theory of point sets and of continuous functions. From that point on the book treats in more or less standard order the usual topics of the differential and integral calculus, with the exception that the proofs are placed on a more rigorous footing. These proofs are not always given in complete detail. They are deliberately curtailed in order to keep the essentials clearly in focus. In some cases the parts omitted are included in the exercises. For example, the derivation of the formula for the derivative of a function of a function, left incomplete in most text-books, is here carried to a point so near completion that the student can fill in the details. The book does not entirely solve the logical difficulties of the teacher resulting from the necessity of a choice in the order of topics. In some cases forward references are necessary. Thus the "Law of the Mean" is used on page 92, while it is proved on page 117.

The topics are concerned mostly with functions of one variable. There is, however, one chapter on double and triple integration. Also, partial differentiation is defined and used (in Chapter 4) to obtain the derivatives of functions defined implicitly. The book ends with two chapters on differential equations.

A problem which confronts the teacher of students who wish to make use of the calculus in the applied sciences is how to introduce the subject of integration early enough. The text under review solves it by introducing problems on inverse differentiation in with those on differentiation. The definite integral is introduced in Chapter 12, in characteristic fashion, with the proof that its defining limit exists for any continuous function! The author admits that the student, meeting the subject for the first time, might wish to omit such a proof. In fact, he points out that the traditional course "can be extracted from the book by omitting the proofs of theorems." In spite of the rigorous point of view, a lively and interesting style is maintained. Witness the term "principle of the flycatcher."

The reviewer regrets that the very useful exact remainder theorem for Taylor's theorem (expressing the remainder as a definite integral) is omitted here as in most standard text-books. He also feels that the utility of the book would be slightly increased if the statement of theorems were italicized.

This book presents the calculus as the teacher would like to present it to his classes, in logical order. We have hitherto assumed in this country that this most pleasant method of lecturing was not the most efficient way of teaching, that maximum enjoyment for the instructor might mean minimum enjoyment for the mediocre student. The author believes otherwise, that the present type of treatment should increase the student's enjoyment as well as his power to use the material. He bases his belief on his own experience as a teacher in this country, and on his acquaintance with young Europeans of the age of American sophomores. It is devoutly to be wished that he is right and that others who use the book will make similar findings.

D. V. WIDDER

IMAGE TRANSMISSION

Television—the Electronics of Image Transmission. By V. K. ZWORYKIN and G. A. MORTON. ix + 646 pp. New York: John Wiley and Sons, Inc. 1940.

THIS book is designed to condense and summarize in a readily accessible form the extensive literature which has already grown up in the field of television. The subject-matter is divided into four main sections. The first part deals with the fundamental processes and phenomena upon which the art of television is based. The second part discusses the general principles of television and the necessary relationships between the optical image and the transmitted radio image. The third portion deals with the individual components of the complete television system as devised in the RCA laboratories, and the fourth portion describes the equipment of the RCA-NBC television project. The first two sections will be of most interest to the general scientific reader, for in these parts are contained all that is necessary for a detailed understanding of the science of television as practiced to-day. The other two sections will be useful to those having an interest in the finer details of the subject.

The authors are to be particularly congratulated upon the extremely clear and concise exposition of the fundamental physical principles which occupy the first five chapters of the book. These chapters cover the emission of electrons from solids, fluorescent materials, electron optics and modern high-vacuum technique in the short space of 150 pages. Most physicists could read these pages with profit.

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REPORTS

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

MECHANICAL engineers throughout the United States and Canada are observing this year the sixtieth anniversary of the founding of their professional organization, the American Society of Mechanical Engineers, which to-day has 15,000 members and maintains headquarters in New York City and 71 school sections in va-