

$\cdot \wedge \cdot$, *simultaneous affirmation*

$$2 < x < 7 \cdot \wedge \cdot 4 < x < 9 := : 4 < x < 7$$

$\cdot \vee \cdot$, *alternative affirmation*

$$2 < x < 7 \cdot \vee \cdot 4 < x < 9 := : 2 < x < 9$$

\sim , *negation of what follows to a stoppoint*

$$\sim (8 + 3 = 10), \quad 6 \sim = Np$$

\exists , *there are some*

$$\exists [N^2 \wedge (N^2 + N^2)]$$

Cls, class of (taken in extension).

Elm, class of only one element.

After explaining the significance of these signs, the author considers the properties of certain logical relations, such as equality, appurtenance, inclusion, implication, etc. The possible transformations of logical statements are considered, the figures of the syllogism developed, and finally he shows that all the other symbols can be defined by means of three, namely =, \wedge , and \vee , in other words, in terms of the notions of *identity*, *largest common subclass*, and *such that*. Although such definition is possible, it is inconvenient to use nothing but these symbols, so that the others ought to be retained for convenience. The style of the treatise is clear and very simple, and as an introduction to the study of mathematical logic, can scarcely be excelled.

JAMES BYRNIE SHAW.

Elements of Plane and Spherical Trigonometry. By JOHN GALE HUN and CHARLES RANALD MACINNES. New York, The Macmillan Company, 1911. vii + 101 pp., with tables, pp. 102-205.

IN writing this book, the authors have undertaken "to present in as brief and clear a manner as possible the essentials of a short course in trigonometry." This aim they appear to have kept constantly before them. The language of the book is simple, concise, and interesting. The subject matter is brief enough to be covered by a class in somewhat less time than that usually required, and still comprehensive enough to take in all that is usually regarded as essential.

The authors have included one subject not often treated in a text book in trigonometry, namely, the drawing of graphs of equations in polar coordinates. For this, they give the