Actualites scientifiques et industrielles, No. 1311

The Protura. A revision of the species of the world, with keys for determination. S. L. Tuxen. Hermann, Paris, 1964. 360 pp. Illus. F. 54.

The Protura are a group of primitive apterous insects (?) comprising some 208 species. Some students think that they should not be considered insects but, whatever they may be, very little is known about these creatures, which are most usually encountered in the bottle at the bottom of a Berlese funnel. Tuxen, one of the few students of Protura, has attempted here a monographic treatment of all the known species. He has seen all the types, and provides a complete synonymy. In the prefatory chapters he discusses the anatomy of the proturans, with special reference to characters useful in taxonomy.

This work is obviously intended to be the master work of a thorough student, and a point of departure for future work. As such it will be useful, but, unfortunately, its usefulness is seriously impaired by the reduction of many of the illustrations to miniscule size. Many drawings that should be at least 3 inches in size have been reduced to 1 inch, and sometimes six-tenths of an inch. The publishers have not only failed the author, they have betrayed the potential user of the book. They should print a new set of figures.

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General and Experimental Zoology

International Review of General and Experimental Zoology. vol. 1. William J. L. Felts and Richard J. Harrison, Eds. Academic Press, New York, 1964. xiv + 445 pp. Illus. $14.50.

In this era of burgeoning literature few would question the desirability of having, or even the desperate need for, review articles, but any new outlet must nevertheless be assessed for quality and communicative efficiency. In competence, scope, and aim of individual contributions, volume 1 of *International Review of General and Experimental Zoology*, a well-manufactured book, is already a very mixed bag, but in addition it juxtaposes papers on (i) the biology of Foraminifera, (ii) longevity in biting insects, (iii) equilibrium orientation in fish, (iv) environmental effects on reproduction in domesticated mammals, (v) the evolution of mammalian leg muscles, (vi) mammalian pituitary histochemistry, (vii), reproduction in the bush baby, (viii) the evolution of calcified tissue, and (ix) the chronic effects of gravity on animals. Even allowing that all these subjects are appropriate to the series title (although paper number 7 is primarily an able, individual research contribution), and that the editors' aim to enlighten "both general and specialist readers" is realistic, one wonders (a) whether an annual collection of solicited papers is the best way to get timely reviews, (b) whether the somewhat greater length and fuller illustration allowed in book publication vis-a-vis the treatment available in review periodicals offsets the greater publication delay, deadline haste, and extra cost, and (c) whether the individual papers in so diversified an aggregation are likely to become known to many of their proper potential readership.

The reviews vary in length from 21 to 85 pages (mean 45) and have 28 to 350 literature citations. Bibliographies are alphabetized, titles being given in two of them, and indicate that five of the authors have been publishing for six or fewer years in their respective fields.

The first paper is an interesting and critical account of cell structure in shelled rhizopods, featuring a unique multilayered lattice-membrane ultrastructure, two-way streaming in filamentous pseudopods, and life cycles in which meiosis does not form the gametes. Papers 2 and 4, which would probably have been more easily retrieved from review journals concerned with entomology or parasitology, and physiology are lucid, data-filled, and comprehensive summaries of well-mined fields, in which numerous solid conclusions are possible. These contrast with the state of knowledge in pituitary cytology (as covered in the rather poorly illustrated paper number 6) from which I gather that almost nothing really definite can be said about the histochemistry of cell contents, the location of the various hormones and enzymes, or the ultrastructural criteria for the different cell types.

The third paper is devoted mostly to a detailed, and at times opaque, paraphrasing of a single important paper by von Holst, which shows that overall orientation to gravity involves a continuous nonadapting input to the central nervous system from sensory epithelium, modulated by signals from eyes and utricles, the paired latter acting synergistically rather than antagonistically, and being minimally active in the fully oriented state. Paper number 5 involves critical reinterpretation of myology and tendon attachments, leading to the conclusion that a prehensile great toe is a mammalian characteristic long antedating the origin of the primates. The eighth paper is a comprehensive formalistic account of presumed evolutionary trends in collagen, bone, cartilage, and teeth in relation to mechanism of calcification, homeostasis of calcium, phosphate and citrate ions, and parathyroid function. Paper number 9 is an excessively verbose and labored account of the effects of prolonged centrifuging on whole animals, a field apparently burdened with unnecessary algebra, unclear objectives, and intellectual poverty, though doubtless of practical importance.

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Hemic Cells

Blood and Bone Marrow Cell Culture. H. Jackson Woodliff. Lippincott, Philadelphia, 1964. xiv + 141 pp. Illus. $6.

To those who have experienced the disappointment and frustrations attendant on attempts to culture normal hemic cells, this monograph will be of some solace because it confirms the fact that other investigators have been equally unsuccessful. But no matter how difficult the problems are, the fundamental and practical potentialities

of some future success in this area are enormous. The bone marrow presents an ever evolving, differentiating, ecological system in the adult animal, and the mere ability to obtain a dividing population of hemic stem cells during prolonged periods of in vitro culture will constitute a worthy biomedical contribution. The author has done a remarkable job in putting together, in a most readable fashion, a selective review of the methodology and data available on blood and bone marrow culture. In addition to evaluating the current status of various aspects of the problem, he has integrated where pertinent his personal experiences.

Woodliff covers general methods of culture and specifically the culture of normal and abnormal hemic cells and in an appendix describes selective culture media that have been used in blood and bone marrow cultures. The author rightly leaves the reader with the impression that many pitfalls are involved in evaluating the success of hemic cell culture. All possible references are not listed in the bibliography, but the coverage is sufficiently good for the bibliography to serve as a guide for further literature search.

The author may have overstressed one point in his evaluation of efforts to obtain continuously propagating cells from blood and bone marrow culture, namely, the possibility of contamination by other cell lines carried in the laboratory. This book is a welcome review of the current status of hemic cell culture.

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Mammalian Reproductive Processes

Patterns of Mammalian Reproduction. S. A. Asdell. Cornell University Press, Ithaca, N.Y., ed. 2, 1964. xiv + 670 pp. $9.75.

The first edition of this book, published in 1946, has served admirably as a standard reference for student and research worker in the field of mammalian reproduction. This new edition (1964) has been considerably expanded, both in text and in number of references. The most notable change effected has been the reorganization of material so that data on each species is presented in a separate description with the related references placed immediately following the description. This method of presentation is a vast improvement over that used in the first edition where, with the exception of data on representative species, information was compiled in tabular form and references were not provided.

Asdell, who has made a most commendable effort to secure information on the lesser known species, has tapped any source likely to yield data, including reports from field expeditions and naturalists. Although such data may not always be reliable, it is hoped, as stated in the preface, that it may serve as a contribution toward the eventual determination of the reproductive pattern of these species.

The descriptions of representative species in major taxonomic groups do not include more recent work in many instances. Such unfortunate omissions are especially noticeable in the discussion of the hormonal aspects of reproduction. With the renewed interest in the effects of various morphogenetic agents on the mammalian fetus, references to developmental modifications induced by hormones could have been more complete. In addition to the work cited with respect to the opossum and rat, that on the rabbit and primates should have been discussed.

It is somewhat surprising that the section on the human has not been more thoroughly revised and enlarged. Here especially, many of the old references should have been ferreted out and replaced by more current ones. The poorly written paragraph on gonadotrophins is likely to mislead the unsophisticated reader.

As the study of mammalian reproduction encompasses so many specialities today, it is inconceivable that any single volume could satisfy the demands of all those working in the field. However, as a reference, containing reports on the reproductive processes of more than 1000 species, this book should be of interest to student and specialist alike. It is therefore warmly recommended.

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Pinnipeds

Seals of the World. Judith E. King. British Museum (Natural History), London, 1964. viii + 154 pp. Illus. Paper, 11s.

The educational level of the museum-going British public, if one may judge by the paperback handbooks prepared for sale to them, must be approximately that of American upper-division college students. This latest zoological publication by the British Museum (Natural History) covers seals, sea lions, and walruses; the handbook is a worthy addition to a noble lineage. Here is almost everything anyone might want to know about pinnipeds, but, with the exception of the section on fossils (which is somewhat too condensed) all is told easily, albeit succinctly, and without unnecessary technicality. Even so, professional terms are used where necessary, and the pace of the narrative is not slowed by definitions available in a good dictionary.

There is very little that is not touched on, and with a note of authority that carries the ring of validity (Judith King is a professional pinnipedologist); one of the most useful features is the frequent mention of the gaps in our knowledge. A short introduction includes a summary of the classification of the three families in this group; somewhat more than half the book is then devoted to accounts of each of the 32 species living today. Each summary is a skillful weaving of all the main essentials which also includes many fascinating tidbits of the life history of the species. There is a distribution map for each species, with the limits of the subspecies, as named, clearly indicated in the text. This can be accomplished because subspecific names seemingly have been assigned to separate, discontinuous populations, without biological differences necessarily having been determined.

Many mysteries about this group await solution by those who study whole animals in their natural environment and at the same time use the newer devices of the experimental laboratory. The pinnipeds seem to be particularly beset with a great variety of internal parasites (nematodes, cestodes, trematodes, and acanthocephalans), or is it that the author's thoroughness in mentioning them and devoting an appendix to this subject makes