

by Koehler as special to the Mediterranean do, however, find place in Mortensen's book as Atlantic forms. There are also eleven Arctic species described by Koehler, but not mentioned by Mortensen. It follows that, for a complete account of the European echinoderm fauna in the widest sense, both books are needed.

(1) Dr. Mortensen's "Handbook" is on the same lines as his "Pighude" in "Danmark's Fauna," reviewed in NATURE, Nov. 22, 1924, but naturally includes more species. The tonic accent on the Latin names, which we approved, was apparently beneath the dignity of the Oxford University Press. On the other hand, the index is said to give the English and popular names, but we do not find such obvious examples as 'rosy feather-star,' 'cushion-star,' 'cross-fish,' and 'piper,' not to mention many that might have been taken from Forbes's "British Starfishes." Dr. Mortensen does not seem so familiar with that classical work as one would expect: in referring to a famous passage he gives it on the authority of G. H. Lewes. Forbes used the word 'star-fishes' in a very wide sense, and there is something to be said for Dr. Mortensen's use of 'sea-stars' to denote the 'true star-fishes' as Forbes called them.

In his classification of the Asteroidea, Dr. Mortensen advances a step beyond his Danish book, now giving three orders: Phanerozonia, Spinulosa, and Forcipulata. For the Ophiuroidea he does not see his way to use any of the new classifications, and the orders of Echinoidea also remain as before. Among Holothurioidea the main change is the transference of the Synallactidæ from the Elasiopoda to the Aspidochirota. The diagnoses throughout are restricted to those characters necessary when only species from the north-east Atlantic are considered. Special attention is paid to larval forms, parasites, and other ecological features. It seems a pity that a book so admirably adapted to the needs of the working zoologist and the serious amateur should have been produced in a style more suited to the shelf of a reference library than to the pocket or the cabin work-table: it weighs 2 lb. 6 oz.

(2) Prof. Koehler's two volumes (the first was reviewed in NATURE of May 23, 1925) weigh together only 1 lb. 9½ oz., and each will go comfortably into a side-pocket. The whole work costs less than a quarter the price demanded for the English book. The present volume contains the sea-urchins, crinoids, and holothurians. With the last class Dr. Koehler has an intimate acquaintance, and his

discussion of some involved questions of specific identity is very detailed. A distinctive feature of this volume is the chapter on geographical distribution and the lists of species according to the following regions: littoral Arctic, abyssal Arctic, littoral Boreal, littoral Lusitanian, abyssal Boreal and Lusitanian, Mediterranean. Still, however, we miss from both books any comparison of the fauna with that in other regions. F. A. BATHER.

Our Bookshelf.

Root Development of Vegetable Crops. By Prof. John E. Weaver and William E. Bruner. (McGraw-Hill Publications in the Agricultural and Botanical Sciences.) Pp. xiii+251. (New York: McGraw-Hill Book Co., Inc.; London: McGraw-Hill Publishing Co., Ltd., 1927.) 20s. net.

CONSTANT endeavours to improve crop growth have led to the accumulation of a mass of information concerning the aerial parts of plants and the factors influencing their development. Our knowledge of the underground parts, whether roots or stems, has not increased at the same rate, largely owing to the mechanical problems which render investigation difficult and laborious. This is the more to be regretted, in that the environment of the root can to a large extent be controlled by cultivation and manuring, thus giving scope for the direct amelioration of growth conditions, whereas climatic and light factors, which directly affect the aerial parts, are beyond control by human agency.

Prof. Weaver and his colleagues have already done much to extend our knowledge of the roots of field crops, and in the present volume they continue the investigation into the root system of vegetable crops, thus benefiting the gardener or small grower as well as the farmer. Typical root systems of the more important vegetable crops are described at various stages of growth, and scattered information from various sources is correlated with the results obtained.

The book is rendered more valuable to the practical man by the discussion of root development in relation to cultural practice, in which the advantages and disadvantages of the different soils, methods of cultivation and manuring are considered in relation to individual crops. Knowledge of root systems should enable the grower to combine his various crops to the best advantage, in order that the soil may be adequately filled with roots, drawing evenly on the available plant food, without undue competition in any one place combined with untapped areas elsewhere on the field. The many illustrations are from drawings made *in situ* as the roots were excavated, and the surprising extent of the root systems, even of such a small crop plant as the common radish, gives food for much thought to all, from the amateur gardener to the scientific plant physiologist.