BOOK REVIEWS

LANDAU, E., *Grundlagen der Analysis* (Chelsea Publishing Company, 3rd edition, 1960), 173 pp., $1.95.

This new edition of the lucid German text from which the English translation was made (*Foundations of Analysis*, translated by F. Steinhardt, Chelsea Publishing Company, 1951, reprint 1957) is aimed at English-speaking students. The volume contains the author's prefaces in both German and English, and, as appendix, a German-English vocabulary and some useful hints on translation. The publisher's preface claims that perusal of the text, aided by the glossary, should present no great difficulty to a student even without previous knowledge of German and would endow him with a good background of mathematical German. This may well be correct but, if the student is to succeed in mastering the text in two days (as the author wishes), he would be well advised to read the English translation.

ELIZABETH A. McHARG

BOURBAKI, N., *Éléments d'Histoire des Mathématiques* (Hermann, Paris, 1960), 276 pp., 18 NF.

The separate volumes, collectively called *Éléments de Mathématique*, of the omniscient author Nicolas Bourbaki were each supplied with a *Note historique*, which greatly increased their value. It is of still greater value to have most of these notes assembled in one historical volume; and this makes up the present book. There will presumably be another volume when other volumes on mathematics have made their appearance. The present volume disclaims, in the *Avertissement*, any intention of being a history of mathematics; none the less, the introductory pages of each chapter do give a summarised conspectus of the earlier history of each subject. Equally, the work has no concern whatever with anecdote, legend or personality of the authors concerned; authors are related solely to the theorems or contributions to theory which mathematics owes to them. The real value of the book may be said to lie in the modern history, from 1850 or so for classical subjects, from 1900 or 1930 for later ones, such as normed topological spaces.

Certain topics, such as algebraic or differential geometry, calculus of variations, analytic functions, ordinary and partial differential equations find very little mention; after all, one can learn of them and their history elsewhere. But foundations of mathematics, linear algebra, topological and metric spaces, integration in its more modern sense, and in fact such subjects as move in the existing main stream, form the topics of chapters of the deepest interest, treated with controlled enthusiasm, impeccable in style and lucidity. They vary in the preliminary knowledge required. Some, such as those on the gamma function, or on exponentials and logarithms, are of the briefest; one at least, that on infinitesimal calculus, could be read with advantage by every honours student, though it must be supplemented later by the one on integration (pp. 246-269), which gives a summary of the generalisations of Lebesgue, Radon, W. H. Young, P. J. Daniell and others. The most wide-ranging is the opening chapter (pp. 9-64) on foundations of mathemetics, which begins with Egypt and Babylonia and ends after Gödel; the chapter in which the author seems most engrossed is that on topological vector spaces, where Banach's *Opérations Linéaires* is regarded as marking a certain climax but also, in the sequel, a certain anticlimax.

There is a bibliography of 16 pages, covering references to 254 authors. The work has the expected distinction and is a valuable, indeed an indispensable addition to the history of mathematics.

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