THE NUMBER-SYSTEM OF ALGEBRA, Treated Theoretically and Historically. By Professor H. B. FINE. Boston and New York; Leach, Shewell & Sanborn, 1891. 8vo, pp. IX. + 131.

AT the present time we frequently find mathematical researches preceded by an historical account of the question under discussion: and this is but another proof of the increasing importance of the study of mathematical history. On the other hand, it is necessary that the history of any branch of the science form part of such books as are intended for students. For pedagogic reasons the historical part of a treatise ought to be placed at the end of the volume, or at least at the ends of the various chapters.

Mr. Fine's recent book takes its place among the not very numerous works combining a systematic treatment with an historical account. It may be regarded as an introduction to the theory of functions of one variable. In this short review I shall only refer to the historical part of the work, which occupies the latter part of the book (pp. 79–131). The author begins by noticing the symbols and systems of numeration, and then passes to the history of fractions and irrational quantity among the Ancients. He then summarizes the progress of algebra, from the earliest times down to Descartes, and finishes with the development of the fundamental notions of algebra, from Newton to Weierstrass and G. Cantor. For the ancient history, that of the Middle Ages and down to 1600, Mr. Fine has chiefly followed the well-known works of Moritz Cantor and Hankel. For modern history he has generally had recourse to original sources.

One or two improbable or inexact statements may be noticed. For instance, Regiomontanus is mentioned as the author of the *Algorithmus Demonstratus* (1534).* Again, the year 1630 is given as the date of the introduction of the sign $\div$, and it is said to have been first used by Pell.† These inaccuracies are, however, of slight importance, and Mr. Fine's book will doubtless be found of much assistance to students of mathematics.

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* There exists a copy of this work, antedating the birth of Regiomontanus, and attributed to Jordanus Nemorarius.

† The sign is really due to Rahm, and the date is 1659. Compare BEMAN, *Bibl. Math.*, 1887, p. 96.