Entomology

Introduction to Comparative Entomology. Richard M. Fox and Jean Walker Fox. Reinhold, New York; Chapman and Hall, London, 1964. xiv + 450 pp. Illus. $9.50.

Introduction to Comparative Entomology is novel and slightly unorthodox, but it is also a positive, dynamic, and refreshing approach to the subject.

In the first chapter, under the headings "Red Ink" and "Black Ink," the gigantic role of insects in the survival pattern of human beings is ably discussed in a comprehensive dissertation which includes a detailed summation of the injurious effects of insects on everything that man grows, wears, and uses. There is also a commendable treatise on the part that insects play in the transmission of diseases inimical to man's welfare, with a table of these diseases and their specific carriers. Internal and external parasites that cause discomfiture, and often threaten the existence of man himself as well as the livestock that he possesses, are given considerable attention, and the authors include a rather complete list of the offenders, the types, and the methods and effects of infestation, plus an excellent discussion of the biological significance of parasitism.

The role of insects as experimental animals in genetic research and an extensive review of the war against destructive pests, with analyses of methods employed and substances used in the fight, have been treated with unusual completeness by the authors. Statistics of the losses caused by insects, which reveal their general importance in the scheme of life, and a very informative and interesting treatise on the balance of nature are also in the wealth of information that develops an "inquisitive curiosity" and stimulates interest in what is to follow in the book.

The judicious incorporation of the other groups in Arthropoda for comparative studies makes more meaningful and clear the detailed exposition of anatomy, control and maintenance systems, embryogenesis, classification, and related topics. The studies are arranged in a logical sequence, presented in descriptive, convincing, and illuminating language, and supported by well-selected and well-prepared line drawings and choice bibliographical references. In all cases, origin, structure, and function are explained in terms of morphology, physiology, and ecology, often with pertinent comments on the evolutionary principles involved and, when germane, paleontological evidence.

The anatomical studies begin with the origin, formation, and articulation of the skeleton; all of the numerous and diverse appendages, with their derivations, variations, and adaptations, are described and illustrated in intricate detail. Body regions, legs, antennae, mouthparts, genitalia, wings, spines, and hairs all receive individual and scholarly attention.

The details of internal anatomy are equally voluminous and complete, including adequate consideration of the integument, musculature, blood and blood vessels, respiratory and reproductive organs and processes, nervous system, enteron, and structures for sensory perception.

The wide range of early and postovarian embryological processes is discussed under the more appropriate and comprehensive term "embryogenesis," with emphasis on life histories and genetic principles. The life stories of arthropods, from primordial germ cells to fully developed adults, are considered in two chapters, and the related and attendant physiological principles are fully explained. This extensive treatment merits far greater review than is possible in a limited critique. It is one of the outstanding features of the book, and its vast fund of detailed information represents a complete and well-illustrated account of every stage of development, which includes the most recent information and expert opinions.

This is followed by an interesting and enlightening discourse on the age-old and problematical subject of classification, including an historical résumé and consideration of all of the intricacies of group and species identification. Controversial aspects of nomenclature are reviewed, and reference is made to the efforts of the International Committee on Nomenclature to establish a universally understood procedure based upon the suitability of names that have real biological meaning. The entire story of biological names is summarized. The authors insist that taxonomy should represent a synthesis of all biological knowledge.

In the final chapters, the phylum Arthropoda is summarized in a definite classified scheme in which the general and specific features of its constituent classes and orders, with their individual characteristics, are combined. In addition to generous discussions which contain much of biological interest, there are well-organized summaries that can admirably serve for hasty major identifications.

A carefully selected bibliography and a complete index add to the worth and usability of the book, which is encyclopedic in its scope. It is a *must* for the student of entomology, a necessary handbook for the professional entomologist and agriculturist, and an invaluable reference for invertebrate and general zoologists.

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The Muscular Dystrophies

Muscular Dystrophy in Man and Animal. Geoffrey H. Bourne and Ma. Nelly Golarz, Eds. Hafner, New York, 1963. xiv + 524 pp. Illus. $30.

The papers in this collection are from many sources, and the contributors, who were supported by a voluntary health association and, recently, by government grants, were working on a neglected problem, the muscular dystrophies. The summation of this field of interest, as it is here brought together, is helpful, although there is some unevenness that is probably inevitable in an encyclopedic undertaking of this size.

An informative section on pathology, by Pearson, serves as the introduction. Pearson's figures show striking microscopic findings that accompany degenerative changes in muscle. For making comparisons with effects of the dystrophies, a figure that shows changes after denervation would have been helpful. In a chapter on biochemistry, Schapira and Dreyfus outline creatine and creatinine metabolism associated with deteriorating muscle and discuss the electrolyte or enzyme changes of some of the myopathies. Muscular disorders with potassium imbalance and others with changes in the distribution and activity of such enzymes as aldolase, creatine-kinase, and the cathepsins are included. On the other hand, the authors include too little about the bio-