An Introduction to the Operations with Series. By I. J. Schwatt. Philadelphia, Press of the University of Pennsylvania, 1924. 10+287 pp.

According to the preface, "The matter contained in this book had its inception in the author's effort to obtain the value for the sum of the series of powers of natural numbers, in an explicit form and without the use of the Bernoulli numbers. This problem led to the study of the higher derivatives of functions of functions, which in turn required certain principles in operations with series, which had to be established. By means of these and other principles, methods for the expansion of certain functions and the summation of various types of series were devised and other topics developed."

The book starts out with the development of formulas for the nth derivative of various types of functions of functions of algebraic and trigonometric forms, and thus obtains the nth term of the Maclaurin expansion of these functions. Methods for the summation of various types of finite and infinite series are obtained. In the final chapter expressions are derived for the Bernoulli and Euler numbers which the author believes to be simpler and obtained by less laborious methods than those known heretofore.

A great number of formulas are derived, and many special results of some value are obtained. A number of ingenious devices are used. The methods are rather special, and no new general principles are developed. While the problem of determining the nth derivatives or the nth terms of the expansions of various functions is apparently solved by the derivation of definite formulas, yet the results are not entirely satisfactory for practical use as they involve finite summations not easily handled.

L. L. Smail

A History of Mathematics in Europe. By J. W. N. Sullivan. London and New York, Oxford University Press, 1925. 109 pp.

This book is not as pretentious as the title implies since it is Chapter 4 in the *History of Science* edited by Charles Singer and covers the period from Boethius (475–526) through Laplace (1749–1827). The subtitle states that it is an account of the progress of mathematics from the fall of Greek science to the conception of rigorous proofs and is based upon the histories of Cantor, Ball, and Cajori. Anyone who wishes to avoid reading these histories can gain a rudimentary knowledge of the subject by reading this book, which is well written, and the reader can find the essential things without too much effort.

The illustrations are taken verbatim from the aforementioned works and although one gets nothing new from this book it should be in every library, especially high school libraries, as it is so easy to find what one wants. More volumes of this character should be welcomed by those who give courses in the history of mathematics.

G. H. Light