somewhat more safe, I may send you one from Oxford (whither I am now going) from

S^r your humble servant,

These, JOHN WALLIS.

For M^r J. JOHNSTON, Secretary for Scotland;
at my Lord Nottingham's Office, at Whitehall, London.

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## SHORTER NOTICES.

*Analytic Geometry and Calculus.* By FREDERICK S. WOODS and FREDERICK H. BAILEY. Ginn and Company, 1917. 516 pp.

THIS book is a revision and abridgment of the authors' Course in Mathematics for Students of Engineering and Applied Science. In making this abridgment the authors have omitted determinants, theory of equations, poles and polars, diameters, center of curvature, special methods of integration, and complex numbers.

The first eight chapters deal entirely with analytic geometry and give the subjects usually given in a first course in American colleges. The following topics are exceptionally well treated: "Variables and functions," "Graphs" and the derivations of the standard equations of the conics. In several places the authors are very careless about a theorem and its converse, i. e., they prove a theorem and then state or use its converse. An example of this is on page 61 where they prove that two perpendicular lines have their slopes negative reciprocals of each other and then conclude that "two lines are perpendicular when the slope of one is the negative reciprocal of the other." Moreover no attention is called to the fact that if the lines are perpendicular to the coordinate axes their slopes are not negative reciprocals.

In Chapter IX they introduce calculus by means of slope and area. This is a very well written introduction to the calculus except for the fact that the definition of limit on page 130 is incorrect (the word "numerically" should be inserted after the word "remains" on line 4). Then follow chapters on the conventional work of maximum and minimum, tangents