Dorfman, and the influence of gonadotropic hormones on end-site metabolism by W. H. McShan and J. F. Perdue. Finally, W. D. Davidson and R. E. Davies provide an interesting description of gastrin and the duodenal hormones, although, as the authors point out, the primitive state of knowledge in this area precludes meaningful consideration of their action mechanisms.

The book is attractive, easy to read, and well edited, although I noted occasional errors in formulas, figure legends, and references. It is highly recommended to all who are interested in biochemical endocrinology.

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Semiconductors

Physics of III-V Compounds. Otfried Madelung. Translated from the German by Dietrich Meyerhofer. Wiley, New York, 1964. xiv + 409 pp. Illus. $13.

The III-V compounds are semiconductors made from the elements of the third and fifth groups of the periodic table, notable examples being gallium arsenide and indium antimonide. Although they can be made n and p type, it is unlikely that they will ever replace silicon and germanium for use in transistors. They do, however, offer characteristics which are different from the two classical semiconductors and which can result in specialized uses. These include high mobilities and small impurity-binding energies that are useful for certain high-frequency devices and for infrared detectors, and direct band gaps that lead to efficient radiative hole-electron recombination and have resulted in injection lasers. It is probable that the purely scientific aspects of these materials are almost all a direct extension of those developed for silicon and germanium.

During the last 12 years these compounds have been intensively investigated, and in this book Madelung sets out to present an account of their physical properties, specifically excluding the technology and applications of these materials. These somewhat limited aims have been admirably met. In general, the author gives a brief but useful outline of the theory of a branch of the subject, such as optical properties or transport properties, and then presents an exhaustive account of what is known concerning these topics for each of the III-V compounds.

Very little has been left out, and the book is remarkably up to date. About 1300 references are cited, many of them published in 1964. The presentation of the results is reasonably critical, for in most cases an effort is made to decide between conflicting views. In addition, the properties of the compounds are compared and contrasted with one another and, to the extent possible, a unified picture is presented. There are useful summarizing tables. The translation is well done, and I noted very few errors of fact. The only misprint that I noted was in the publisher's blurb. Perhaps, with the spread of scientific literacy, scientific publishing houses will one day know that the English form of the most successful transistor material is silicon, not silicium.

This book is not intended for students, but, for some years to come, it will surely be a most useful volume to anyone active in the field of semiconductors.

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History of Biology

Circulation and Respiration: The Evolution of an Idea. Mark Graubard. Harcourt, Brace, and World, New York, 1964. x + 278 pp. Illus. Paper, $2.95.

The compiler of this excellent little book is professor of natural science at the University of Minnesota where, for a number of years, he has been using the historical approach in teaching science to undergraduates. Mark Graubard, who is primarily a biologist, is well qualified to prepare a book such as this one.

He traces the historical development of the idea of the circulation of the blood through pertinent and well-selected extracts from the writings of 17 workers from Aristotle to Borelli. Most of the texts, including of course readings from Harvey, relate to the circulation, while only four represent the beginnings of our understanding of respiration. Graubard has added pungent and provocative commentaries to each selection. The reader is thus guided along the difficult and tortuous path by which we developed our knowledge of circulation and respiration during a time span of 2000 years.

This book is recommended to anyone interested in the history of science in general or the biomedical sciences in particular. It will be especially useful as a case history illustrating scientific methodology.

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Geochemistry

Interprétation Géochimique des Éléments en Traces dans les Roches Cristallines. Denis M. Shaw. Masson, Paris, 1964. vii + 237 pp. Illus. Paper, F. 56.

In recent years the trend in geochemistry has been swinging more and more toward laboratory experiments designed to simulate the natural environment, particularly under conditions of very high temperature and pressure. It is not as common to find a major work in geochemistry that approaches the subject from the viewpoint of rocks as they actually occur rather than how they ought to occur. Shaw's treatment of trace elements in crystalline rocks starts with field data, and then proceeds to a consideration of concepts of genesis that are consistent with these data. It is built on the traditions of V. M. Goldschmidt, pioneer geochemist and author of *Geochemistry*, a classic monograph that covers the distribution of elements not only in igneous rocks, but in natural waters, vegetation, and atmosphere. Shaw's principal contribution is to present an updated version of Goldschmidt's review insofar as it applies to igneous rocks.

The first 74 pages of Shaw's monograph treat purely technical problems in the analytical chemistry of trace constituents of silicate rocks. The next 109 pages present data on the trace-element content of genetically related rocks and of coexisting minerals. The data are arranged according to the various natural laws that have been proposed for the partition of major and minor elements between the solid and the liquid phases. The final 28 pages are devoted to the possible application of trace-element studies in