

BOOK NOTICES

General Entomology

This text treats the subject from the viewpoint of ecology. Although it is general in nature and attempts to cover all phases of the subject, there is a minimum of discussion on such subjects as identification, classification, physiology, morphology, economics, and control, and a greater emphasis on the habits, habitats, and ecology of insects.

The introductory chapters of the book deal with the place of insects in the animal kingdom, the relation of insects to man, the orders of insects, and the morphology and metamorphosis of insects; the major part of the book is concerned with the ecological aspects of entomology. There are chapters on the distribution, abundance, reproductive capacity, color, sonification, and behavior of insects, insect associations, scavengers, predators, and parasites, associations of plants and insects, leaf-mining, leaf-rolling, gall, boring, subterranean, aquatic, and case-making insects, etc. Some of these subjects (e. g., the fecula of insects, leaf-rolling insects, subterranean insects, and case-making insects) are not ordinarily treated in a general entomology text.

The chapter on insect orders includes a key to adults; the appendix includes keys to the larger groups of immature insects (orders, and the more common groups of lepidopterous and coleopterous larvae), and additional material considered too technical for the text.

The discussion is well written, up-to-date, and well illustrated. At the end of each chapter is a list of carefully selected references. With the discussion emphasizing habits and habitats, an effort is made to train the student to make observations in the field, and to study living material whenever possible rather than pinned specimens. A phase of the subject not treated, which might be appropriate in a text of this sort, is that of the various laboratory and field projects suitable for beginning students (e. g., methods of collecting and rearing insects). This point is briefly mentioned in the preface, but the text contains no detailed discussion or bibliographic references on it.

A course in general entomology based on this text would be a very broad one, designed to awaken interest by a study of living animals. The field of entomology would profit by the teaching or more beginning courses patterned after this text.—*D. J. Borror.*

General Entomology, by S. W. Frost. x+524 pp. McGraw-Hill Book Company, Inc., New York. 1942. \$4.00.

Crop Ecology

Professor Klages of the University of Idaho has produced a useful text in a field not already overcrowded. His work is divided into four parts: the social environment of crop plants, the physiological environment of crop plants, the ecological factors, and the geographical distribution of crop plants. Parts one and two each contain five chapters, parts three and four, eleven chapters each. The maps in the text which form an essential part of it are from the numerous sources of U. S. Department of Agriculture publications. Each chapter has an extensive bibliography of recent literature, indicating the breadth of reading suggested for the aspiring student. The preface states, "no claim is made for the complete exhaustion of the available literature, and no doubt many contributions of distinct value and with a distinct bearing on the subject in hand have not been included in the discussion presented." With this statement the general reader is likely to be in full accord. There exists, however, the possibility of Professor Klages being taken to task by disappointed specialists in cognate fields for certain omissions. The agronomists working with crop subjects will find the book highly satisfactory, the soil agronomists may find a single chapter on edaphics too scant to review. The foresters and horticulturalists may resent the assumption that the word "crop" as used in this book excludes their harvests. The ecologists working with climate and climatic factors should be pleased with the full discussions. However, many ecologists may protest the assumption that habitat and environment are interchangeable terms. Economists and geographers will miss the mention of rubber and coffee in view of their wide use and value. Other minor items imported into the United States may also be missed. The geneticists, however, seem to be the most nearly forgotten men.

No one book can have everything. This is a good job and deserves recognition. It is a straightforward attempt to compress between two covers the many fields included in the subject as the author defines it.—*A. E. Waller.*

Ecological Crop Geography, by K. H. W. Klages. MacMillan Company, New York, 1942, 615 pages, maps in text + sviii. \$4.50.

Temperature, Evolution, Development

This volume of Biological Symposia contains the papers delivered at three recent symposia of the A. A. S. The first of these on Temperature and Evolution contains eight papers, one each by Plough, Fankhauser, Child, Witschi, Muller, Landauer, Kinsey, and Moore, in which

many aspects of the relationship of thermal changes to character appearance, expression, and perpetuation are considered. The second symposium is upon the increasingly important subject of Isolating Mechanisms, with particular reference to their role in the evolution of the most completely studied plant and animal species. Stebbins, Blair, Kinsey, and Patterson participated. The third symposium deals with the Genetic Control of Embryonic Development, with illustrative examples chosen from Amphibia, the chick, and the guinea pig by Twitty, Hamburger, and Wright, respectively. There is a general integrating introduction to the series by Th. Dobzhansky.—*E. L. Green*

Biological Symposia, Volume VI, edited by Th. Dobzhansky. 355 pp. The Jaques Cattell Press, Lancaster, Pa., 1942. \$3.50.

Botanical Microtechnique

Techniques for the preparation of plant tissues for microscopical study are invaluable to many botanists occupied in teaching and research. This book has been written as an elementary laboratory manual for beginning courses in plant microtechnique. A short chapter on collecting and subdividing plant materials to be processed should enable students to start the processing with excellent material. If plant tissues are poorly selected and crudely subdivided and otherwise handled carelessly, even the best procedures in processing result only in failure. Several methods of killing, fixing, storing, dehydrating, infiltrating, embedding, sectioning and staining of paraffin infiltrated tissues are presented. Two chapters on the celloidin method will be welcomed by a good many workers. Methods of sectioning unembedded tissues should be of service to the beginner. In this discussion chemical tests are given for several common plant substances. Whole mount preparations suitable for many plant materials are discussed. Only two short paragraphs give information concerning preparations of bacteria. Sixteen excellent photomicrographs are included in a discussion on criteria of successful processing. In part II about fifty pages deal with specific methods applying to various plants representing the larger divisions of the plant kingdom. A chapter on construction, use and care of the microscope will be found valuable to all students interested in microtechnique. No literature is cited except after the short chapter on photomicrography.—*G. W. B.*

Elements of Botanical Microtechnique, by John E. Sass; 222 pp. McGraw-Hill Book Company, New York. 1940. \$2.50.

Biochemistry

Volume V of this series consists of fifteen review papers by specialists in their various fields.

The subjects covered are indicated best by the table of contents which follows:

- I. Symposium of Comparative Biochemistry.
 - End Products of Nitrogen Metabolism in Plants. (Herbert B. Vickery.)
 - End Products of Nitrogen Metabolism in Animals. (H. B. Lewis.)
 - Merging of Growth Factors and Vitamins. (W. H. Peterson.)
- II. Symposium of the Intermediate Metabolism of Fats.
 - The Oxidation of Branched-Chain Fatty Acids. (H. E. Carter.)
 - The Origin and Regulation of Ketone Bodies from Fats. (Samuel Soskin and R. Levine.)
 - The Anabolism and Function of the Phospholipids. (R. G. Sinclair.)
 - The Formation of Animal Body Fat. (H. E. Longenecker.)
- III. Symposium on Carbohydrate Metabolism.
 - Oxidation Catalysts. (T. R. Hogniss.)
 - Phosphorylation of Glycogen and Glucose. (C. F. Cori.)
 - Oxidoreductions in Carbohydrate Breakdown. (C. Meyerhof.)
 - Pyruvate Oxidation and the Citric Acid Cycle. (E. A. Evans, Jr.)
- IV. Symposium on the Biochemistry of Choline.
 - Choline, the B Vitamins and Fat Metabolism. (E. W. McHenry.)
 - The Relation of Choline to the Kidneys. (W. H. Griffith.)
 - The Nature and Significance of Choline Esterase.
 - Interrelationships between Choline and Other Methylated Compounds. (V. du Vigneaud.)

Biological Symposia. Vol. V. Comparative Biochemistry. Intermediate Metabolism of Fats. Carbohydrate Metabolism. Biochemistry of Choline. Edited by Howard B. Lewis. The Jaques Cattell Press, Lancaster, Pa., 1941. \$3.00.

—*J. B. Brown.*