundings. By the absorption of gaseous molecules from the air, and dissolved salts and water from the soil, it attracts to itself in conformity with the laws of physical diffusion the simple ingredients of its food. The nutritive problem of the green plant is a double one. It has to absorb these simple components of its food, carbon dioxide from the air, nitrates, phosphates and sulphates in solution from the soil, and to combine them into complex organic matter (carbohydrates, proteins,

[1] The term "marine engineer" has been adopted for engineers who are concerned in the design and propulsion of ships. It is suggested that the designation "maritime engineer" might be appropriately reserved for civil engineers who specialize in the construction of foreshore works and structures in the sea and allied waters.