The Sea and all that in it is.

The Seas: our Knowledge of Life in the Sea and how it is Gained. By Dr. F. S. Russell and Dr. C. M. Yonge. Pp. xiii + 379 + 127 plates. (London and New York: Frederick Warne and Co., Ltd., 1928.) 12*s.* 6*d.* net.

THIS handy volume, comprehensive and competent, illustrated generously and luminously, is easily the best of the smaller books dealing with the sea and all that in it is. The only English book that can hold a candle to it is Sir John Murray's little volume in the Home University Library, but it is much smaller and necessarily restricted in its illustrations. With larger treatises, the best of which is "The Depths of the Ocean" by Murray and Hjort, the present compact volume does not compete, but the gist of the matter is all here; and the whole story of oceanography is admirably told.

We congratulate Dr. Russell and Dr. Yonge on a first-class piece of work, neither too popular nor too technical, a book of wide vistas, illumined with biological ideas. It is written *con amore*, and we find the freshness and sparkle of the sea in its pages. It is one of the most successful of recent ecological books, not only in its grip and clearness, but also because it is written educatively, building up from the familiar to the extraordinary, and from the general to the detailed, yet all as if the authors were thoroughly enjoying themselves, as their readers certainly do.

After a general introduction on man's intellectual struggle with the problems of oceanography, "The Seas" starts with the life of the shore, the depths, and the open waters. There are chapters on the swimming animals and the drifting animals, while the strange byway followed by borers is separately discussed. Coral reefs prove as fascinating as ever, and then comes a fine chapter on colour and phosphorescence. A discussion of different modes of nutrition among marine animals is followed by chapters on sea-water and on the oceanic changes that are correlated with the seasons. The authors pass on to methods of oceanographical research, and then come several predominantly practical chapters devoted to fisheries, shellfish industry, fishery research, and the diverse products of the sea. Great restraint is shown throughout, for many of these subjects are very apt to run away with their expositors.

It is difficult not to be extravagant in praising the well selected illustrations, many of which, including the coloured plates, are due to Mr. W. J. Stokoe, who displays brilliant skill. It is not only that the illustrations are beautiful and fresh; we wish especially to praise their educativeness. They do not merely adorn the tale, they continue it. The altogether admirable volume, which we wish to recommend unreservedly to all interested in the sea, is appropriately dedicated to Dr. E. J. Allen of Plymouth, the inspirer of so many investigations in marine biology.

Our Bookshelf.

Die Rohstoffe des Tierreichs. Herausgegeben von Ferdinand Pax und Walther Arndt. Lieferung 2. Pp. 161-400. 18 gold marks. Lieferung 3. Pp. 160. 12 gold marks. (Berlin: Gebrüder Borntraeger, 1929.)

THE second part of this interesting work is composed of five chapters. The first chapter is devoted to a consideration of the shells of molluscs as ornaments, amulets, as material for the preparation of cameos, as money, trumpets, lamps, etc. The second chapter deals with the electrical deposition of metals on the exterior of animals such as snakes, the sea horse (*Hippocampus*), etc., by which successful permanent preparations are possible, and in an appendix the method of impregnating similar animals with paraffin wax in order to obtain dry preparations for museum purposes is briefly described. The following chapter is on animal substances employed in powdered form as grinding or polishing materials, as tooth powder (for example, cuttle bone), and on skins, such as those of fishes used in smoothing and polishing ivory and other materials. The chapter on insect galls describes the principal kinds of galls found in commerce, with analyses of the more important.

The final chapter of this part is on colouring matters of animal origin, especially cochineal and the purple from the hypobranchial gland of certain molluscs. An account is given of the history of these purple dyes, the constitution of one of which was determined by Friedlander, who prepared from 12,000 specimens of *Murex brandaris*, collected at Trieste, 1·4 gm. of the purple dye and showed it to be a brominated indigo (dibromindigo). An adequate account is added of the production, preparation, and nature of sepia.

The third part of this work is concerned entirely with the formation, extraction, qualities, and uses of the numerous forms of fat, oil, and wax, and of shellac. Details are given of melting points and other physical properties and of the chemical constitution of many of these substances, and reference is made to the more usual adulterants and to the methods by which their presence may be ascertained.

Of most of the substances dealt with in these two parts, there is an adequate historical account as well as particulars of the amounts of many of them exported or sold in given years, and the areas principally concerned in their preparation and in their use. At the end of each section is a helpful bibliography.