

the trigonometric functions are too small and not accurate. One full page graph with carefully distinguished curves would be more satisfactory. In the early pages the definition of coordinates is correct, but unfortunately all notion of directed lines is abandoned in the proofs of the summation formulas for sines and cosines.

Reduction of functions to the first quadrant, which in many books is needlessly diffuse, is here given in a compact form which lacks only a good rule as a summary to be quite sufficient. The double inequality in the proof for the sines of small angles follows the usual course, and as in most of our text-books does not show that the two tangents are longer than the arc. The corresponding S and T tables have been made relatively inconspicuous and supplemented by more useful tables of functions of small angles given for each second.

In the discussion of variation of trigonometric functions double signs have been used to advantage with the zero values as well as with the infinity sign. The solid perspective figures in the latter part of the book are good, and at the end is found, what is none too common in our text-books, an index.

As a whole the book does not differ noticeably from the many text-books covering the same ground. Examples are particularly abundant while the theoretical portions might well be amplified and improved.

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Wilhelm Schells Allgemeine Theorie der Kurven Doppelter Krümmung. Dritte Auflage neu bearbeitet von ERICH SALKOWSKI. Leipzig, B. G. Teubner, 1914. 196 pp. Price 8 marks.

THE first edition of this book appeared in 1859, the second in 1898. It was the purpose of the author to develop the elements of the theory of curves of double curvature by the geometric method of infinitesimals without recourse to higher analysis. Since the investigation included the study of the three surfaces generated by the tangents, principal normals, and binormals of a general curve, there appears incidentally a considerable amount of material concerning the geometry of a surface in the neighborhood of an ordinary point. Consequently a reader (who might easily be an undergraduate) could obtain from the book a very good idea of the elements of the differential geometry of curves and surfaces.