

such points is two parabolas, one on each side of  $RS$ ." A similar statement follows the definition of the hyperbola. Is it not unfortunate to speak of a locus which is not a complete locus?

The definition of equivalence of sets of equations (page 3) is somewhat vague; and it hardly seems wise to say that the equation  $(x + y)(x - 2y) = 0$  is equivalent to the two equations  $x + y = 0$  and  $x - 2y = 0$ , even though the sense in which this is meant is immediately explained.

The statement (page 15) that "a set of homogeneous equations can often be solved for the ratios of the variables when there are not enough equations to determine the exact values" might seem to imply that the "exact" values could be determined if there were enough equations.

In chapter five there is a paragraph on "infinite values" which reminds one of the school algebras of the last generation. It seemed to the present writer to be a really serious defect in what is in many respects an excellent book.

The mechanical features of the book are attractive, the figures (with a few exceptions) are accurate, and the typographical work is free from errors.

WALTER B. CARVER.

*A Budget of Paradoxes.* By AUGUSTUS DE MORGAN. Reprinted, with the author's additions, from the *Athenæum*. Second edition, edited by DAVID EUGENE SMITH. Two volumes, I, viii+402 pp.; II, 387 pp. Chicago, The Open Court Publishing Co., 1915. Price, \$3.50 per volume.

THE first edition of this interesting work by Augustus De Morgan (1806-1871) appeared in 1872, after the author's death, under the editorship of his widow, Sophia De Morgan. Some ten years later Mrs. De Morgan wrote a "Memoir of Augustus De Morgan," which is worthy of mention in connection with the "Budget of Paradoxes." De Morgan's articles which constitute the present work appeared from time to time, in the years from 1863 (Oct. 10) to 1866 (Dec. 1), in the London *Athenæum*. From other facts which we have concerning the life of De Morgan it appears that some of the popular writing which he did, for encyclopedias and for journals, was stimulated by financial pressure; at this distance we can properly rejoice at the conditions which fostered the growth of the present work.