

of numbers are developed so far as is known, and indeed this is quite surprisingly far. Of particular interest in the first part is a very extensive chapter on countable sets and a slightly shorter one on sets having the power of the continuum.

This treatment is quite satisfactory from the standpoint both of rigor and of clarity. Definitions are, for the most part, clearly and definitely given where needed; only in a very few cases—notably page 142 where the notion of the inverse of an order type is used—could a fuller explanation be desired. The book is not marred, as is too often the case, by a complicated and extensive system of symbolic notation, which contributes much to its readability. The author and the publishers are indeed to be complimented upon the appearance of such a well prepared treatise on such a well selected subject.

G. T. WHYBURN

Modern Geometry. By Roger A. Johnson. Houghton Mifflin, 1929. xiii + 319 pp.

The recent appearance of this book on Modern Geometry* will be welcomed by all mathematicians who believe in the intrinsic value of a more general interest in this subject. The content of the book deals with the geometry of the triangle and the circle developed by the elementary concepts of euclidean geometry extended to include some trigonometric functions and circular inversion. The latter topic, which is defined by means of similar figures and proportions, is introduced in an early chapter and used with excellent effect throughout the text. An important feature is the generalization of proofs by the use of "directed angles" as well as "directed distances." By a sane introduction and use of the phrase "points at infinity" one of the transitions to the subject of projective geometry has been simplified for the student.

It seems to the reviewer that this book will be found a valuable text for undergraduates and prospective teachers. At first sight an adequate number of exercises may appear to be lacking for such a purpose, but there are literally hundreds of stated theorems in which the construction and a part or all of the proof are left as exercises and this gives the student a better insight in the progressive development of the subject. The book will be equally valuable as a reference. As the editor has stated "The content of this book, in spite of its elementary character, is by no means well known to mathematicians in general." A vast amount of material has been collected from numerous sources and for this reason the book furnishes a background of the subject and a wealth of information which will be found invaluable in the teaching of elementary geometry.

Doubtless many teachers would have preferred a different arrangement for the topics which are included. Suffice it to say that the author has achieved to a marked degree his purpose as stated in the preface "the unity and harmony of the arrangement and the interrelation of the various parts to one another." We commend this book with the belief that it merits success.

J. I. TRACEY

* For a detailed statement of contents see *The American Mathematical Monthly*, vol. 36, (November, 1929), p. 482.