

references or attempts at proofs. After a very brief discussion of the simple helix, the first surfaces discussed are a topographical map and forms of embankments and excavations. Granted this is important to one learning uses of graphical methods, a less felicitous application of the earlier theory could hardly be devised. Cones and cylinders fare rather better, as they connect directly with the theory. Plane perspective is developed from the standpoint of geometric correspondence; use is made of cross-ratio, and a fairly full discussion of conics from the Steiner construction is given, including the theorems of Pascal and Brianchon, and a few applications.

The treatment of intersections of cones and cylinders is rather brief; space quartics (of the first kind) and space cubics are considered and a few examples given. Plane sections of surfaces of revolution, and illumination are next discussed. From the three-page description the average reader can expect but a very vague and indefinite idea of a ruled surface. In one line the half-dual property is disposed of. Nearly five pages are given to the helicoid, six to the ruled quadrics, and three to non-ruled quadrics. At the end of the volume is a list of a dozen other texts for references; all of them have been reviewed in the BULLETIN.

While it would certainly be desirable to have students of geometry in the technical schools and colleges familiar with the topics here cited, I cannot believe that the best way to accomplish that purpose is to attempt to acquire the necessary knowledge in such a condensed way.

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#### NOTES.

THE opening (January) number of volume 17 of the *Transactions of the American Mathematical Society* contains the following papers: "On functions of several complex variables," by W. F. OSGOOD; "A study of certain functional equations for the  $\vartheta$ -functions," by E. B. VAN VLECK and F. H'DOUBLER; "A set of four independent postulates for Boolean algebras," by B. A. BERNSTEIN; "Transformations of surfaces  $\Omega$  (second memoir)," by L. P. EISENHART; "On figures of equilibrium of a rotating compressible fluid mass; certain negative results," by E. J. MOULTON.