

The mechanical side of the book has been splendidly executed and is almost entirely free from errors. The use of italics and heavy type is not overdone, but is still sufficient to emphasize the really important things of the text. The figures are abundant and well drawn. The problems are numerous and have been selected because they illustrate something, rather than because of their difficulties.

Taken as a whole, the book is thoroughly up to date and well written. Although it is more of a drill book than a treatise, it ought nevertheless to furnish the student with a good foundation for a later course in calculus. It is a book which should be a stimulus to every teacher who is in sympathy with the international movement towards improvement in the curriculum and the methods of instruction in college mathematics.

EDWIN R. SMITH.

*Technical Trigonometry.* By HORACE WILMER MARSH. New York, John Wiley and Sons, 1914. x+232 pp.

THIS book gives a clear and usable knowledge of the trigonometry underlying the industrial and technical studies. The first chapter is devoted to an explanation of logarithms, while the second and third chapters are given to the solution of right and oblique triangles with their applications. It is in the applications that this book differs from the traditional trigonometries. The exercises are chosen from engineering, physics, manufacturing, etc. A few of the types of problems given are: equilibrium on an inclined plane, bevel gears, spiral gear cutter, dovetail joints, two point ball bearing, nuts, flange angles, tangent galvanometer, track turnout, roof truss, length of belts, concrete stand pipes, sewer construction. Each problem is accompanied by a very well executed drawing. These three chapters cover 186 pages or about 9/11 of the book. Many technical terms are used and explained.

The fourth chapter (13 pages) deals with the functions of the sum and difference of two angles and the functions of multiple angles. The proofs of most of the formulas are left as exercises. No other exercises such as proving identities, solving trigonometric equations, solving practical problems, etc., are given. In the last chapter, namely chapter five, the slide rule is explained. At the end of the book are found tables on length, area, volume, weight, decimal equivalents of

parts of an inch, U. S. and metric equivalents and wire gauge sizes.

No tables of logarithms or natural functions are given. Radian measure, identities, trigonometric equations and answers to the exercises have been omitted.

F. M. MORGAN.

*College Algebra.* By W. B. FITE. Boston, Heath, 1913.

A CHARACTERISTIC tendency in mathematics during the last fifty years or more has been in the direction of a more severe criticism of the proofs of theorems. Hence, Professor Fite is adopting the modern point of view when he aims "to present the elementary principles of algebra in a simple and direct way and to give a rigorous proof of the theorems used." But just at this point one of the real dangers in the teaching of elementary mathematics arises. Those who are interested in emphasizing rigor are likely to be sidetracked by minutiae to such an extent that the subject as presented by them appears too abstract to the beginner, to whom concreteness in any subject is an absolute necessity. With these facts in mind one might say that the aim of the modern text book in algebra should be to present the subject as concretely as possible and at the same time to develop the critical attitude in the mind of the student. I shall examine Professor Fite's *College Algebra* chiefly along these lines.

First of all it should be noted that the book is meant to be a *college algebra*. Although all of the subjects treated occur in most of the texts which are used in secondary schools it seems to me that some of the subjects, notably the analytic geometry introduced, belong exclusively to college work. This does not mean that the graph and graphical methods should not be used in secondary work; they should be, by all means. Also, the problems which have been selected are largely new and very attractive, and are of sufficient difficulty to make the average freshman think.

Throughout the book the author has made extensive use of graphical methods and has evidently tried to appeal to intuition and to make the subject tangible by practical illustrations of the principles involved. To this end the problem of finding the equation of a circle through three points is introduced as an application of the solution of simultaneous linear equations in three variables. This is better than to refer to three planes,