

proof and illustration very clear and are very successful in avoiding positive inaccuracies. The only place where the discussion might have been made a little clearer is on page 126, where the number e is defined as the limiting value of $(1+z)^{1/z}$.

The typography and arrangement of matter on the page are excellent, and the book as a whole is very attractive.

JACOB WESTLUND.

Second Course in Algebra. By H. E. HAWKES, W. A. LUBY and F. C. TOUTON. Ginn and Company, 1911. vii + 264 pp.

In arranging this Second Course to follow the first year's work in algebra the authors have made the student's return to the study of mathematics both interesting and easy. The review of the main features of their First Course in Algebra as given in the earlier pages of this book is of course quite essential. It is presented in a way that leads the reader to more mature and accurate habits of thought; he is frequently shown certain limitations on what he supposed were very easy and familiar operations. From the very beginning of the text there is evident a definite effort to induce him to discriminate accurately and logically. We regret to note later in the book a few unfortunate digressions from the rigorous method of presentation that is so admirable at the beginning. The treatment of linear equations is given a new interest for the reader by the introduction of second and third order determinants. With these of course no proofs are given and little use is made of even the more elementary theorems in determinants. Simply to teach the student the actual use of determinants in the solution of systems of linear equations is certainly the wisest procedure at this stage. Graphs are used quite extensively in the solution of both linear and quadratic equations. A number of very instructive illustrations are given in which the solution of two quadratic equations may be reduced to the solution of a system of linear equations. The straight lines are shown in the graph to pass through the intersections of the conics. This visualizing process ought to give the algebraic manipulation a much more tangible significance. The reviewer does not advocate any proofs with regard to the properties of these conics, with the possible exception of the circle, but he does feel that the straight line and linear equation should be