

text that by its graceful composition can hardly fail to lure the reader on to the further study of the subject. All this would have been predicted in advance of reading the *Sound* by anybody at all familiar with the author's *Hydrodynamics*.

EDWIN BIDWELL WILSON.

### NOTES.

THE opening (January number) of volume 14 of the *Transactions of the American Mathematical Society* contains the following papers: "The triad systems of thirteen letters," by F. N. COLE; "Triple system sas transformations, and their paths among triads," by H. S. WHITE; "Proof of Poincaré's geometric theorem," by G. D. BIRKHOFF; "On the existence of loci with given singularities," by S. LEFSCHETZ; "Singular multiple integrals, with applications to series," by B. H. CAMP; "Decomposition of an  $n$ -space by a polyhedron," by OSWALD VEBLEN; "On convergence factors in double series and the double Fourier series," by C. N. MOORE; "Algebraic surfaces invariant under an infinite discontinuous group of birational transformations. Second paper," by VIRGIL SNYDER; "Note on Van Vleck's non-measurable sets," by N. J. LENNES; "Some asymptotic expressions in the theory of numbers," by T. H. GRONWALL; "Determination of the finite quaternary linear groups," by H. H. MITCHELL; "On the character of a transformation in the neighborhood of a point where its Jacobian vanishes," by L. S. DEDERICK.

THE December number (volume 14, number 2) of the *Annals of Mathematics* contains the following papers: "Two theorems on conics," by S. LEFSCHETZ; "A new type of solution of Laplace's equation," by H. BATEMAN; "Involutoric circular transformations as a particular case of the Steinerian transformation and their invariant nets of cubics," by A. EMCH; "On analytic functions of constant modulus on a given contour," by T. H. GRONWALL; "Necessary and sufficient conditions for the interchange of limit and summation in the case of sequences of infinite series of a certain type," by T. H. HILDEBRANDT; "A simple proof of a fundamental theorem in the theory of integral equations," by MAXIME BÔCHER; "An application of modular equations in analysis situs," by O. VEBLEN.

DURING the year 1912 the American Academy of Arts and Sciences published in its *Proceedings* (volumes 47 and 48) the following papers wholly or largely mathematical: "On an electromagnetic theory of gravitation," by D. L. WEBSTER; "An algebra of plane projective geometry," by H. B. PHILLIPS and C. L. E. MOORE; "A theory of linear distance and angle," by H. B. PHILLIPS and C. L. E. MOORE; "The impedance of telephone receivers as affected by the motion of their diaphragms," by A. E. KENNELLY and G. W. PIERCE; "The space-time manifold of relativity. The non-euclidean geometry of mechanics and electromagnetics," by E. B. WILSON and G. N. LEWIS; "On the existence and properties of the ether," by D. L. WEBSTER. These make a total of about 300 pages. Each article is published separately and can be obtained by purchase direct from the Academy, 28 Newbury Street, Boston, if authors are unable to supply copies.

AT the Cleveland meeting of the American association for the advancement of science Dr. FRANK SCHLESINGER, of Allegheny Observatory, was elected vice-president and Professor F. R. MOULTON secretary of Section A. Professor J. C. FIELDS was elected member of the sectional committee and Professor T. M. FOCKE member of the general committee. The next meeting of the Association will be held at Atlanta, Ga., in convocation week under the presidency of Professor E. B. WILSON, of Columbia University.

THE following papers were presented at the December meeting of the London mathematical society: "A connection between the functions of Hermite and Jacobi," by H. E. J. CURZON; "The equations of the theory of electrons transformed relative to a system in accelerated motion," by H. R. HASSÉ; "The convergence of series of orthogonal functions," by E. W. HOBSON; "Derivatives and their primitive functions" and "Functions and their associated sets of points," by W. H. YOUNG; "Mersenne's primes," by J. McDONNELL; "The Diophantine equation  $y^2 = x^3 + k$ ," by L. J. MORDELL.

WITH the support of the Christiania and Leipzig Academies, the firm of B. G. Teubner contemplates the publication by subscription of the Collected Works of SOPHUS LIE, edited by FRIEDRICH ENGEL. It is proposed to issue the Works in seven large octavo volumes, averaging about 600 pages, at a

total cost of about 160 Marks (single signatures of 16 pages at 60 Pf.). The plan is conditioned on the receipt, before April 1, 1913, of a sufficient number of subscriptions to justify the great expense involved. In view of the importance of Lie's work and ideas and of the fact that some of his papers are not easily accessible, it is hoped that this proposed monument to his genius may receive the necessary support. Subscriptions should be sent to B. G. Teubner, Leipzig. Upon the appearance of the first volume, the price will be considerably increased.

THE following changes have been announced in the faculty of science of the University of Paris: The chair of physical astronomy has been renamed the "chair of astronomy"; the chair of mathematical astronomy and celestial mechanics has been renamed the "chair of analytic and celestial mechanics" and Professor P. APPELL has been appointed to it; Professor P. PAINLEVÉ will occupy the chair of rational mechanics vacated by Professor Appell; the chair in general mathematics, vacated by Professor Painlevé, will not be filled for the present.

PROFESSOR G. MITTAG-LEFFLER, of the University of Stockholm, and Professor H. A. SCHWARZ, of the University of Berlin, have been elected corresponding members of the Munich academy of science.

PROFESSOR J. HADAMARD, of the Collège de France, has been elected a member of the Paris academy of science in succession to the late Professor H. POINCARÉ.

PROFESSOR F. ENRIQUES, of the University of Bologna, has been elected member and Professor E. PICARD, of the University of Paris, foreign associate of the Italian Society of Sciences (the XL).

PROFESSOR G. HAMEL, of the German technical school at Brünn, has been appointed professor of mathematics in the technical school at Aachen.

DR. TH. VON KARMAN, of the University of Göttingen, has been appointed professor of mathematics in the forestry school at Schemnitz (Hungary).

MR. G. RUHM has been appointed professor of mathematics in the Agricultural College at Bonn-Poppelsdorf.

DR. L. CRELIER, of the University of Bern, has been promoted to an associate professorship in geometry.

MR. E. S. PALMER has been appointed professor of mathematics in Rollins College, Winter Park, Fla.

AT the University of Manitoba, Mr. L. A. H. WARREN has been promoted to an assistant professorship in mathematics.

SIR G. H. DARWIN, Plumian professor of astronomy and experimental philosophy in the University of Cambridge, died December 7 at the age of sixty-seven years.

PROFESSOR WILHELM FIEDLER died November 19, 1912 at the age of 84 years. Professor Fiedler was connected with the technical school of Zurich for 40 years, retiring in 1907.

THE death is announced of Dr. R. SCHIMMACK, of the University of Göttingen, at the age of 31 years.

PROFESSOR WILLIAM J. VAUGHN, head of the departments of mathematics and astronomy at Vanderbilt University, died December 16, at the age of seventy-eight years. Professor Vaughn graduated from the University of Alabama in 1857 and was instructor and professor in that institution from 1860 to 1865 and again from 1878 to 1882. At Vanderbilt he held the chair of mathematics since 1882 and that of astronomy since 1895. He had been a member of the American Mathematical Society since 1900.

CATALOGUE of second hand mathematical books: R. Friedländer und Sohn, Karlstrasse 11, Berlin, catalogue 480, history and older authors to the time of Euler, 22 pp.—A. Hermann et Fils, 6 Rue de la Sorbonne, Paris, catalogue 118, 4465 titles.