example, those arising in trigonometry, the principal relations between the elliptic integrals (Jacobian notation), and series for frequently occurring functions. In the last the author has been careful to state the limits within which the expansions are valid. At the end of the book are several numerical tables which include, beside the usual logarithmic and trigonometric ones, some four place tables of the elliptic integrals and of the gamma functions. In future editions a table of contents might be added.

Ernest W. Brown.

NOTES.

Attention is called to the change in the hours of meeting of the American Mathematical Society. Hereafter the morning session will open at 11 o'clock and the afternoon session at 2 o'clock. The Council will meet at 10:15 a.m.

A new list of members of the Society will be issued in January. Forms for furnishing necessary information have been sent to each member, and a prompt response will be of great assistance to the Secretary.

A meeting of the National academy of sciences was held at Columbia University, November 14-16, pure and applied mathematics being represented by Professors Cleveland Abbe, C. S. Hastings, E. S. Holden, A. E. Michelson, Simon Newcomb, Mr. C. S. Peirce, and Professor R. S. Woodward. The following mathematical papers were presented at the meeting: Professor R. S. Woodward: "The statical properties of the atmosphere," "A direct proof of the effect on the eulerian cycle of an inequality in the equatorial moments of inertia of the earth;" Mr. C. S. Peirce: "The definition of continuity," "Topical geometry in general," "The map-coloring problem."

The preliminary programme for the November meeting of the London mathematical society announced the following mathematical papers: "Note on Clebsch's second method for the integration of a Pfaffian equation," by Mr. J. Brill; "On the forms of lines of force near a point of equilibrium"; "The reduction of conics and quadrics to their principal axes by the Weierstrassian method of reducing quadratic forms;" and "On the reduction of a linear substitution to a canonical form, with applications to linear differ-
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fessor A. S. Mackenzie; The wave-theory of light, by Professor Henry Crew. The first of these is already in print.

Paris Faculty of Sciences. The following mathematical courses are offered during the first semester of the current academic year, each course occupying two hours per week:—By Professor G. Darboux: Fundamental principles of infinitesimal geometry.—By Professor E. Goursat: Definite integrals and analytic functions.—By Professor P. Appell: General laws of equilibrium and of motion.—By Professor H. Poincaré: The lunar theory.—By Professor V. J. Boussinesq: Mechanical properties and motions of fluids.—By Professor G. Koenigs: Kinematics of rigid or deformable bodies, applications to the study of machines.—Unassigned: Elements of analysis and mechanics.—By M. H. Andoyer: General theory of planetary perturbations. Conferences will be conducted by Messrs. Raffy, Hadamard, Puiseux, Andoyer, and Blutel.

For the second semester the following courses are announced:—By Professor É. Picard: Partial differential equations.—By Professor E. Goursat: Differential equations.—By Professor P. Appell: General laws of motion of systems; Analytic mechanics; Hydrostatics and hydrodynamics.—By Professor Boussinesq: Theory of waves.—By Professor Koenigs: Theory of machines.—By M. Raffy: Differential equations and their applications to mechanics and physics.

Cambridge University. Dr. E. J. Routh and Mr. A. N. Whitehead are moderators and Messrs. E. G. Gallop and P. C. Gaul examiners for part I. of the mathematical tripos 1900; the examiners for part II. of the same year are Professor W. Burnside and Messrs. H. F. Baker, G. T. Walker and H. M. Macdonald. At St. John's College, Mr. W. A. Houston, fifth wrangler 1896 and Smith's prize-man, 1898, has been elected to a fellowship in mathematics, and Mr. F. W. B. Frankland, third wrangler in 1897, has received a similar appointment at Clare College.

A legacy left by one of its members, S. Thomaso Vallassi, has enabled the Turin academy of sciences to establish a prize of thirty thousand lire to be conferred on the Italian or foreign scientist who shall have published during the interval between January 1, 1899, and December 31, 1902, the most remarkable and celebrated work on any of the
physical sciences, interpreting the phrase "physical sciences" in its largest sense. The prize will be awarded one year after the expiration of this interval. Neither resident nor non-resident national members of the Turin academy are eligible to the competition. No manuscripts will be received, nor will competing works be returned. The president of the academy is S. GIUSEPPE CARLE and S. A. NAGGARI is secretary of the section of the physical sciences, mathematical and natural.

THE subject of Professor L. FUCHS’s inaugural address as rector of the University of Berlin for the current year was "The reciprocal relations of pure science and technology."

LORD RAYLEIGH, professor of natural philosophy in the Royal Institution of Great Britain, received the Copley medal at the anniversary meeting of the London Royal Society this year for his investigations in mathematical and physical science.

MR. R. F. MUIRHEAD has been elected president of the Edinburgh mathematical society for the coming year.

DR. J. B. FAUGHT has been promoted from an instructorship to an assistant professorship at the University of Indiana.

DR. H. LIEBMANN has qualified as privat docent in mathematics at the University of Koenigsberg.

NEW PUBLICATIONS.

I. HIGHER MATHEMATICS.


BIANCHI (L.). Lezioni sulla teoria dei gruppi di sostituzioni e delle equazioni algebriche secondo Galois. Pisa, 1899. 8°. 283 pp. Fr. 10.00


BLUMENTHAL (O.). Ueber die Entwicklung einer willkürlichlichen Funktion nach den Nennern des Kettenbruches für \( \int_{-\infty}^{\infty} \frac{\phi(\xi)}{\xi - z} d\xi \). (Diss.) Göttingen, 1898. 8vo. 57 pp.

BOBYNIN (V. V.). The section of mathematics, astronomy and physics at the first nine meetings of the Association of Russian naturalists.