

## BOOK REVIEW

"Insect Physiology", by 15 authors, Kenneth D. Roeder (Edit.) pp. xiv + 1100; with 236 figures, 108 pp. of references. New York: John Wiley & Sons, Inc.; London: Chapman & Hall, Limited.

The objectives of this volume are best expressed in the preface by the editor: "... the book is a critical discussion rather than a complete review of insect physiology ..." and: "It has not been our intention to present insect physiology as an insulated compartment of knowledge."

The literature on insect physiology is now so vast that a complete review within the space of a thousand pages is impossible. Accordingly, certain omissions are understandable, especially since some of the omitted material is already reviewed in other books on insect physiology. Instead, subjects not covered elsewhere take its place. Deficiencies pointed out in this review are therefore intended as statements of fact rather than as derogatory criticisms of the book as a whole.

Notable among the new items is the "inclusion of information on the mode of action of enzyme inhibitors, drugs, and other chemical agents." The biochemical aspects of insect physiology are well reviewed throughout the book. Various phenomena associated with nerve function are also well covered. On the contrary, the more fundamental aspects of the structure and biophysics of living protoplasm

are not mentioned, despite the fact that the most significant feature which distinguishes a living cell from a dead one is the internal control which it maintains over its colloidal state. Without reference to this phenomenon, all toxicological findings beg the question, because many effects are reversible until physical degeneration has occurred.

Considering the dominating influence of temperature on insect growth, it is surprising that the authors evidently did not consider it necessary to include brief coverage of growth-temperature relationships. Their scant reference to "temperature characteristics" of Crozier gives no hint of the tenuous and empirical philosophy of its interpretation. Excellent coverage is given of the role of hormones and enzymes in diapause of certain post-embryonic stages, but consideration is not given to diapause in eggs and embryos, nor is mention made of the possible ultimate involvement of water-binding in the colloids. The question of bound water in insects is passed off lightly in the face of much evidence of colloidal physics.

"Insect Physiology" is well written and indexed, and is a welcome addition to the literature on insects, and indeed no entomological library can be complete without it. It does not, however, entirely take the place of other works on the subject.

—Kenneth Graham.

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