

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.

VIRGIL SNYDER.

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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.

THE concluding (December) number of volume 1 of the *Proceedings of the National Academy of Sciences* contains the following mathematical papers: "Theorem concerning the singular points of ordinary linear differential equations," by G. D. BIRKHOFF; "Definition of limit in general integral analysis," by E. H. MOORE. The volume contains in all 21 articles on mathematics.

THE following papers on mathematics or mathematical physics have recently appeared in the *Proceedings of the American Academy of Arts and Sciences*: "Geometry whose element of arc is a linear differential form, with application to the study of minimum developables," by C. L. E. MOORE, volume 50, pages 197-222; "Expansion problems with irregular boundary conditions," by DUNHAM JACKSON, volume 51, pages 381-417; "The mechanics of telephone-receiver diaphragms as derived from their motional-impedance circles," by A. E. KENNELLY and H. A. AFFEL, volume 51, pages 419-482.

ON December 30 and 31, 1915, there was held at Columbus, Ohio, the organization meeting of a new mathematical association, the call for which had been signed by 450 persons representing every state in the Union, the District of Columbia, and Canada. The object of the new Association is to assist in promoting the interests of mathematics in America, especially in the collegiate field. It is not intended to be a rival of any existing organization, but rather to supplement the Secondary Associations on the one hand, and the American Mathematical Society on the other; the former being well organized and effective in their field, and the latter having definitely limited itself to the field of scientific research. In the field of collegiate mathematics, however, there has been, up to this time, no organization and no medium of communication among the teachers, except the *American Mathematical Monthly*, which for the past three years has been devoted to this cause. The new organization, which has been named the Mathematical Association of America, has taken over the *American Mathematical Monthly* as its official journal.

There were 104 persons present at the organization meeting. The constitution and by-laws together with a full report of the proceedings have been published in the January issue of the *Monthly*. The following officers were elected: President, E. R.

Hedrick. First Vice-President, E. V. Huntington; Second Vice-President, G. A. Miller; Secretary-Treasurer, W. D. Cairns; Publication Committee, H. E. Slaughter, W. H. Bussey, and R. D. Carmichael.

These officers, together with the following, constitute the Executive Council: R. C. Archibald, Florian Cajori, B. F. Finkel, D. N. Lehmer, E. H. Moore, R. E. Moritz, M. B. Porter, K. D. Swartzel, J. N. Van der Vries, Oswald Veblen, J. W. Young, Alexander Ziwet.

At the annual meeting of the London mathematical society held November 11, the following papers were read: By G. H. HARDY, "The second theorem of consistency for summable series; Weierstrass's non-differentiable series"; by F. B. PID-DICK, "The kinetic theory of the motion of ions in gases"; by H. W. TURNBULL, "Some singularities of surfaces and their differential geometry"; by J. W. CAMPBELL, "Periodic solutions of the problem of three bodies in three dimensions"; by C. R. DINES, "Functions of positive type and related topics in general analysis"; by C. H. YEATON, "Surfaces characterized by special properties of their directrix congruences." At the meeting of December 9 the following papers were read: By H. JEFFREYS, "The vibrations of a special type of dissipative system"; by E. J. W. WHIPPLE, "Diffraction by a wedge"; by T. L. WREN, "Some applications of the two-three birational space transformation"; by T. C. LEWIS, "The circles which touch the escribed circles of a triangle."

At the meeting of the Edinburgh mathematical society on December 10 the following papers were read: "Real linear substitutions with equimodular multipliers," by D. G. TAYLOR; "On the linear differential equation of the second order," by S. BRODETSKY; "Fourier's integral," by T. A. BROWN.

THE annual meeting of the British mathematical association was held at the London day training college on January 5. The following papers were read at this meeting: By A. N. WHITEHEAD, "The aims of education, a plea for reform" and "The allowance for the earth's rotation in the theory of projectiles"; by G. W. PALMER, "The results of an investigation into the degree of accuracy that may be expected in simple arithmetical work in boys' schools"; by A. LODGE, "Discussion on the use of mathematical tables; desiderata of such tables."

THE royal society of Bologna announces the following prize problems for 1916:

“Set forth by critical and historical methods, the organic development of the theory of elliptic functions, including the different points of view under which the theory has been considered from the end of the eighteenth century to the present time. Indicate the influences which these various points of view have had on other branches of analysis.”

“From the beginning of the twentieth century it has been proposed to substitute new definitions for the classic definition of a definite integral, with the purpose of generalizing the notion of an integral and of applying it to classes of functions as extended as possible. It is proposed to submit these various definitions to a critical and historical analysis, and to recognize those definitions which one would preferably adopt together with an exhaustive justification for the choice made.”

Competing memoirs should be submitted to the secretary of the society under the usual conditions before December 31, 1916. The value of the prize is 500 lire.

THE royal medal of the Royal society of London has been awarded to Professor Sir J. LARMOR for investigations in mathematics and physics.

THE firm of Macmillan in New York announce that a book on the theory of errors and least squares, by L. D. WELD, of Coe College, Iowa, is in the press, and will be issued in February.

AT Harvard University Dr. DUNHAM JACKSON has been promoted to an assistant professorship of mathematics.

PROFESSOR P. VOGEL, of the war academy of Munich, died in October, at the age of 58 years.

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## NEW PUBLICATIONS.

### I. HIGHER MATHEMATICS.

ARCHIBALD (R. C.). Euclid's Book on Divisions of Figures (*περι διαίρεσεων βιβλίον*) with a restoration based on Woepcke's text and on the *Practica Geometriae* of Leonardo Pisano. Cambridge, University Press, 1915. 8+88 pp. 6s.