

of 2000 revolutions per minute. The steam pressure at the turbine is 70lb. per square inch, and the exhaust steam is condensed. At the Hulton Colliery Company's Deep Arley Pit, with which the author is connected, a turbine-driven fan has recently been erected. The plant consists of a screw propeller fan 3 feet 6 inches in diameter, driven direct by a steam turbine. The efficiency of the fan varies from 50 to 60 per cent., and although this is low compared with that claimed for other fans, the economy of the plant, or in other words the steam consumed per useful air horse-power output, compares favourably with that usually obtained with centrifugal fans driven by high-class reciprocating steam engines. An illustration of the plant is given. Throughout the book the illustrations are adequate, and in many cases very good, the only exception being Fig. 111, of a coil clip for endless rope haulage, which appears to be incorrectly drawn.

AMPHIPODOUS CRUSTACEA.

Das Tierreich. 21 Lieferung. Crustacea. Amphipoda, I., Gammaridea. By the Rev. T. R. R. Stebbing, F.R.S. Pp. xxxix+806; 127 figures in text. (Berlin: R. Friedländer und Sohn, 1906.) Price 48 marks.

READERS of Stevenson may possibly remember that when the hero of "Catriona" took leave of Alan Breck on Gillane Sands and turned to meet his pursuers, his attention was caught, in the solitude and silence of that "unchancy" place, by "the sand-lice hopping nimbly about the stranded tangles." One might search far through the fields of literature before finding another mention of the amphipodous Crustacea. Their small size, the aquatic habits of the majority, and the fact that they are neither immediately useful nor directly harmful to man, combine to withdraw them from popular observation, while even to many who claim the title of naturalist they are known only by name. Yet the student who attempts to gain some knowledge of this group of animals is likely to be bewildered at the outset by the almost infinite variety of specific differentiation which they present, no less than by the overwhelming mass of technical literature in which their peculiarities are recorded.

It is true that more or less comprehensive systematic monographs and summaries of what might be called the "minor morphology" of the group are not wanting. In his "Catalogue of the Amphipodous Crustacea in the British Museum," published in 1862, Mr. C. Spence Bate attempted a revision of all the forms then known, and thereby lightened considerably the task of subsequent workers, if sometimes also adding not a little to their perplexities. Later monographs, such as those of Boeck, Bovallius, Sars and Mayer, have dealt only with single subdivisions of the order or with the Amphipoda of restricted geographical areas. In 1888, however, Mr. Stebbing's monumental report on the Amphipoda of

the *Challenger* Expedition not only described a larger and more varied material than had been at the disposal of any previous writer, but gave an exhaustive and critical analysis of the earlier literature, the like of which is available for very few other groups of animals.

When, therefore, it was announced that Mr. Stebbing had undertaken to prepare a revision of the Amphipoda for the "Tierreich," every carcinologist anticipated that its publication would mark an epoch in our knowledge of the group. The present volume of more than eight hundred pages contains only the first part of this work, dealing with the Gammaridea, the largest of the three legions (or suborders) into which the order is divided. It is in every way worthy of Mr. Stebbing's high reputation. The whole field of existing literature has been explored with painstaking minuteness (extending to the collection and recording of typographical errors), and an unrivalled experience in dealing with this group of animals has been brought to bear on the task of interpreting and criticising the descriptions of previous authors.

As Mr. Stebbing explains in the preface, the work as originally planned included all species described up to the end of 1898, but publication was unavoidably delayed. A supplement has, however, been added which enumerates, without describing, the new species and genera established up to the end of 1905. Excluding those dealt with in the supplement, the number of species accepted as valid is 1076, while 257 others are mentioned as doubtful. They are distributed among 304 accepted and nine doubtful genera and forty-one families.

In a work like the present, questions of nomenclature inevitably come to the front, and even those zoologists who deprecate unnecessary interference with established names will admit it to be desirable that in an authoritative revision of a group of animals an effort should be made to settle the nomenclature on a stable basis. Mr. Stebbing has devoted much attention to this point, and his decisions will in most cases be accepted as final by the majority of students. We may regret, however, that he has not seen his way to mitigate the severity of his interpretation of the rule of priority in one or two cases where it seems to introduce, instead of removing, confusion. As Mr. Lydekker pointed out some time ago in a letter to NATURE (vol. lxxi., p. 608), the transference of old and well-known generic names to other genera may often be seriously misleading. With regard to one such change adopted in the present work, Canon Norman recently expressed the opinion that, "considering the inadequate description of the genus *Podocerus* and its erroneous use for nearly one hundred years, the name ought to be excluded from an altered use." This opinion, coming from one of so wide experience in systematic zoology, will find many supporters, at least among those who think that the animals themselves are more profitable objects of study than their names.

Mr. Stebbing's volume will remain the standard work of reference on the Gammaridea for a very long

time to come, and he has earned the gratitude of all students of the group by its publication. The editors of "Das Tierreich" are to be congratulated on the latest addition to the exceedingly useful series of monographs issued under their direction.

W. T. C.

OUR BOOK SHELF.

Incubation, or the Cure of Disease in Pagan Temples and Christian Churches. By Mary Hamilton. Pp. 223. (London: W. C. Henderson and Son; Simpkin; Marshall, Hamilton, Kent and Co., 1906.) Price 5s. net.

"In the ancient science of divination, four working methods were commonly practised. Revelations of the future were deduced from natural portents, from the flight of birds, from the entrails of sacrificial victims, or from dreams. . . . Incubation was the method by which men sought to entice such dreams." These sentences from the introduction indicate the substance of this work. The book is divided into three parts:—(1) incubation in pagan temples, e.g. the cult of Asklepios at Epidauros, Rome, Athens, &c., and at the Oracles, Amphiaraos, and others; (2) incubation in Christian churches during the Middle Ages; and (3) the practice of incubation during modern times in Italy, Austria, Greece, and the Greek islands. Translations are given of the various stele which describe the cures wrought and the methods employed in procuring them. The book forms a useful summary of the subject, valuable both to archæologists and to historians of medicine.

Manual of Wireless Telegraphy. By A. F. Collins. Pp. x+232. (New York: John Wiley and Sons; London: Chapman and Hall, Ltd., 1906.) Price 6s. 6d. net.

THE present writer ventured to suggest, in an article in NATURE a short time ago, that with the publication of a really standard book on any particular branch of electricity the issue of further literature on the same subject should cease. If this recommendation had been adopted the present volume would never have seen the light. It does not profess to be anything more than a manual specially adapted for those who are, or desire to become, wireless telegraph operators. There are already numerous books covering almost identically the same ground, and we are of opinion that the useful information contained in any of them could be much more effectively learnt in an hour's practical instruction. Compared with other books of its kind, it may be pronounced a favourable specimen. The style, though a trifle too American for our taste, is simple, and the diagrams are numerous and clear. The illustrations are also plentiful and well reproduced. A list of stations and ships equipped on the various systems forms a distinct feature of the book, which will probably remain up to date for a few weeks longer.

M. S.

Catalogue of the Lepidoptera Phalaenae in the British Museum. Vol. vi., Noctuidæ. Pp. xiv+532; pls. xcvi-cvii. (London: Printed by order of the Trustees, 1906.) Price 25s.

THE present volume is the third of those devoted to the great family Noctuidæ, and includes the subfamily Cucullianæ, with 111 genera and 693 species, a considerable number of both genera and species being described as new. In addition to the coloured plates there are 172 plain illustrations in the text, generally representing the body and left wings of a specimen, the right wings being denuded of scales to show the neurulation. To the right of this again is the outline

of the thoracic crest and head in profile, the latter showing an antenna, eye, palpus, &c. The first text figure, however, represents the larva of *Cucullia verbasci*. Opposite p. 2 is a large table, showing the relationship of the genera regarded as belonging to the Cucullianæ with one another. The general arrangement and character of this volume differ little from those which have preceded it. Full tables are given of genera and species, and the descriptions are quite sufficiently long for most practical purposes. Brief notices of larvæ and food plants are added, when known.

It is very creditable to all concerned that this important work should be carried on so steadily, a volume appearing about every two years. It may be interesting to notice the dates of the prefaces of each of the six volumes already published:—Vol. i. (Syntomidæ), September 30, 1898; vol. ii. (Arctiadae: Nolinæ, Lithosianæ), January 20, 1900; vol. iii. (Arctiadae: Arctianæ, and Agaristidæ), June 20, 1901; vol. iv. (Noctuidæ: Agrotinæ), June 20, 1903; vol. v. (Noctuidæ: Hadeninæ), February 24, 1905; vol. vi. (Noctuidæ: Cucullianæ), November 1, 1906.

Die meteorologischen Elemente und ihre Beobachtung, mit Ausblicken auf Witterungskunde und Klimalehre. By Otto Meissner. p. vi+94; with 33 illustrations. (Leipzig u. Berlin: B. G. Teubner.)

THIS very useful text-book, intended for higher schools and for self-instruction, forms part vi., vol. ii., of the collection of scientific treatises published by O. Schmeil and W. B. Schmidt. It explains the physical laws necessary for clearly understanding meteorological processes and apparatus, and contains valuable footnotes, together with the derivation of all technical terms employed in the text. Many points, such as the difference between periodical and non-periodical oscillations of meteorological elements, "variability" of temperature, the use of the cloud-mirror, &c., which are frequently puzzling to observers, and are generally only dealt with in treatises of greater pretensions, are made quite clear by means of examples. We recommend the perusal of the work to any meteorological students who are acquainted with the German language.

The Treatment of Diseases of the Digestive System. By Prof. Robert Saundby. Pp. viii+133. (London: Charles Griffin and Co., Ltd., 1906.) Price 3s. net.

THIS unpretentious little book will serve to bring before the practitioner the salient points in the diagnosis and treatment of diseases of the digestive tract. The dose of bismuth in many cases might be larger; useful drugs such as salol, bismuth salicylate, and ipecacuanha are not mentioned; and no precautions are detailed in the use of thymol in ankylostomiasis. Otherwise the teaching throughout seems to be sound and commonsense.

The Plants of New South Wales. By W. A. Dixon. Pp. xxxiv+322. (Sydney: Angus and Robertson, 1906.) Price 6s. net.

THIS is a handy little book providing a compact guide for naming flowers in the field by means of analytical tables on similar lines to Gremlin's well-known flora of Switzerland, but localities are omitted. The author lays stress on the extensive use made of vegetative characters for identification, with which there can only be entire agreement so long as the characters are determinative.

While a condensed guide of this kind is of the greatest service for carrying about, sooner or later the botanist is sure to require a flora giving fuller