Modern Biology Series

Hormones and Evolution. E. J. W. Barrington. Van Nostrand, Princeton, N.J., 1964. x + 154 pp. Illus. $3.95.

This volume is one of the Modern Biology Series, a series intended to provide college-preparatory and university students with significant background knowledge, presented by an authority writing about his own field of study, that goes beyond the scope of the general textbook in botany and zoology. This book, which represents the substance of three lectures given by the author at the University of London in the autumn of 1961, is divided into six chapters: (i) "Evolution and the endocrine glands," (ii) "The steroid hormones," (iii) "The hormones of the thyroid gland," (iv) "Protein and polypeptide hormones," (v) "The polypeptide hormones of the hypothalamus," and (vi) "Retrospect." The author discusses the origin and evolution of endocrine systems, and outlines current developments in the biology and chemistry of hormones from vertebrates and invertebrates, with references from the literature up to 1962. The book points up clearly how advances in the growing field of comparative endocrinology are enhancing our understanding of the mechanisms of hormonal action and clarifying our thinking about the molecular basis of evolution and adaptation.

The great interest shown recently in comparative endocrinology was given special expression in 1961 with the appearance of a new journal, *General and Comparative Endocrinology*, dedicated to an exploration of a range of material similar to that treated here. A portion of the editorial statement, written by the coeditors, Aubrey Gorbman and Barrington, for the first edition of the journal, is very applicable to the present volume and may appropriately be quoted in this review:

". . . [R]ecent years have seen a rapidly growing realization that there are major groups of the animal kingdom, invertebrate as well as vertebrate, which have an importance no less significant than that of the classically favored laboratory animals. No doubt this is in part a consequence of the way in which major advances in our understanding of one group have been facilitated by results emerging from the study of another . . . but in part it probably reflects an increasing appreciation that the keys to the understanding of complex systems must often lie in the simpler ones from which these have evolved."

This book has an attractive format and is extremely well written in a style for the general reader, but without oversimplification or loss of technical accuracy.

CHOH HAO LI
Hormone Research Laboratory, University of California, Berkeley

Russian Literature on Pedology

Ecology of Soils. V. R. Volobuev. Translated from the Russian edition (1963) by A. Gourevich. Israel Program for Scientific Translations, Jerusalem; Davey, New York, 1964. iv + 260 pp. Illus. $10.25.

For many American soil scientists this work will serve initially as a door opening to the riches of the Russian literature on the factors of soil formation in relation to the geographic distribution of soils. The author says in the foreword that "It does not explain the principles of soil ecology in full, but concentrates chiefly on some of the main problems. . . . The book mainly reflects the author's personal views, and its publication will encourage further debate." In the introduction, by way of definition, he further states that "the ecology of soils must study the regular relations between soil and its formative environment, in their interaction and development."

The first part of the book, "Main Relations Between Soil and Environment," consists of seven chapters which summarize the Russian concepts in relation to the work of a relatively few non-Russian investigators. Here there is presented much interesting detail that those familiar with Jenny's *Factors of Soil Formation* and Joffe's *Pedology* will be able to reconcile fairly easily with their previous knowledge. However, tropical soils fare rather badly.

The second part of the book, "General Differences in Soil Formation in Relation to Environmental Conditions," contains five chapters in which the author's original contributions are set forth. These consist in the development of graphical methods for relating the great soil groups of the world to the major climatic factors. Equations expressing the regularities found are extensively discussed. The treatment of temperature and moisture is carried further than was done by Jenny. Pedologists will find much to interest them in these chapters. The gross chemical compositions of soils are discussed in relation to soil-forming factors, but the processes that lead to the formation of distinct horizons are dealt with only qualitatively. In other words, the viewpoint is geographic rather than chemical. Chapter 12 contains a highly original development of the relation of the energetics of soil formation to environmental factors.

Chapters 13 and 14 constitute the third part of the book, "Seasonal Phases of Soil Formation." Here again there is presented much of the author's own work, applied particularly to the chernozem and the brown forest soils.

The author is to be congratulated on his originality, which will provide pedologists with much material for discussion. The Israel Program for Scientific Translations has rendered a service to soil science by sponsoring this translation.

C. EDMUND MARSHALL
Department of Soils, College of Agriculture, University of Missouri

Physical Electronics

Semiconductor Controlled Rectifiers: Principles and Applications of P-N-P-N Devices. F. E. Gentry, F. W. Gutzwiller, Nick Holonyak, Jr., and E. E. Von Zastrow. Prentice-Hall, Englewood Cliffs, N.J., 1964. xvi + 383 pp. Illus. $15.

The history of the development of electronic devices shows that a diode device has a limited field of application, but that the introduction of a control electrode expands the area of application enormously. The transistor illustrates this point. The authors of this book show that the four-layer (pnpn) device is a generalized transistor, and that it has expanded the application potential of the power rectifier by introducing control analogous to the gaseous diode-thyratron development.

Semiconductor Controlled Rectifiers represents the first comprehensive text devoted to the explanation of the four-layer, semiconductor, controlled recti-