

from established usage, he has succeeded in giving several subjects a new aspect. As far as possible dead wood has been cut out and live material put in its place. The large number of new and attractive problems drawn from everyday life and from the elements of mensuration and physics will be greatly appreciated by the teacher. Considerable prominence has been given to graphical methods. The author has used them very effectively in treating proportion and variation, in the solution of equations, in establishing the notion of roots and logarithms, and even in explaining interpolation in a logarithmic table. Graphical methods not only make these subjects clearer and more real to the pupil, but will prove of great service to him whether he stops study with the high school or not. In the appendix some of the more advanced topics are treated as permutations and combinations, the binomial theorem, limits and infinite series, irrational and complex numbers.

It needs hardly to be added that the reasoning is sound and in accordance with present-day standards. The pupil will have no vicious habits of thought to eradicate if he goes on with his mathematics. In this connection we may note the emphasis the author lays on checking the solution of equations, a point too often entirely overlooked.

It is a good sign for the future of mathematics in this country when men of the calibre of Professor Hedrick are willing to take time from their own researches to write a work of this character. We wish his little book all success.

JAMES PIERPONT.

*Die Lehre von den geometrischen Verwandtschaften. Erster Band: die Verwandtschaften zwischen Gebilden erster Stufe.* By RUDOLF STURM. Leipzig and Berlin, B. G. Teubner, 1908. xii + 415 pp.

THE treatise on geometric transformations, of which the present volume is the first part, is estimated to consist of four volumes, the manuscript of which is all in the hands of the printer. The others will be published as soon as possible.

While the first volume is concerned with forms of one dimension, it is not simply a text-book on projective geometry, but considers multiple correspondences, general involutions, trilinearity, and the problem of homography in two and in three dimensions. The first half of the book is concerned with parametric representation, anharmonic ratios, perspectivity, linear