

and metric geometry. This should give an idea of the scope of the book. Dealing as it does with an order of ideas that is familiar to the readers of these pages, a more detailed analysis of the contents would be out of place. We regret the absence in the book of an alphabetical subject index.

J. W. YOUNG.

NOTES.

THE Annual Register of the AMERICAN MATHEMATICAL SOCIETY is now in preparation and will be issued in January. Blanks for furnishing necessary information have been sent to the members. Early notice of any changes since the issue of the last Register will greatly facilitate the work of the Secretary.

THE Chicago Section of the AMERICAN MATHEMATICAL SOCIETY will hold two joint sessions with Sections A and D of the American association for the advancement of science on Monday and Tuesday, December 30–31, 1907, at the University of Chicago. The speakers on Monday afternoon will consider the present status of the teaching of mathematics to students of engineering, both in this country and abroad. On Tuesday morning there will be a symposium on the topic: "What is needed in the teaching of mathematics to students of engineering?" The topics included will be (a) What branches of mathematics are desirable? (b) To what extent should the various branches be taught? (c) What methods of presentation are needed? (d) What are the chief ends to be attained?

Prominent practical engineers and teachers of mathematics and engineering will take part in the programme. There will be a banquet to engineers and mathematicians on Monday evening. Further details will be announced in the printed program, which will be distributed well in advance of the meeting.

TITLES and abstracts of papers intended for presentation before Section A of the American association for the advancement of science at the coming Chicago meeting should be sent to Professor G. A. MILLER, 907 West Nevada street, Urbana, Ill., who has been appointed secretary of Section A to succeed Professor L. G. WELD, who has retired after several years' service in that office.

THE second regular meeting of the Southwestern Section of the AMERICAN MATHEMATICAL SOCIETY will be held at Washington University, St. Louis, November 30, 1907. A meeting of the Central association of teachers of science and mathematics will be held on Friday and Saturday of the same week at the McKinley high school. The programmes have been adjusted for the convenience of those who desire to attend both meetings.

THE concluding (October) number of volume 8 of the *Transactions* of the AMERICAN MATHEMATICAL SOCIETY contains the following papers: "The expansion of a function in terms of normal functions," by MAX MASON; "Sur les opérations linéaires (troisième note)," by MAURICE FRÉCHET; "The elliptic integral in electromagnetic theory," by A. G. GREENHILL; "Notes and errata, volume 8."

Professor MAXIME BÔCHER has been elected editor in chief of the *Transactions*, succeeding Professor E. H. MOORE, who has held this office since the journal was founded in 1899.

THE opening (October) number of volume 9 of the *Annals of Mathematics* contains the following papers: "The calculation of logarithms," by J. K. WHITEMORE; "Cubic curves in reciprocal triangular situation," by J. F. MESSICK; "The groups generated by two operators such that each is transformed into its inverse by the square of the other," by G. A. MILLER.

AT Parma, September 23-28, the first regular meeting was held and the organization perfected of the Italian association for the advancement of science (Società italiana per il progresso delle scienze). It is composed of fourteen sections, the first including mathematics, astronomy and geodesy. The first president of the association is Professor V. VOLTERRA, of the University of Rome, with Professor M. CERRUTI, of the University of Rome, as president of section A. The following mathematical papers were read at this meeting: By U. AMALDI, "Lie's theory of continuous groups of transformations" (report); by E. BORTOLOTTI, "Plans for the publication of the works of Ruffini"; by P. BURGATTI, "Some points in the theory of differential equations"; by G. FUBINI, "Recent methods for the solution of Dirichlet's problem"; by A. GARBASSO, "Mirage and the optics of heterogeneous media"

(report); by G. LAURICELLA, "On functional equations"; by T. LEVI-CIVITA, "On electromagnetic mass" (report); by R. MARCOLONGO, "Mathematical theory of elasticity"; by C. SOMIGLIANA, "On the mathematical preparation of students of engineering"; by O. TEDONE, "Differential equations of mathematical physics"; by G. VAILATI, "Mathematical instruction in the middle schools."

THE educational museum of Teacher's College, Columbia, has prepared a second list of lantern slides illustrating the development of mathematics. Of the present series, Nos. 120-145 are pictures of sample pages of old text-books, etc., Nos. 145-207, old mathematical instruments, Nos. 208-232, modern mechanical calculation, Nos. 253-265, the development of analytics and the calculus. The 160 plates of the present series can be obtained on the same terms as those of the earlier one (see BULLETIN, vol. 13, page 410).

AMONG the books just issued in Professor Cattell's Library of philosophy (Scribner, New York) are translations by Professor G. B. HALSTED of H. Poincaré's two recent monographs: Science and hypothesis (196 pages) and The value of science (147 pages).

THE following books are announced to appear this fall: M. BÔCHER, Higher algebra, Macmillan; E. J. TOWNSEND, Differential and integral calculus, Henry Holt; W. J. BERRY, Differential equations of the first species, Van Nostrand.

UNIVERSITY OF PARIS. *First semester*, beginning November 4. — By Professor G. DARBOUX: Deformation of surfaces, two hours. — By Professor E. GOURSAT: Elements of the theory of analytic functions, two hours. — By Professor P. PAINLEVÉ: General laws of motion and equilibrium, two hours. — By Professor P. APPELL and Dr. E. BLUTEL: General course in mathematics, one hour. — By Professor L. RAFFY: History and methods of analytic geometry, two hours. — By Professor H. POINCARÉ: Theory of the moon, two hours. — By Professor J. BOUSSINESQ: Analytic theory of heat, two hours. — By Professor G. KOENIGS: Thermodynamic theory of machines, two hours. — By Professor E. BOREL: Theory of probabilities, two hours. — By Professor J. TANNERY: Differential and integral calculus, two hours. — By Professor J.

HADAMARD: General mathematics, two hours. Conferences, two hours per week, will be held by Professors Raffy, Hadamard, Puiseux and Drs. Blutel, Servant. *Second semester*, beginning March 10, 1908.—By Professor E. PICARD: Principal types of differential equations of mathematical physics, two hours.—By Professor E. GOURSAT: Partial differential equations, two hours.—By Professor P. PAINLEVÉ: Analytic mechanics, two hours.—By Professor P. APPELL: Analysis and mechanics, two hours.—By Professor L. RAFFY: Differential properties of space curves, two hours.—By Professor P. ANDOYER: Mathematical astronomy, two hours.—By Professor J. BOUSSINESQ: Theory of periodic vibrations, two hours.—By Professor G. KOENIGS: Kinematics, two hours.—By Professor J. TANNERY: Differential and integral calculus, two hours.—By Professor E. BOREL: Mechanics, two hours.—By Professor J. HADAMARD: General mathematics, two hours. The last three courses will be given in the Ecole normale both semesters. Mathematical conferences same as first semester.

PROFESSOR G. MORERA, of the University of Turin, has been elected a member of the royal academy dei Lincei at Rome.

PROFESSOR E. PASCAL, of the University of Pavia, has been appointed professor of higher analysis at the University of Naples.

PROFESSOR G. TORELLI, of the University of Palermo, has been appointed professor of the calculus at the University of Naples.

DR. G. VITALI has been appointed docent in the calculus at the University of Genoa.

AT the recent annual meeting of the Cambridge philosophical society, Dr. E. W. HOBSON was reelected president and Dr. E. W. BARNES secretary.

PROFESSOR H. M. TORY, of McGill University, has resigned to accept the presidency of the new provincial university of Alberta, Canada.

DR. R. C. MACLAURIN, of the University of Wellington, New Zealand, has been appointed professor of mathematical physics at Columbia University.

DR. J. A. EIESLAND, of the U. S. Naval Academy, has been appointed professor of mathematics at the University of West Virginia.

DR. S. G. BARTON, of the University of Pennsylvania, has been appointed to the chair of mathematics in the Clarkson School of Technology, Potsdam, N. Y.

DR. J. F. MESSICK, late of Williams College, has been appointed professor of mathematics at Randolph Macon College, Va.

DR. W. A. MANNING, of Stanford University, has been promoted to an assistant professorship of mathematics.

AT the University of Maine, Mr. H. R. WILLARD has been promoted to an assistant professorship of mathematics.

AT Yale University, Mr. E. W. SHELDON, Mr. H. T. BURGESS and Mr. J. C. RAYWORTH have been appointed instructors in mathematics.

AT the University of California, Professors G. C. EDWARDS, C. A. NOBLE, and A. W. WHITNEY have been granted leave of absence for one year. Mr. A. J. CHAMPREUX has been promoted to an instructorship. Messrs. J. LIPKE, J. H. TENER, and B. A. BERNSTEIN have been appointed instructors, and Messrs. E. F. A. CAREY and H. W. STAGER assistants.

THE following academic changes are announced: Mr. E. I. SHEPARD has returned as instructor in Williams College. Miss C. BUSBEE has been granted leave of absence from Mount Holyoke College, Mass., for further study. Miss E. N. MARTIN has returned to Mount Holyoke as instructor in mathematics. Miss A. L. VAN BENSCHOTEN has returned to her professorship of mathematics at Wells College, Aurora, New York.

DR. F. H. LOUD, professor of mathematics and astronomy at Colorado College since 1877, has retired from active teaching.

PROFESSOR MAURICE LOEWY, director of the Paris observatory and professor of astronomy at the University of Paris, died October 15 at the age of 74 years.

RECENT catalogues of second-hand books: A. Lorentz, 10 Kurprinzstrasse, Leipzig, catalogue 165, logic, about 3,000 titles.