sented and incorporated into new statutes of the union. These articles were passed unanimously, but according to the union's rules must be held over until the next meeting, scheduled to take place in Holland in July, 1928. In order to avoid undue delay a committee has been set up charged with the formulation of detailed plans for such international congresses. It is expected, therefore, that with the adoption of the new statutes the union will be in position to act upon the report of the committee. It seems unfortunate that there should be even a year's delay for many are becoming impatient, and it is already fifteen years since the chemists of the world have gathered together in a congress organized along democratic lines and devoted to science.

We hope that the International Union of Pure and Applied Chemistry will take leadership in this matter and make the most of its opportunities. It would be unfortunate should it be found necessary to set up any other organization. — *Industrial and Engineering Chemistry.*

SCIENTIFIC BOOKS

Handbook of the Echinoderms of the British Isles. By TH. MORTENSEN. 471 pages, with 269 text-figures. Humphrey Milford, Oxford University Press, 1927.

IT is indeed gratifying that the Oxford Press should consider it possible to undertake the publication and general distribution of a large book dealing with a group as little known to the public as are echinoderms. The paper, printing, illustrations and binding are what we have learned to expect from the Oxford Press and are all that could be desired for such a volume. As the author occupies a preeminent position as a student of echinoderms, it is not strange that this handbook is by far the best general account of the group that has ever appeared. Taken as a whole, and considering the purpose in view, the volume is beyond praise. It is attractive in appearance, natural and thoroughly usable in arrangement, reliable in content and exhaustively complete for the area included. The number and quality of the illustrations are notable and enormously enhance the value of the book. Of course, there are some errors of both omission and commission, but they are chiefly of a trivial character or involve matters where there is room for difference of opinion. One detail that invites criticism is the use of capitals for specific names, derived from personal names. This is usual among botanists, but most zoologists long since abandoned it. Dr. Mortensen has, however, clung to botanical custom.

In an interesting preface Dr. Mortensen explains the inception of the book and the reasons for including under the term British Isles an area vastly more extensive than the term usually connotes. The whole Northeastern Atlantic Ocean from Iceland to the Cape Verde Islands is included within the scope of the book so far as the deep water forms are concerned; of course, only those littoral forms are included which are known from the British Isles themselves or may reasonably be expected to occur there. Hence the book will be of service not only in Great Britain but in most parts of Western Europe and, in connection with deep sea work, far to the north, west and south of the British Isles.

The book opens with an admirable general account of echinoderms, covering in a few pages the main features of the structure, development, larval forms and distribution of the group and concluding with a key to the five well-marked classes of Recent forms. Similar treatment of each of these five classes makes up the remainder of the book, some 30 pages being given to the crinoids, 103 to the asteroids, 109 to the ophiurans, 96 to the echini and 88 to the holothurians.

The section dealing with the crinoids, or sea-lilies, treats of a dozen species, actually known from the area under consideration, each of which is figured either wholly or as regards essential parts. The artificial keys, however, include no fewer than 24 species of 20 genera, distributed in 8 families; these additional forms are those which may be expected to occur in the region. The treatment of the crinoids is notable for its freedom from unnecessary technicalities and details, while at the same time it is thoroughly modern and includes the latest available information about these relatively rare animals.

The use of the term sea-star, instead of starfish, is the first thing that catches the eye in the section dealing with the asteroids. This is a natural and sensible change and it is to be hoped that all zoologists will note and adopt it; perhaps it is too much to hope that the inaccurate term "starfish" will disappear at once from literature, but let us hope its days are numbered. The classification of the sea-stars is still in a state of flux, certain of the recognized families and orders being well-defined natural groups, while others are unsatisfactory and artificial. Dr. Mortensen has adopted as simple and usable a system as the complexity of the problem permits, recognizing 3 orders, represented in the British area by 20 families. There are 67 genera and 114 species represented in the numerous and very valuable keys, but only 47 of the species are actually known from the region concerned. Of these, 43 are well figured,

and there are additional figures showing structural details. It is a very striking indication of the modern tendency towards small genera that the 47 species are placed in 39 genera; one genus (Solaster) has 3 species (but 1 of these is usually considered generically distinct!) and half a dozen genera have 2 representatives each—the remaining 32 genera have in the British area but 1 species each so far as at present known.

In dealing with the brittle-stars, Dr. Mortensen is again faced with the problem of an unsatisfactory classification, and, in the opinion of the present writer, treats it in an unsatisfactory way. In rejecting Matsumoto's classification, Dr. Mortensen returns to the old arrangement of the ophiurans in two orders, a distinctly backward step and quite unnecessary. There is no need of rejecting all of Matsumoto's work, much of it of very great value, merely because his first order, the Phrynophiurida[1] seems to be an unnatural assemblage. Probably we shall have to recognize 5, and possibly 6, orders, when we more perfectly understand the problem and have the necessary data. Mortensen finds it more difficult to make a satisfactory key to the 11 families of British (or potentially British) ophiurans, which he puts in the old heterogeneous order Ophiurae, than he does in the case of any other group, but he succeeds admirably in spite of the inherent obstacles. No fewer than 141 species of ophiurans, grouped in 48 genera, are indicated as potentially British but only 50 species are actually known from the area, as yet, and of these only about a dozen are found in shallow water. The bulk of this section of the book therefore, deals with forms, the average zoologist, even though a frequenter of marine laboratories, is never likely to see. Particular attention is paid to the larval forms and a key to the known larvae of British species is interesting and of real value. The discussion of the ecology of brittle-stars and of their parasites is particularly good.

In the handling of the echini, Dr. Mortensen is dealing with the group of which he is preeminently the master and this section is therefore, of great interest. The account of the morphology is clearly written and on the whole satisfactory, but in discussing the "lantern," the perignathic girdle of the test, with which it is intimately associated, is slighted and the important distinction between auricles and apophyses is ignored. No reference is made to the absence of the "compasses" in the "lantern" of clypeastroids. There is a little confusion about the use of the term "irregular echini" for while in the key to orders, the "Irregularia" are made to include the clypeastroids, elsewhere statements are made which indicate that Dr. Mortensen had the spatangoids only in mind. Thus (p. 262) the posterior gonad is said to have disappeared in the "irregular echinoids" whereas it is present in a large number of clypeastroids. The paragraphs concerning the larval forms and the key to those known from British seas are particularly important and useful. The classification used is open to little criticism and has the great merit of being simple and yet adequate. There are 33 genera and 53 species included in the keys but only 21 genera and 33 species are actually known from Great Britain. The illustrations in this section of the book are worthy of special praise. An interesting side-light on Dr. Mortensen's attitude towards rules of nomenclature is shown by a footnote on p. 321, in which he objects to quoting the name of the first *describer* of *Aëropsis rostrata* as authority for the species because it will deprive another more eminent authority of "the honour"!

The introductory pages to the section on holothurians are particularly good reading and give a very clear account of the class. The classification used includes results from some very recent researches and the keys are as good as can be prepared for a group so difficult of satisfactory preservation. The assistance of Dr. Elizabeth Deichmann in the preparation of many of these keys is cordially acknowledged. Some 44 genera and 116 species are regarded as potentially British but only 14 genera and 30 species are actually known as yet from the area, so that here as among the ophiurans, the book deals with a preponderance of forms which the average zoologist, even though he live at a marine laboratory, will never see. This is of course not a defect; it simply emphasizes the extraordinary scope of the book. Naturally the illustrations of holothurians are not as numerous or attractive as those in the other classes, but they are well-chosen and satisfactory.

The book concludes with a brief appendix, 8 pages of bibliography, a list of abbreviations used for authors' names, and no fewer than 5 admirable and very useful indexes. It is difficult to conceive of more satisfactory indexing. From any point of view the volume is a credit to those responsible for it and the Oxford Press, Professor J. Stanley Gardiner, who induced Dr. Mortensen to undertake the work, and the author himself are to be heartily congratulated. It unquestionably adds new honors and prestige to the record of the eminent Danish zoologist.

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[1] Dr. Mortensen wrongly calls it Phrynophiurae and uses the same erroneous termination for the other three orders.