

a much larger size in European waters than in its original habitat, where, moreover, on the authority of American biologists, it is not regarded as a pest on oyster beds.

F. S. W.

W. NIENBURG. *Die festsitzenden Pflanzen der nordeuropäischen Meere.* Handbuch der Seefischerei Nordeuropas Bd. 1, H. 4, Pp. 1—54 with 20 Figs. Stuttgart 1930.

This account of the attached vegetation of the North European seas begins with a short consideration of the environmental factors which might with advantage have been very much more detailed. The importance of the amount of light reflected from the surface of the water, of the amount of light absorbed and the respective influences of the direction of the sun's rays and the transparency of the sea water upon the depth and zonation of vegetation would have been better apprehended if concrete data had been quoted. The treatment of these factors which occupies about two pages is followed by a general systematic account of the attached vegetation in which special features of the various algal groups are considered. A short section on the higher plants deals only with *Zostera* and *Salicornia*. As the latter is included it is difficult to understand why other intertidal genera are omitted. The rôle of the genus *Salicornia* in tidal areas is an important one but can only be appreciated if the segregates of *Salicornia herbacea* are distinguished.

The most useful part of the work, because so rarely dealt with, is the section concerning the geographical distribution. The following geographical elements are recognised:—Cosmopolitan, e. g. *Ulva lactuca*, *Ceramium rubrum*; North European, e. g. *Enteromorpha intestinalis*, *Fucus vesiculosus*, *F. serratus*, *Cladophora rupestris*; Arctic, e. g. *Laminaria solidungula*, *Lithothamnion foecundum*; Arctic-French, e. g. *Chaetomorpha melagonium*, *Elachista fucicola*; Southern, e. g. *Chaetomorpha crassa*, *Bostrychia scorpioides*; Norwegian-Southern, e. g. *Bryopsis plumosa*, *Dictyota dichotoma*, *Chondrus crispus* and the West European-Baltic, e. g. *Pelvetia canaliculata*, *Polysiphonia violacea*. These geographic groups are illustrated by maps shewing the distribution of typical members.

There follows a consideration of the plant communities as recognised by BOERGESEN, their zonation and the relation between the vegetation and Fauna. The whole forms a useful summary, though a fuller treatment of the factors involved would have added materially to its utility. E. J. S.

H. BLEGVAD. Mortality among animals of the Littoral Region in Ice-Winters. Rep. Dan. Biol. Station no. XXXV, Copenhagen 1929.

In the Danish waters the very cold winters regularly give rise to large quantities of ice, and, in the fjords, the ice which often reaches half a metre in thickness covers the water for several months. As the water-level varies the ice breaks up against the beaches and may later on freeze together again. In the open waters, however, the ice is normally formed as small disks which may later freeze together into a solid mass, to be broken up again by the waves and currents.