ence book for both teachers and students. More than 700 pages of good solid German may, however, preclude its use as a textbook in this country.

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Electrical Engineering

Fundamentals of Semiconductor Devices. Joseph Lindmayer and Charles Y. Wrigley. Van Nostrand, Princeton, N.J., 1965. x + 486 pp. Illus. $11.95.

As the title indicates, this book treats the fundamental physical phenomena of semiconductor devices with emphasis on understanding rather than on a bare presentation of facts. The gradual buildup of material allows an individual with limited background to undertake the study of "fundamentals," but owing to sufficiently detailed presentations, advanced solid-state scientists may well benefit from certain sections of this text.

The first eight chapters are devoted to an orderly development of these fundamentals as related to conventional semiconductor materials, diodes, and transistors. In addition to elementary considerations, appropriate attention is given to second-order effects, small-signal equivalent circuits, and large signal transients.

In the last four chapters consideration is given to more sophisticated effects in semiconductors and recent device developments, such as space-charge-limited currents, field effect devices, and hot-electron amplifiers. In common with other books that attempt to cover a wide variety of topics, the descriptions of recently developed devices are quite brief and merely serve as an introduction to the subject. This problem is compounded by the fact that the references for supplementary reading are few in number and quite inadequate for the purpose at hand.

The pedagogically sound scheme of organization, the clarity of exposition, the more than 400 excellent figures, and the gradual increase in depth of material as the treatment progresses should make this book particularly useful to technicians in industrial laboratories, who need an increased understanding of the semiconductor phenomena in which they are involved. It might also be viewed as a likely prospect when considering textbooks for use in an undergraduate course in the theory and technology of semiconductors. My own preference, however, would be one of the recently published texts which treats the same subject but relies more heavily on the experimental approach.

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Lectures in Mathematics

Systems of Linear Equations. B. E. Margulis. Translated from the Russian edition (Moscow, 1960) by Jerome Kristian and Daniel A. Levine. Pergamon, New York, 1964. x + 88 pp. Illus. $2.75.

The author has attempted a systematic development of the major elementary topics in the study of systems of linear equations. The material is presented in a straightforward manner, and most of it should be intelligible to a good high school student.

The introductory chapter, apparently designed to stimulate the reader and make him eager to pursue the rest of the book, is likely to have the opposite effect unless the reader has some basic knowledge of electricity and mechanics. This chapter is devoted to analyzing selected problems from physics and mathematics; it shows how these problems can be reduced to problems involving systems of linear equations. The author ranks it as fourth in difficulty among the seven chapters.

The topics of major interest are found in the mid-section of the book. The standard method of solution by reduction to triangular form is developed in chapter 3, and Gauss tables (essentially, programs for the reductions) for systems of 5th order and below are included. Determinants are introduced and Cramer's rule is derived in chapter 4. An iterative procedure that enables one to obtain a sequence of approximate solutions which converge to the actual solution is developed in chapter 5. Chapter 6 is devoted to obtaining approximate solutions of inconsistent systems, using both the method of the mean and the method of least squares.

I find chapter 7, on graphical methods of solution, of little interest. In this chapter, techniques are developed for reducing systems to triangular form and for solving the reduced systems by means of lines drawn in the Cartesian plane.

The book is well written, emphasizing techniques and results rather than mathematical rigor (a boon to the nonmathematician). In a typical "proof," the proposition is established for 2nd- and 3rd-order systems and the result is extended to higher order systems by analogy.

In my opinion, this book would be an excellent addition to the library of anyone who teaches algebra to high school students or college freshmen. It should also be useful to the nonmathematician who uses some of the methods described in the book without thoroughly understanding them.

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Visible and Ultraviolet Spectra

Volume 5 of **Absorption Spectra in the Ultraviolet and Visible Region** (Akademiai Kiado, Budapest; Academic Press, New York, 1965. 416 pp. + index. Illus. $23), edited by L. Lang, presents the spectra and numerical data for 192 additional compounds, almost all of which are organic in nature, although they generally contain hetero atoms. With one exception—a minor change in the manner of pagination that is designed to make it easier to avoid introducing spectra from one volume into another—the format of volume 5 is the same as that of the previously published volumes [vols. 1 and 2 reviewed in *Science* **136**, 519 (1962); vol. 3 in *Science* **142**, 223 (1963); and vol. 4 in *Science* **144**, 1564 (1964)]. Those who use this compilation frequently will welcome the inclusion of a cumulative index that covers all 898 spectra thus far published. This index is printed on punched sheets that may be placed in the ring binder with volume 5. The editors note that cumulative indices will be issued periodically and that future volumes will see an increase in the number of "medicinal compounds" included.

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