

Aspects of Biology.

Gifttiere und ihre Giftigkeit. Von Prof. Dr. E. N. Pawlowsky. Pp. xv + 516. (Jena: Gustav Fischer, 1927.) 27 gold marks.

ONE of the most curious problems of biology is to discover how certain creatures have developed the power of inflicting lethal injuries upon other animals not nearly related to themselves, and in some cases not directly helping their struggle for existence. But quite apart from the theoretical interests involved in the attempt to solve these conundrums, poisons and poisonous beasts have always had a strange fascination, if for no other reason because it has ever been a matter of vital importance not only to man but also to all living creatures to avoid the perils that lurk everywhere.

Although a vast amount has been written on the various aspects of the problems of poisonous animals—the bibliographies in this book amount to many hundreds of titles, snake-bite alone claiming more than 350—no really comprehensive treatise has hitherto been written on the subject. Now Prof. Pawlowsky of Leningrad provides us with an encyclopædia dealing with the anatomy and physiology of poisonous animals ranging from protozoa to mammalia, which displays an exceptionally wide range of knowledge, not merely of systematic zoology and cytology, but also of chemistry and pharmacology, of pathological anatomy and clinical medicine, of immunology and cultural anthropology. The book is a very remarkable achievement: it presents so much of varied interest that within the scope of a review it is not possible even to enumerate its virtues. There are 176 excellent illustrations. The book is likely to become a standard work of reference on every aspect of the poisonous possibilities of living creatures.

G. ELLIOT SMITH.

Tabulae Biologicae. Herausgegeben von C. Oppenheimer und L. Pincussen. Band 4: *Chromosomenzahlen; Vererbungs-Lehre; Entwicklungs-Mechanik; Mastien, Tropismen, Taxien; Vital-Färbung; Gesichts-Empfindungen (Schluss); Constanten des Meerwassers; Sach-Register für Bände 1-4.* Pp. vi + 829 + 7 Tafeln. (Berlin: W. Junk, 1927.) 4 vols., £12:10s.

THE first and second sections of this volume contain tables of the chromosome numbers of plants and animals. Reference is made easy by systematic arrangement of the genera. It so happens that for the three examples cited under the Culicidae (mosquitoes)—*Anopheles*, *Culex*, and *Theobaldia*—the diploid number is six and the haploid three. The authors have omitted mention of *Stegomyia fasciata*, in which the diploid number is four and the haploid two. The section on heredity gives data and formulæ on variation, correlation, mendelism, crossing, heredity in man (e.g. of disease and abnormalities).

The part on developmental mechanics deals with embryogeny, regeneration, growth, and the effects thereon of thyroid and other extracts. The follow-

ing section summarises the known effects of contact, flowing water, air currents, gravitation, heat, moisture, light, electrical and chemical stimuli. A short section follows on the colour sense of animals. Protoplasmic movement, contractile vacuoles and vital staining receive adequate treatment, and there is an extensive concluding section on sea water from the physical, chemical, and biological point of view. An excellent subject-index to the four volumes occupies 209 pages.

This volume and its three predecessors contain a great mass of carefully checked and organised data and formulæ relating to all branches of biology from which can at once be obtained the exact basis, so far as it is known, for the consideration of vital phenomena. References to the original sources are given, so that the reader knows where to obtain further details when necessary.

The editors and the ninety-eight collaborating experts are to be warmly congratulated on the completion of what is undoubtedly a great work and a very helpful source of reference.

Invertebrate Zoology.

Handbuch der Zoologie: eine Naturgeschichte der Stämme des Tierreiches. Gegründet von Prof. Dr. Willy Kükenthal. Herausgegeben von Dr. Thilo Krumbach. Dritter Band: *Tardigrada, Pentastomida, Myzostomida, Arthropoda: Arachnida, Crustacea, Arachnoidea.* Dritte Lieferung. Pp. 273-384. n.p. Vierte Lieferung. Pp. 385-496. 12 gold marks. Fünfte Lieferung. Pp. 497-592. Vierter Band: *Progonata, Chilopoda, Insecta.* Dritte Lieferung. Pp. 241-352. n.p. Vierte Lieferung. Pp. 353-448. 10 gold marks. Fünfte Lieferung. Pp. 449-576. 13 gold marks. (Berlin und Leipzig: Walter de Gruyter und Co., 1926 and 1927.)

THE third part of Vol. 3 of this work opens with a short general introduction to the Crustacea, appended to which is a useful glossary of the terms employed in the description of the skeleton. A systematic account, by Prof. E. Wagler, of the Branchiopoda occupies the remainder of the part and is unfinished. A careful description is given of the external features and the internal anatomy, taking the organs system by system. Due attention is devoted to the secondary sexual characters, to the two kinds of eggs—immediate and resting—and to the development, and brief reference is made to gynandromorphs. The biology of the Branchiopoda is a very satisfactory part of the account and includes consideration of seasonal variation in size and form of the carapace, a detailed description, based on the work of Storch, of the food-filtering mechanism, pairing, and the life-cycle of monocyclic and polycyclic species.

The account of the Crustacea is continued in Part 4 of Vol. 3 of this work. Prof. G. W. Müller contributes a good description of the Ostracoda, which takes due note of internal structure as well as of external features, and deals adequately with the biology, the remarkable spermatozoa (said to be not only relatively but