vacuum tubes and physical electronics. Thus, there are sections on components such as capacitors, iron-core transformers, permanent magnets, relays, and r-f coils and transformers. In the field of circuit design, there are papers on audio circuits, filters, wide-band amplifiers, and television circuits. Miscellaneous topics treated include pulses, antennas, electronic heating, and industrial control. There are no papers on magnetrons, klystrons, cavity resonators, or wave propagation.

The fact that a topic is of sufficient importance to warrant inclusion in the book by no means indicates that it will receive a well-balanced treatment. Thus, 14 papers deal with transmission lines, including one which describes the extremely useful Smith chart for making line calculations. Lines are treated adequately from an engineering-design point of view. In similar fashion, the treatment of electronic heating is well rounded. By contrast, the broad field of oscillators is dismissed with two papers, both fair: one on phase shift oscillators, and the second on the temperature coefficient of quartz. Few engineers would consider the treatment accorded oscillators at all adequate.

The greatest value of this book arises from the fact that it furnishes to the engineer a wide variety of information in a form convenient for reference. The book is to be recommended in particular to those engineers who enjoy using charts and graphs in making their own calculations.

W. D. HERSHBERGER
RCA Laboratories, Princeton, New Jersey

Human biochemistry. Israel S. Kleiner. St. Louis: C. V. Mosby, 1945. Pp. 573. (Illustrated.) $6.00.

There has long been need for a textbook on biochemistry which presented all the essential facts regarding the subject from the viewpoint of its usefulness in the practice of medicine. The author states in his Preface: "It is not so many years since physiological chemistry was essentially a pure science course in medical schools and reference to clinical applications was incidental if not accidental. . . . The name biochemistry has come half way from the laboratory to the clinic. The student now is shown the subject as an integral part of the practice of medicine—not just as a part of the medical curriculum. He learns that advances in every branch of medicine, surgery, and dentistry, have been made as a result of biochemical research, that the human body *is* applied biochemistry, that the entire field of physiology is a series of biochemical reactions and pathological phenomena result from disturbances of these same reactions, and that biochemical discoveries are more and more responsible for progress in diagnosis and therapeutics. The present volume is an attempt to bring home to the student these clinical aspects of biochemistry without usurping any clinician's domain and without neglecting the fundamentals." The author would appear to have been very successful in his efforts to attain these objectives, and the book should hold the interest of those students who look forward to the practice of medicine and also stimulate those who vision a scientific career in medicine.

It could not be expected that in this relatively brief book it would be possible to cover fully all the essential facts of biochemistry and to discuss their most important clinical applications as well. However, the author has used excellent judgment in the fundamental biochemistry he has included, although in some cases the brevity may suggest a lack of importance that is not intended. Most departments of biochemistry employ their own laboratory directions. In accord with this the author touches on the principles of only a few of the most fundamental methods. This materially aids in concise and direct presentation of the subject.

Active fields of biochemical research such as enzymes, vitamins, and hormones are excellently presented, while the discussion on carbohydrate, lipid, protein, and mineral metabolism and water and acid-base balance would appear commensurate with the scope of the book. Practical clinical applications of biochemical facts and methods will be noted on nearly every page of the book, but such topics as diet therapy, basal metabolism, changes in the chemical composition of the blood, and recent clinical applications of biochemical methods are given a fuller discussion than is found in most other texts on biochemistry. Presentation of biochemistry from this point of view cannot help but instill in the minds of medical and dental students the usefulness as well as the practical importance of the subject.

In the classification of proteins, in the chapter on proteins, the author omits the third group, "Derived Proteins," given in the usual classification, for the reason that this group includes either denatured proteins or mixtures of protein decomposition products. Although this is true, most biochemists will probably still feel that we need a heading to cover this group of substances. Like many other first editions, the book contains a number of typographical and other minor errors. These will probably soon be corrected and other minor changes made to strengthen the original plan of the text.

The book can be recommended to teachers of biochemistry, especially those who believe that in the presentation of the subject stress should be given to practical applications as well as to fundamental principles.

VICTOR C. MYERS
School of Medicine
Western Reserve University, Cleveland