HALSTED'S RATIONAL GEOMETRY.

Rational Geometry, a Text-book for the Science of Space. By GEORGE BRUCE HALSTED. New York, John Wiley & Sons (London, Chapman & Hall, Limited). 1904.

IN his review of Hilbert's Foundations of Geometry, Professor Sommer expressed the hope that the important new views, as set forth by Hilbert, might be introduced into the teaching of elementary geometry. This the author has endeavored to make possible in the book before us. What degree of success has been attained in this endeavor can hardly be determined in a brief review but must await the judgment of experience. Certain it is that the more elementary and fundamental parts of the "Foundations" are here presented, for the first time in English, in a form available for teaching.

The author's predisposition to use new terms, as exhibited in his former writings, has been exhibited here in a marked degree. Use is made of the terms sect for segment, straight in the meaning of straight line, betweenness instead of order, copunctal for concurrent, costraight for collinear, inversely for conversely, assumption for axiom, and sect calculus instead of algebra of segments. Not the slightest ambiguity results from any of these substitutions for the more common terms. The use of sect for segment has some justification in the fact that segment is used in a different sense when taken in connection with a circle. Sect could well be taken for a piece of a straight line and segment reserved for the meaning usually assigned when taken in connection with a circle.

The designation, betweenness assumptions, which expresses more concisely the content of the assumptions known as axioms of order in the translation of the "Foundations" of Hilbert, is decidedly commendable. As motion is to be left out of the treatment altogether, copunctal is better than concurrent. Permitting the substitution of straight for straight line, then costraight is preferable to collinear. Inversely should not be substituted for conversely. The meaning of the latter given in the Standard Dictionary being accepted in all mathematical works, it is well that it should stand. The term axiom* has been used

* "The familiar definition: An axiom is a self-evident truth, means if it means anything, that the proposition which we call an axiom has been