from a very personal point of view. Naturally, in 144 pages, it would not be possible to give a full account of the asymptotic properties of all the special functions. The original papers are usually lengthy and incapable of substantial shortening.

After an introductory chapter explaining the idea of an asymptotic series and showing how these series may be used, the asymptotic behaviour of integrals containing a large parameter is discussed in Chapter 2, the functions log $z!$, $Ai(z)$, $Bi(z)$ being used as illustrations. Chapter 3 deals with the asymptotic solution of a linear differential equation of the second order in the two cases (i) when the independent variable is large, (ii) when a parameter occurring in the coefficients of the equation is large. The methods developed in these two chapters are both applicable to the Bessel functions, which are discussed in some detail in Chapter 4. Other special functions considered are the Confluent Hypergeometric Function and the Parabolic Cylinder Function (Chapter 5) and the Mathieu Functions (Chapter 6), both chapters being rather short.

Although the error committed in stopping at any term in an asymptotic series is of the order of the first term omitted, it is often desirable to get a closer estimate of the error; Chapter 7 contains an account of the author's contributions to this problem.

The last chapter deals with asymptotic solutions of the wave equation.

My only regret is that the book is so short. Many of the topics could have been treated at greater length. But the book is intended to be only an introduction, and a very good one it is.

E. T. COPSON

KURATOWSKI, K., *Introduction to Set Theory and Topology* (Pergamon Press, 1961), 283 pp., 45s.

The book is divided into two parts. The first part is devoted to set theory. It begins with an account of the algebra of sets, including Boolean algebra, and considerable attention is devoted to propositional functions and quantifiers. [Note: in formula (34) on p. 44 the first quantifier on the left should be the universal one.] Additive and multiplicative families of sets are introduced and also Borel families. The power of a set and cardinal numbers including the Cantor-Bernstein theorem are discussed. Ordering relations, well-ordering, ordinal numbers and transfinite induction are fully treated. The treatment of these questions is rigorous and comprehensive without being too detailed and complete in every respect, so that the book is suitable for students beginning a first serious study of the subject.

The second and longer part is devoted to topology. This is developed from the point of view of metric spaces, although references are made to non-metric spaces at various points—for example when bicompactness is introduced, or when the Kuratowski fundamental closure axioms are given. The standard properties of compact and connected spaces are obtained and there are chapters on dimension, elementary homology theory and cuttings of the plane, including the Jordan curve theorem. The author's style is lucid, and he manages to cover a very wide variety of different topics in a comparatively short space. There are numerous exercises for the student, of varying degrees of difficulty. The book will be useful not only as a students' textbook but also as a reference book.

R. A. RANKIN

KURATOWSKI, K., *Introduction to Calculus* (Pergamon Press, 1961), 315 pp., 35s.

This book deserves consideration as one suitable for Honours Mathematics students, who have had a grounding in elementary intuitive calculus. It is concerned wholly with functions of one real variable (functions of several variables are to be treated in a second volume). Comparing it with the classics in the subject, the design and scope of the book is closer to Hardy than to Courant, Goursat or de la Vallee Poussin. The