into three parts. In the first part, the idea of continuity of a function is studied extensively. The second part develops Lebesgue's integration, together with a detailed treatment of abstract measure theory and the Stieltjes integral. It contains also a treatment of the more important properties of differentiability of functions. Chapter V gives an account of theory of Baire functions, and Chapter X presents the theory of distributions of Schwartz. Chapter XII contains an introduction to the theory of function spaces and functional analysis. The third part of the book deals with applications of the theory of Lebesgue integration to orthogonal series, and to Fourier series and the Fourier integral.

The treatment of all this material is outstanding by its great clarity and in showing how the deeper results of set theory and the abstract theory of measure find applications in functional analysis in general, and the theory of orthogonal series. The theorems are presented in as general a form as possible without destroying the simplicity of their formulation.

S. ULAM

Algebraic varieties. By M. Baldassarri. (Ergebnisse der Mathematik und Ihrer Grenzgebiete, vol. 12, new series). Berlin, Springer, 1956. 195 pp. DM 36.

The author asserts that it is his purpose to present the most important aspects of modern algebraic geometry as completely as space allows. Naturally, such a task involves the rejection of much material that could claim the right to be included and perhaps the inclusion of some that could with reason be rejected, so that any particular selection of topics is necessarily open to question. The author's selection for this monograph seems to have been guided by the desire not only to present a survey of results obtained by algebraic, analytic and topological methods, but also to show how these methods complement each other in dealing with some of the central problems in the theory of algebraic varieties defined over the complex field. In the opinion of the reviewer, he has achieved a high degree of success. The monograph presents a comprehensive though not exhaustive account of several of the major developments of the past two decades that conforms in every respect to the exacting standards of the Ergebnisse series.

An introductory chapter on algebraic foundations modelled on Samuel's Ergebnisse tract is followed by six chapters devoted largely to results achieved by purely algebraic methods. The first of these (Chapter II) contains an account of Zariski's work on the problem of

reduction of singularities which includes a discussion of his proof for threefolds, and Chapter III presents a survey of the theory of linear systems which culminates in an account of the work of Zariski, Matsusaka and Akizuki on the Bertini theorems. In Chapter IV the canonical system is introduced, first in the classical case by means of adjoint systems and then in the abstract case with the help of differential forms. Chapter V is devoted to questions relating to the arithmetic genus and the virtual characters of the canonical system. The contributions of Zariski, Severi, Todd, and the joint contribution of Zariski and the reviewer are described. The long Chapter VI is concerned with algebraic and rational equivalence and includes among other topics a very brief account of Zariski's work on holomorphic functions and the degeneration principle. An overly condensed account of the theory of Abelian varieties is given in Chapter VII. It contains a description of the constructions of the Jacobi variety by Weil and Chow, of Neron's work on the base for algebraic equivalence, and Matsusaka's work on total families and Picard varieties. Chapter VIII returns to the question of canonical systems and presents an account of Todd's work and Segre's theory of covariant sequences. Chapter IX contains a brief exposition of the theory of algebraic varieties as complex analytic manifolds. It includes a discussion of currents, harmonic forms, complex operators and Chern classes. A discussion of the theory of stacks and complex line bundles for varieties over the complex field opens Chapter X. (The author expresses regret that a report on Serre's algebraic sheaf theory could not be included because of its length.) The chapter continues with a description of the applications that Kodaira and Spencer have made of this theory to the construction of Picard varieties and to proving a theorem of the Riemann-Roch type for adjoint systems. It concludes with a summary of Hirzebruch's work on the Riemann-Roch theorem. The final Chapter XI describes miscellaneous results connected with the theory of complete continuous systems.

H. T. MUHLY

Functions of complex variables. By Philip Franklin. Englewood Cliffs, Prentice Hall, Inc., 1958. 9+246 pp. $6.95.

After an introductory chapter on complex numbers, the text covers continuity and differentiability of functions of a complex variable, power series, the elementary functions, conformal mapping, Cauchy's theorem and Cauchy's integral formula, Taylor and Laurent expansions, calculus of residues.

The book seems well suited to a term-course in complex variable.