

The appendices contain an account by M. G. Bigourdan of the mean temperature in different parts of France. The subject is illuminated by numerous diagrams showing the mean temperatures, daily, monthly, annually, winter, etc. M. P. Hatt gives an elementary account of the method of least squares illustrated by numerical examples. One of the best features is the full index, which enables the reader to find anything desired without trouble. For the first time the phenomena are given in legal time, that is, Greenwich time, which is nine minutes, twenty-one seconds behind Paris mean time. The change is due to a law passed on March 9, 1911, a convenience for which the astronomer as well as the traveller is grateful.

ERNEST W. BROWN.

NOTES.

THE nineteenth summer meeting of the AMERICAN MATHEMATICAL SOCIETY will be held at the University of Pennsylvania on Tuesday and Wednesday, September 10-11, 1912.

THE March number (volume 13, number 3) of the *Annals of Mathematics* contains the following papers: A third generalization of the groups of the regular polyhedrons," by G. A. MILLER; "A type of homogeneous linear differential equation," by L. A. HOWLAND; "On the complete logarithmic solution of the cubic equation," by R. E. GLEASON; "The circular numbers for a plane curve," by H. T. BURGESS; "On the sum of a certain triple series," by E. W. BROWN; "A theorem in difference equations on the alternations of nodes of linearly independent solutions," by E. J. MOULTON; "Periodic quadratic transformations in the plane," by VIRGIL SNYDER; "On the reduction of a system of linear differential forms of any order," by A. DRESDEN; "On the functional equation for the sine. Additional note," by E. B. VAN VLECK.

AT the meeting of the London mathematical society held on February 8 the following papers were read: By A. C. DIXON, "Exceptions to extensions of a theorem of Jacobi's"; by W. BURNSIDE, "Some properties of groups whose orders are powers of primes"; by G. H. HARDY and J. E. LITTLEWOOD, "Some results concerning diophantine approximations."

At the meeting of the Edinburgh Mathematical Society on March 8, the following papers were read: By G. D. C. Stokes, "An analytical study of plane rolling mechanisms"; by C. Tweedie, "The fundamental formula for the area of a triangle in analytical geometry"; by E. M. Horsburgh, "Proof of a fundamental relation between the bending moment and load curves"; by H. Levy, "An extension of Clairaut's differential equation."

THE annual meeting of the British association for the advancement of science will be held at Dundee, Scotland, September 4-10, under the presidency of Professor E. A. Schäfer. Professor H. L. CALLENDAR is chairman of section A, mathematical and physical sciences.

THE thirty-ninth summer meeting of the French association for the advancement of science will be held at Toulouse, August 1-7, under the presidency of Professor Gariel. Professor E. BELOT is chairman of the section of pure and applied mathematics.

IN response to the wish expressed at the Milan meeting of the international commission on the teaching of mathematics for a supply depot in which all the publications of the commission can be purchased, the firm of Georg et Cie, Geneva, Switzerland, has undertaken to provide such a repository, and to keep in stock a sufficient supply to meet all regular demands. The report of the Milan meeting was published in the *Enseignement Mathématique*, November 11, 1911. It contains a list of all the publications of the commission which had appeared at that time, together with their prices. This arrangement, and the provision for receiving the reports of the American sub-commission from the Bureau of Education in Washington furnish an excellent opportunity to prepare for an intelligent understanding of the full report to be laid before the fifth international congress of mathematicians in Cambridge next August.

REPORTS of American committees XI, "Mathematics at West Point and Annapolis," and VI, "Mathematics in the technical secondary schools in the United States" of the International commission on the teaching of mathematics have just been issued by the United States bureau of edu-

cation in Washington. Copies of these and the preceding reports may be secured gratis on application.

THE twelfth regular meeting of the Rochester section of the association of teachers of mathematics in the Middle States and Maryland was held at Buffalo, March 9, 1912. The following papers were read: "Ways in which teachers of mathematics may grow," by C. N. Millard, with formal discussion by E. C. Brown and G. G. McEwen; "Notes on teaching radicals," by Miss M. M. Wardwell, with formal discussion by Miss M. E. Crofts and Miss J. C. Davis; "Suggestions on graphs in elementary algebra," by W. Betz; "Graphs in advanced secondary mathematics," by A. S. Gale. The association has other sectional organizations in New York, Philadelphia, and Syracuse, in all of which regular meetings are held.

THE firm of B. G. Teubner, in Leipzig and Berlin, has just issued a 64 page catalogue of mathematical models prepared by H. Wiener and P. Treutlein. The first part consists of 106 wire models representing quadric surfaces, helicoids, space curves, and linkages. The second part enumerates an extensive collection of wire frames and wooden models for use in solid geometry and in elementary projective geometry.

THE following university courses in mathematics are announced for the summer semester, April 15 to August 15:

UNIVERSITY OF MUNICH. — By Professor F. LINDEMANN: Integral calculus, five hours; Theory of linear differential equations and conformal representation, four hours; Quadrature of the circle, two hours; Seminar, two hours. — By Professor A. VOSS: Analytic geometry of space, four hours; Analytic mechanics, II, four hours; Seminar, two hours. — By Professor A. PRINGSHEIM: Elementary theory of ordinary differential equations, four hours; Analytic theory of numbers, four hours. — By Professor H. BRUNN: Analytic geometry and analysis situs, two hours. — By Professor K. DOEHLEMANN: Descriptive geometry, II, with exercises, six hours; Synthetic geometry, II, four hours; Imaginary elements in geometry, one hour. — By Professor G. HARTOGS: Differential calculus, five hours. — By Dr. K. BÖHM: Selected chapters of differential geometry, three hours; Theory of probabilities with application to insurance, three hours.

UNIVERSITY OF STRASSBURG.—By Professor H. WEBER: Definite integrals and introduction to the theory of functions, four hours; Algebra, two hours; Seminar, two hours.—By Professor F. SCHUR: Theoretical mechanics, four hours; Ordinary differential equations, two hours; Seminar, two hours.—By Professor M. SIMON: Stereometry of non-euclidean geometry, one hour.—By Professor J. WELLSTEIN: Elliptic and hyper-elliptic functions, four hours; Theory of invariants, two hours; Seminar, two hours.—By Professor R. v. MISES: Hydromechanics, three hours; Differential and integral equations of mechanics, three hours; Seminar, two hours.—By Dr. P. EPSTEIN: Introduction to higher mathematics, two hours; Seminar, two hours.—By Dr. A. SPEISER: Theory of algebraic number fields, two hours; Recent problems in the theory of groups, two hours; Proseminar, two hours.

DR. M. RIESZ has been appointed docent in mathematics at the University of Stockholm.

DR. SLESZYNSKI has been appointed docent in mathematics at the University of Cracow.

DR. V. POLLACK, of the technical school at Vienna, has been promoted to an associate professorship of geodesy.

DR. E. T. WHITTAKER, royal astronomer of Ireland, has been appointed professor of mathematics at the University of Edinburgh, as successor of the late Professor G. Chrystal.

AT Purdue University Dr. E. G. BILL has been promoted to an assistant professorship of mathematics.

RECENT catalogues of second-hand books:—A. Hermann et Fils, 6 rue de la Sorbonne, Paris, catalogue 113, 1900 titles in mathematics, physics, and mechanics.—W. Heffer and Sons, Cambridge, England, catalogue 88, 2100 titles in mathematics and science.—Oswald Weigel, Königstrasse 1, Leipzig, catalogue 25, 600 titles in exact sciences.—Joseph Baer und Co., Hochstrasse 6, Frankfort, catalogue 599, periodicals 1700 titles.