Analytic functions. By S. Saks and A. Zygmund. Trans. by E. J. Scott. (Monografie Matematyczne, vol. 28.) Warsaw, Nakladem Polskiego Towarzystwa Matematycznego, 1952. 8+452 pp.

The theory of analytic functions has figured as a standard topic in the curriculum of a mathematics student for many years and there is a fairly clearcut agreement on what makes up the minimal contents of a first course on the theory of functions of a complex variable. However, when one examines the large number of texts on the subject, it is evident that standards of rigor and generality vary considerably. It is also clear that one can discern two quite distinct threads running through the fabric: first, the presence of arguments and methods which are very general—such as the use of topological notions (connectedness, compactness, interiority, etc.)—and are not peculiar to the theory of analytic functions; second, the presence of results and methods which are due to the particular features of the theory of analytic functions and give the theory its special color. In exposing a classical discipline, it is highly desirable that one should seek to isolate on the one hand the general tools and methods which are of constant use but are not peculiar to the discipline and on the other hand those features of the discipline which are special to it.

Such a program is envisaged by the book under review, the *Analytic functions* of Saks and Zygmund translated into English by E. J. Scott. Ever since its appearance in 1938, the original *Funkcje Analityczne* has evoked considerable interest far beyond the Polish mathematical public; tantalizing reference was frequently made to the manner in which certain topics were treated, a notable example being the elementary treatment of the Runge theorem concerning the approximation of analytic functions by polynomials and the exploitation of this result to prove the Cauchy integral theorem for simply-connected regions of the finite plane (i.e. regions having connected complement with respect to the extended plane) and to pave the way for the treatment of the Riemann mapping theorem.[1]

We learn from the authors' preface that it was their goal to take the middle road between a strictly "arithmetic" account of the theory along Weierstrassian lines and a "geometric" treatment which introduced certain intuitive geometric concepts without rendering them precise. "By no means renouncing the application of the

[1] We remark that the Runge approach was employed by Walsh in 1933 to prove with considerably more sophisticated apparatus (in fact, conformal mapping methods) the Cauchy-Goursat theorem for functions which are continuous in a closed Jordan region with rectifiable boundary and are analytic in the interior.