In the first place, the author has in several instances failed to embody the latest fruits of historical research. Thus, in connection with the graphical representation of imaginaries he fails to mention Wessel; in speaking of non-Euclidean geometry he refers to Saccheri, but not to Lambert and Taurinus; in tracing the history of trigonometry he apparently overlooked the researches of Suter and Braunmühl, who show that the Arabs distinguished themselves by original work much more than was formerly supposed; he makes no mention of the Bakhshali manuscript, which throws considerable light on early Hindu arithmetic. As a rule, the facts presented are stated accurately. Among the exceptions are the following: Athelard of Bath is mentioned as the first translator of Euclid from the Arabic into Latin, but there is ground for the belief that earlier translations existed. Boyer attributes to Benjamin Peirce a research which seems to be due entirely to Charles S. Peirce; he misspells the name of Crozet, the author of the first American text on descriptive geometry; he gives Antissa instead of Antinoeia as the birthplace of Serenus.

In the next place, the book is deficient because it does not trace the evolution of theories. Something on the growth of mathematical ideas we have a right to expect even in a short history. If the reader consults this work on the introduction of the notion of infinity or of continuity, on the evolution of the theory of limits, on the number concept, or on the foundations of algebra, he will receive little satisfaction. But these topics are all of vital importance in elementary as well as in advanced mathematics.

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Elementary Chemistry. For High Schools and Academies. By A. L. Arey, C.E., Rochester (N. Y.) High School. New York, The Macmillan Co. 1899.

The author has adopted the theoretically ideal plan of forcing the student to note the various features of chemical reactions without any suggestion as to the phenomena which one is expected to observe. Very few students have cultivated and trained their power of observation, and one of the most advantageous purposes of the study of a science is to develop this side of their nature. This can only be done by teaching him what he sees and how he should see it and thus gradually training his powers of observation until he is able to observe new phenomena for himself and becomes independent of the observations of others. Several dangerous experiments are placed in the early part of the book with no notice of the precautions to be taken, and if this book was put into the hands of an inexperienced worker there would probably be disastrous results.

J. E. G.

Laboratory Exercises with Outlines for the Study of Chemistry, to accompany any Elementary Text. By H. H. Nicholson, Professor of Chemistry in the University of Nebraska, and S. Avery, Professor of Chemistry in the University of Idaho. New York, Henry Holt & Co. 1899.

This book is intended as a laboratory guide to be used in connection with a text-book. It is well arranged and the descriptions are clear and logical, and with conscientious use of a reference book should produce the desired results. In cases where dangerous materials are to be handled too much caution cannot be given. In exercise 3 the student is directed to rub in a mortar a piece of sulphur and a crystal of potassium chlorate the size of a grain of wheat. One who had never had experience with students just beginning the study of chemistry would be surprised at the differences of opinion as to the size of a grain of wheat.

J. E. G.

School Chemistry. By Chas. Baskerville, Ph.D. The University of North Carolina. Richmond, Va., B. F. Johnson Publishing Co. 1899.

The author wrote this book for use in summer schools for teachers. In attempting to cover the whole field in a short course he has prepared a work which will not give a student the necessary foundation either for teaching the elements of the subject or continuing its study with advantage. A few subjects thoroughly understood would probably be of more value than a little knowledge of many, so far as its use by the class of students for whom it is intended is concerned. The author has no doubt supplemented it by