

tion of the structure of the juvenile hormone has led to the synthesis and testing of huge numbers of compounds for juvenile hormone activity; the driving force is the hope that such compounds could provide the third generation of insecticides to follow the present toxic chemicals, since the powerful and highly selective effect on insect growth and development of suitable synthetic compounds might yield both great agricultural benefits and substantial industrial profits. There is thus a large number of people who now have a theoretical or practical interest in insect hormones and the present book will be an invaluable standard text for them as it provides a comprehensive and well documented review of the whole field. After an introductory chapter on methods and techniques, there is a long account of the three hormones of metamorphosis — the activation, moulting and juvenile hormones. Then an account of natural and synthetic substances with insect hormone activity. One surprising finding is that an active steroid, dihydroxyecdysone, is present in the roots of the common European polypodium fern to the extent of

over 1% dry weight!. There are separate chapters on hormones and morphogenesis, hormones and diapause, on neurohormones and on protohormones (i.e. neurohumoral factors and gene hormones). The account of incompletely known substances with allegedly hormonal characteristics could be a happy hunting ground for ideas for research projects.

Pheromones such as sexual attractants are excluded from the book but exohormones of Hymenoptera such as the inhibitory substances produced by queen bees to inhibit ovary development in workers are included.

The book is attractively produced, the line drawings are clear and the photographs satisfactorily reproduced. Those whose interests impinge in any way on insect endocrinology should insist on the immediate purchase of a copy by their departmental or institutional librarian. Make sure the Librarian does not discard the earlier edition however — remember those 3000 references.

B. A. Kilby

Microbial Interaction with the Physical Environment

Edited by D. W. Thayer

Dowden, Hutchinson & Ross, Inc; Stroudsburg, Penn., 1976

xv + 431 pages. £15.00, \$30.00

'Microbial interaction with the physical environment' edited by D. W. Thayer is the ninth volume in the series Benchmark papers in Microbiology published by Dowden, Hutchinson and Ross, Inc. The editor has selected 31 articles including both reviews and original papers published between 1901 and 1974 and grouped them into sections each covering one environmental parameter. These are: hydrogen ion concentration, water activity and osmotic pressure, halophilic interactions, hydrostatic pressure, electrokinetic properties, and sound. Temperature and radiation are two environmental factors not covered in this volume. A review by Skinner on the limits of microbial existence is included in the introductory section. The papers in each section are introduced by an editorial commentary and where necessary refer-

ences are given for additional reading. The selection of articles for a book of this type is obviously difficult and the editor is to be commended on his choice of papers and in particular on the inclusion of the earlier publications. It is unfortunate that one review on water relations in food spoilage organisms was too long to be included. The book does provide an insight into the interaction of micro-organisms with their environment and is valuable in drawing the attention of the reader to certain of the more significant papers in this expanding area of research. It is convenient to have these papers collected in one volume and this introduction should provide a stimulus for further study by the reader.

D. Kerridge