

Most of the contributions possess high scientific merit and all are of interest to the advanced student or research worker. Several articles deal with the metabolism of organophosphorous compounds, carbamate insecticides, rotenone and pyrethroids, particular emphasis being placed on the role of microsomal systems and of the supernatant fraction remaining after the removal of microsomes. Other papers are concerned with the structure, action and metabolism of synergists; one of these, by Kuwatsuka, deals with the way methylene dioxypheyl synergists are themselves attacked by microsomes.

Several papers, including some I have referred to, discuss such cognate topics as structure-activity relations of insecticides, the causes of selective toxicity and the distribution of insecticides within the tissues of various insects and higher animals. In one otherwise very interesting article on autoradiographic studies of benzene hexachloride isomers, it is unfortunate that the Japanese authors were apparently not able to use their technique to pursue the fate of the δ -isomer (which penetrates insects more rapidly than the toxic γ -isomer), as well as following the distribution of ^{14}C -labelled β and γ -isomers. Yamamoto reviews problems associated with the activity of pyrethroids; Hollingworth provides evidence that O-demethylation is a principal route by which di-methyl organophosphates are degraded. Dahm, in a lucid contribution, suggests that the cleavage of the aryl phosphate bond of parathion (a seemingly hydrolytic process) is a microsomal oxidase reaction, dependent upon NADPH.

It is a pity that the lustrous nature of so much of the scientific work has been somewhat tarnished by non-uniformity of presentation and by rather perfunctory proof-reading. Summaries are sometimes at the beginning of papers and sometimes at the end. In some contributions the tables and figures are conveniently placed in the text and in others they follow the references. Perhaps only the grammatical purist will be troubled by the vacillation of "data" from the singular to the plural (for example, pp. 4, 7, 35, 81), and by constant misuse of the definite article in the Japanese papers. In at least a dozen places, however, grammatical or printing errors lead to a lack of clarity in the scientific exposition (for example, pp. 3, 26, 73, 120, 201), for the reader has no option but to guess the nature of the error. Nevertheless, this book contains much excellent material and is highly recommended to all who have an interest in the metabolism, structure-toxicity relations and physico-chemical characteristics of insecticides.

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BODY REGULATOR

The Autonomic Nervous System

An Introduction to Basic and Clinical Concepts. By Otto Appenzeller. Pp. xi + 238. (North-Holland: Amsterdam and London; Elsevier: New York, 1970.) 105s.

THE autonomic nervous system, sometimes known as the vegetative nervous system, is concerned with homeostatic regulation of bodily functions such as blood pressure and temperature. Books about the system are few and the literature available to students on its dysfunction in disease states is very limited. Lord Brain, in the last personal edition of his classic text in neurology, *Diseases of the Nervous System*, devoted only six of the volume's 879 pages to its disorders. This may suggest to many medical practitioners that autonomic disorders are of little significance, for Brain is studied by almost all post-graduate students of general medicine and by many undergraduates. During the past decade, however, the importance of hypothermia and orthostatic hypotension as complications of many diseases, has been recognized. Thus the current studies of L-dopa in the treatment of Parkinsonism have made neurologists increasingly aware

that autonomic dysfunction forms a part of the disease complex of this and many other disorders. Dr Otto Appenzeller has contributed much to the study of autonomic disorders and it is therefore appropriate that he should produce a book on this enormous subject, much of its clinical background being developed from his own wide experience.

This book provides an excellent basis for anatomical reading in the subject but it has concentrated less than might be expected on the physiology of the system. It is a pity, too, that some of the illustrations upon this aspect, such as tracings to indicate blood flow changes, are poor. The anatomical side is strengthened by many observations in comparative anatomy, and it is this aspect of the book which deserves attention, rather than the sections on physiology or clinical problems. To take a specific example, such is the progress in the subject, that the book is already inadequate in its consideration of Parkinson's disease.

I must admit to one further difficulty. I have always looked on the autonomic nervous system as the efferent system of nerves comprising the parasympathetic and sympathetic nervous systems. Dr Appenzeller seems to have a wider view of the meaning of the word "autonomic". This might be correct from the *Oxford English Dictionary* definition of the word, meaning "self regulating", but his usage conflicts with J. N. Langley's original definition at the end of the nineteenth century. He has therefore included chapters on sleep, circadian rhythms and respiration which most neurologists would feel to be inappropriate in this text. Nevertheless the book brings together much useful information which will make it a valuable library source.

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FIRST EXPERIENCES

Early Learning in Man and Animal

By W. Sluckin. (Advances in Psychology, Vol. 2.) Pp. 123. (Allen and Unwin: London, August 1970.) 35s.

DIFFERENCES between people are in part related to differences in the experiences they have encountered. Experience affects development in part through a process or group of processes commonly described as learning. Both because a *tabula rasa* may be peculiarly impressionable, and because what is learnt first may affect what is learnt later, learning early in development may be of peculiar importance. But at what stage is the young organism first capable of learning? What are the natures of the learning processes which then occur? Do they occur more readily than later? How do they affect later development? These are some of the questions which Professor Sluckin explores in this students' guide. For his material he draws on recent studies of non-human species—chicks, puppies and monkeys in particular—as well as man; and he ranges from classical conditioning through imprinting and exposure learning to the development of language and personality. He succeeds in compressing great breadth of knowledge into a slim volume, giving brief introductions to viewpoints as divergent as those of Lorenz and Schneirla, Chomsky and Skinner, Freud and N. E. Miller. His approach is catholic, and the student may sometimes wish for clearer signposts to indicate just where the work of each theoretician is, and is not, fertile.

In a field of study which could too easily become a jungle of ill-defined terms, Sluckin is hardheaded about concepts, though his discussions of imprinting in man and of imitation would have been more incisive had he maintained his own distinctions. The reader will be introduced to a wide range of studies, and the bibliography will show him how to explore further.

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