

## NOTES.

THE July number (volume 4, number 3) of the *Transactions* of the AMERICAN MATHEMATICAL SOCIETY contains the following papers: "On the point-line as element of space: a study of the corresponding bilinear connex," by E. KASNER; "On the formation of the derivatives of the lunar coördinates with respect to the elements," by E. W. BROWN; "On reducible groups," by S. EPSTEEN; "Theory of linear associative algebra," by J. B. SHAW; "Projective coördinates," by F. MORLEY; "On an extension of the 1894 memoir of Stieltjes," by E. B. VAN VLECK; "On the variation of the arbitrary and given constants in dynamical equations," by E. W. BROWN; "The primitive groups of class  $2p$  which contain a substitution of order  $p$  and degree  $2p$ ," by W. A. MANNING; "Complete sets of postulates for the theory of real quantities," by E. V. HUNTINGTON.

THE July number (volume 25, number 3) of the *American Journal of Mathematics* contains: "Isothermal-conjugate systems of lines on surfaces," by L. P. EISENHART; "Some differential equations connected with hypersurfaces," by G. O. JAMES; "On the forms of sextic scrolls of genus greater than one," by VIRGIL SNYDER; "Geometry on the cuspidal cubic cone," by F. C. FERRY.

THE concluding (July) number of volume 4 of the *Annals of Mathematics* contains: "On the characteristics of differential equations, Part II," by E. R. HEDRICK; "On the uniformity of the convergence of certain absolutely convergent series," by M. BÔCHER; "The integral as the limit of a sum, and a theorem of Duhamel," by W. F. OSGOOD; "On a general relation of continued fractions," by R. E. MORITZ; "Note on the equilateral hyperbola," by J. A. VAN GROOS; "A new proof of the generalized Wilson's theorem," by G. A. MILLER; "A sufficient condition for the maximum number of imaginary roots of an equation of the  $n$ th degree," by E. B. VAN VLECK.

AT the Fourth Colloquium, to be held in connection with the coming summer meeting of the AMERICAN MATHEMATICAL

SOCIETY (cf. previous announcement, BULLETIN, current volume, page 384) Professor H. S. WHITE will give a course of three lectures on "Linear systems of curves on algebraic surfaces." The Colloquium will open on Wednesday morning, September 2, and close on the following Saturday morning. The twelve lectures given in the three courses will be distributed as follows: two on each morning, Wednesday to Saturday inclusive, and two on each of two afternoons. The usual charge of three dollars will be made to those attending any or all the courses.

At the meeting of the London mathematical society held on April 16, 1903, the following papers were read: By Mr. C. S. JACKSON: "Exhibition of the logo-logarithmic slide rule"; by Mr. R. F. GWYTHYR: "On the deduction of Schlömilch's series from a Fourier series, and its development into a definite integral"; by Mr. E. T. WHITTAKER: "On those functions which are defined by definite integrals with not more than two singularities"; by Professor A. E. H. LOVE: "Note on exact solutions of the problem of the bending of an elastic plate under pressure"; by Professor A. LODGE: "Relations between points (in a plane) having conjugate complex coördinates."

At the meeting held on May 14, the following papers were read: By Dr. H. F. BAKER: (1) On the definiteness of quadratic forms with imaginary coefficients; (2) On a certain form of logical argument which occurs in the proofs of several fundamental theorems of pure mathematics; (3) On the summation of Neumann's series representing a potential defined by boundary values; (4) On the formation of the variant equation in the theory of differential equations; (5) On some points in the theory of continuous groups; by Lieut.-Col. A. CUNNINGHAM: Announcement of the discovery made jointly by Rev. J. Cullen, Mr. A. E. Western, and the author, of seven new factors of Fermat's numbers ( $2^{2^n} + 1$ ); by Mrs. YOUNG: The surface representing all right-angled spherical triangles; by Mr. W. H. BUSSEY: Generational relations defining an abstract simple group of order 32,736; by Mr. W. H. YOUNG: (1) Skew surfaces contained in a linear congruence; (2) Closed sets of points and Cantor's numbers.

THE National academy of sciences held its annual meeting at Washington, D. C., April 21-23. No mathematical papers were presented at this meeting. Officers for the ensuing year are

as follows : president, ALEXANDER AGASSIZ ; vice-president, IRA REMSEN ; foreign secretary, SIMON NEWCOMB ; home secretary, ARNOLD HAGUE ; treasurer, S. F. EMMONS. Professor NEWCOMB was also appointed delegate to represent the Academy at the meeting of the international association of academies held at London in June. Professor E. PICARD, of the University of Paris, was elected foreign associate of the Academy.

AT its second general meeting, held at the Armour Institute of Technology, Chicago, April 10–11, the Central association of physics teachers was reorganized as the Central association of science and mathematics teachers. The mathematical section held two sessions, devoted to the discussion of improved methods of teaching elementary mathematics. One of the sessions was held jointly with the Chicago Section of the AMERICAN MATHEMATICAL SOCIETY, as noted in the Secretary's report, page 533 of the present number of the BULLETIN.

THE German mathematical society is making active preparations for the third international congress of mathematicians to be held at Heidelberg, August 8–13, 1904, under the presidency of Professor H. WEBER. The congress will divide into six sections devoted respectively to arithmetic and algebra, analysis, geometry, applied mathematics, history of mathematics, and teaching of mathematics. Exhibitions of models and of mathematical literature have been added to the programme. The government of Baden has appropriated 3,000 marks toward the financial support of the congress. Cards entitling the holder to general participation in the various events of the congress will be issued on payment of 20 marks. Each holder is then entitled to obtain additional cards for members of his family for 10 marks each. A daily bulletin will be issued during the meeting, giving besides the day's programme a list of those in attendance and their lodgings.

THE universities below offer during the academic year 1903–1904 advanced courses in mathematics as follows :

COLUMBIA UNIVERSITY. — By Professor T. S. FISKE : Advanced calculus, three hours ; Theory of functions of a complex variable, three hours. — By Professor F. N. COLE : Theory of groups, three hours ; Theory of invariants, three hours. — By Professor R. S. WOODWARD : Advanced theoretical mechanics, two hours ; Theory of the potential function, two hours ; Mathe-

mathematical theory of elasticity, two hours. — By Professor D. E. SMITH : History of mathematics, two hours. — By Professor J. MACLAY : Application of the calculus to surfaces and curves in space, three hours. — By Professor C. J. KEYSER : Modern theories in geometry, three hours. — By Dr. G. H. LING : Infinite series and products, two hours. — By Dr. E. KASNER : Transformations and continuous groups, two hours.

JOHNS HOPKINS UNIVERSITY.— By Professor F. MORLEY : Higher geometry, three hours ; Vector analysis, two hours, first half year ; Kinematics, two hours, second half-year. — By Dr. A. COHEN : Partial differential equations, two hours ; Differential geometry, two hours, first half-year ; Theory of numbers, two hours, second half-year ; Elementary theory of functions, two hours.

THE memorial of the late Professor Sir G. G. STOKES, planned by the Royal Society and Cambridge University, is to take the form of a medallion portrait to be placed in Westminster Abbey.

THE Adams prize for 1903 (see BULLETIN, volume 7, page 321) was not awarded.

PROFESSOR M. NOETHER, of the University of Erlangen, has been elected corresponding member of the Paris academy of sciences.

PROFESSOR G. MITTAG-LEFFLER has been elected honorary member of the Finnish scientific society of Helsingfors.

THE Redpath professorship of mathematics at McGill University has been filled by the appointment of Professor JAMES HARKNESS, of Bryn Mawr College. Dr. H. M. TORY, of McGill University, has been promoted to an associate professorship of mathematics.

PROFESSOR FLORIAN CAJORI, of the department of mathematics at Colorado College, has been elected dean of the school of engineering of that institution. He has also been appointed one of the American representatives of the international commission on the organization of a congress of the history of sciences, referred to on page 509 of the current volume of the BULLETIN.

AT Purdue University Professor A. M. KENYON has been promoted to a full professorship of mathematics. Mr. W. H. BATES has been appointed instructor in mathematics.

AT the University of Nebraska, Dr. C. C. ENGBERG has been promoted to an adjunct professorship of mathematics.

AT Cornell University Dr. J. I. HUTCHINSON and Dr. VIRGIL SNYDER have been promoted to assistant professorships of mathematics.

MR. C. H. ASHTON has been appointed to an assistant professorship of mathematics in the University of Kansas.

MR. L. D. AMES has been appointed to an instructorship in mathematics in the University of Missouri.

MR. CLIFFORD GRAY and Mr. E. A. HOOK have been appointed instructors in mathematics at Columbia University.

DR. CARL STROMQUIST has been appointed to an instructorship in mathematics in the Greene School of Science of Princeton University.

MR. A. H. WILSON, of Princeton University, has received leave of absence and will spend the coming year at the University of Greifswald.

THE death of Professor C. A. BJERKNES, of the University of Christiania, is announced.

PROFESSOR L. GEGENBAUER, of the University of Vienna, died on June 3, at the age of fifty-four.

THE following catalogues of second-hand mathematical works have recently appeared : Burgersdijk and Niermans, Leyden, a few entries ; Adolf Geering, Bäümleingasse 10, Basel, catalogue no. 175, a few entries ; Ferdinand Schöningh, Lortzingstr. 2, Osnabrück, catalogue no. 43, 176 entries ; W. Junk, Berlin, N. W., 5, a catalogue of 42 pages, representing a library of mathematical, physical, and astronomical works to be sold *en bloc* for 10,000 marks ; Oskar Schack, Königsstrasse 15, Leipzig, catalogue no. 98, 401 entries in mathematics and physics ; Paul Geuthner, 10 rue de Buci, Paris, catalogue no. 5, 241 entries, writers before 1800, also 91 portraits ; Oskar Gerschel, 16 Calwerstr., Stuttgart, catalogue no. 27, 480 entries.