

## SHORTER NOTICES.

*A New Analysis of Plane Geometry Finite and Differential.*  
By A. W. H. THOMPSON. Cambridge, University Press,  
1914. 16 + 120 pages. Price 7 shillings.

THIS book is an exposition of a system of notation for plane metric geometry. Points are represented by Latin letters, lines by Greek letters;  $\overline{ab}$  denotes the line determined by the points  $a$  and  $b$ , and  $\alpha\beta$  denotes the point determined by the lines  $\alpha$  and  $\beta$ ;  $(ab)$ ,  $(\alpha\beta)$ , and  $(a\beta)$  denote respectively the distance between  $a$  and  $b$ , the angle between  $\alpha$  and  $\beta$  and the perpendicular distance between  $a$  and  $\beta$ . The author's problem is now one of reductional computation—to express in terms of these measures of two elements any measure of elements derived from points and lines by intersections and joins, vectorial constructions, and equational relations. This reduction is carried out not only for such measures as areas of triangles and the trigonometric functions but for differentiation and integration. The author claims that his method is superior to that of coordinate geometry in the matter of sign. There are nearly two hundred examples in the text, the majority of them being grouped at the end.

G. H. GRAVES.

*An Elementary Course in Differential Equations.* By EDWARD J. MAURUS. Ginn and Company, 1917. vi + 51 pp.

THIS is a collection of about 350 problems covering ordinary differential equations up to solution in series. Very brief explanations of the methods of formation and of solving differential equations are given, and the applications are only hinted at.

C. F. CRAIG.

*An Introduction to Statistical Methods.* By HORACE SECRIST. New York, Macmillan, 1917. xxi + 482 pp. \$2.00

As stated on the title page, this is "A text book for college students, a manual for statisticians and business executives." The book is descriptive rather than mathematical in character, making its appeal to the general reader through its discussion of methods and purposes.

Sufficient illustrations are given to make the meaning clear. The discussion is detailed, almost wordy at times. This very wordiness makes the book of especial value to the beginner. Each chapter ends with a summary and a list of references to other standard works on the same and allied subjects.

The chapter on averages discusses at some length the arithmetic mean, the mode, and the median and omits the geometric mean, and the mean given by  $\sqrt{\Sigma x^2/n}$ , and combinations of these averages.

Illustrative matter is mainly from the economic field. A few illustrations are from agriculture. References are made, however, to other fields, such as biology, psychology, genetics.

Although non-mathematical, the book is of interest to a mathematician from the point of view of the applications. This is a good book for a beginner and at the same time useful to one already initiated into the study of statistics.

W. V. LOVITT.

*Cours de Mécanique.* Vol. III. By LÉON LECORNU. Paris, Gauthier-Villars, 1918. 669 pp.

THIS is the third and last volume of a treatise on mechanics for use in l'École Polytechnique. The first was reviewed in the BULLETIN for April, 1915, and the second, November, 1917.

The present volume is devoted to applications of mechanics to engineering and consists of five parts (parts X to XIV of the complete course). The subjects considered are strength of materials, hydraulics, thermodynamics, theory of machines, and a brief discussion of the problems involved in aviation.

It is interesting to compare the preface to the third volume with the preface to the first, which appeared in 1914. Just before the war, Professor Lecornu, in speaking of the course in mechanics as a whole, referred to the necessity for resisting a demand for the teaching of practical applications and expressed his firm belief that the course in l'École Polytechnique should be purely theoretical. In support of this position he quoted General Langlois. "The officers who leave the school at the end of one year are, in general, inferior to their comrades in the matter of studying logically and deeply a scientific question of tactics or organization. The method of work indispensable to every man of action demands imperiously the study of a science to its foundations, a study which makes