kernels and the theory of linear integral equations of the first kind.

The book serves as an excellent introduction to the theory of integral equations. It is admirably organized and concisely written. No applications are given, except in the first chapter, where the connection with differential equations is sketched. However, this tract should prove a useful reference work for all who employ the theory in such applications.

JOANNE ELLIOTT

Advanced complex calculus. By Kenneth S. Miller. New York, Harper and Brothers, 1960. 8+240 pages. $5.75.

This book is intended as an introduction to complex variable theory on a level suitable for juniors, seniors, and beginning graduate students. There are nine chapters, whose headings follow: 1. Numbers and Convergence; 2. Topological Preliminaries; 3. Functions of a Complex Variable; 4. Contour Integrals; 5. Sequences and Series; 6. The Calculus of Residues; 7. Some Properties of Analytic Functions; 8. Conformal Mapping; and 9. The Method of Laplace Integrals.

The book has two nonroutine features: (1) The last chapter, an introduction to a differential equations topic, is included to give an application of contour integration; (2) A discussion of "Riemann axes," a real variable analog of Riemann surfaces, is given to serve as a motivation for the use of these surfaces in the study of multivalued analytic functions.

The author asserts in his preface that he pays "careful attention . . . to multi-valued functions." But his discussion of "Riemann axes" and of Riemann surfaces remains on a rather vague level. Nothing, for example, is said about whether branch points do or do not belong to such a surface. Also, the domains of single-valued branches of logarithms and powers are rarely mentioned. Indeed, the author's definition of *function* is hardly conducive to clarity: a function in the book is a "rule" which "associates with every point z in $\mathfrak{C}$ [a set of points in the plane] at least one point w."

The impact of this book on the student will be the formation of the opinion that complex variable theory is merely a jungle of theorems, many of which lead nowhere in the further development of the theory.

As an example, §7.5 is headed "The Maximum Modulus Theorem." In addition to a statement of this theorem, the section also contains Rouché's theorem, a uniqueness theorem for analytic func-