

C.G.S. systems of units and the dimensions of the quantities occurring in electromagnetism is worthy of the rest of the book and a fitting end to a work which has seemingly no fault and a multitude of virtues.

E. B. WILSON.

NOTES.

AT the fourth regular meeting of the San Francisco Section of the AMERICAN MATHEMATICAL SOCIETY the following officers were elected for the year 1904: chairman, Professor R. E. ALLARDICE; secretary, Professor G. A. MILLER; members of the programme committee, Professors M. W. HASKELL, IRVING STRINGHAM, and G. A. MILLER.

THE opening (January) number of volume 5 of the *Transactions* of the AMERICAN MATHEMATICAL SOCIETY contains the following papers: "The subgroups of order a power of 2 of the simple quinary orthogonal group in the Galois field of order $p^n = 8l \pm 3$," by L. E. DICKSON; "On certain invariants of two triangles," by J. G. HUN; "Isothermal systems of geodesics," by E. KASNER; "Zur Gruppentheorie, mit Anwendungen auf die Theorie der linearen homogenen Differentialgleichungen," by A. LOEWY; "On the group of the sign $(0, 3; 2, 4, \infty)$ and the functions belonging to it," by J. W. YOUNG; "On the definition of reducible hypercomplex number systems," by S. EPSTEEN; "A simple proof of a theorem in the calculus of variations (extract from a letter to Mr. W. F. Osgood)," by E. GOURSAT.

WITH the January issue the *Mathematical Supplement of School Science* assumes an independent existence as a bimonthly journal under the title *School Mathematics*. It remains under the responsible editorship of Professor G. W. MYERS, who will be assisted by a board of associate editors. It is intended to make the journal an exponent of the teaching of mathematics in the United States.

BEGINNING with the January number, there will appear in the *American Mathematical Monthly* a series of articles by Dr. E. B. WILSON on "Spherical geometry," presented in the spirit

of the recent investigations on the foundations of geometry and, in particular, as an introduction to non-euclidean geometries. The series is based on the writer's course to seniors at Yale University for the purpose of training students to become effective teachers of geometry in the secondary schools.

PROFESSOR EMIL LAMPE, of Charlottenberg, for over twenty years editor of the *Jahrbuch über die Fortschritte der Mathematik*, feels compelled to retire from the editorship and has requested the Deutscher Mathematiker-Vereinigung to make provision to have the publication of the *Jahrbuch* continued.

AT the meeting of the American association for the advancement of science, held at St. Louis, December 26, 1903–January 1, 1904, Professor ALEXANDER ZIWET was elected vice-president of Section A (mathematics and astronomy). Professor L. G. WELD retains the office of secretary of Section A. The association will hold its next annual meeting at Philadelphia, under the presidency of Professor W. G. FARLOW. A report of the St. Louis meeting of Section A will appear in the March number of the BULLETIN.

AT the meeting of the London mathematical society held on December 10, the following papers were read: By Mr. R. J. DALLAS, "Proof of a formula in elliptic functions"; by Professor A. C. DIXON, "On many-valued Newtonian potentials"; by Rev. F. H. JACKSON, "A generalization of Neumann's expansion of an arbitrary function in a series of Bessel's functions"; by Dr. E. W. HOBSON, "Modes of convergence of infinite series of functions of a real variable"; by Professor J. D. EVERETT, "On normal and antinormal piling"; by Mr. W. H. YOUNG, "On the distribution of the points of uniform convergence of a series of functions"; by Mr. E. B. JOURDAIN, "On functions all of whose singularities are non-essential."

IN connection with the third international congress of mathematicians, to be held at Heidelberg, August 8–13, 1904, it is planned to have an exhibition of the more important mathematical literature of the last ten years. Societies and individual mathematicians have been invited to contribute to the exhibition. Professor A. GUTZMER, of the University at Jena, is chairman of the committee in charge.

At the general sessions of the congress, besides the address by Professor KOENIGSBERGER in commemoration of Jacobi, four addresses, in German, English, French, and Italian, will be

made by Professors WIRTINGER, GREENHILL, DARBOUX, and SEGRE.

In response to the invitations issued by the committee of arrangements, nearly 500 persons have already signified their intention to attend the congress.

AT the Cassel meeting of the Deutscher Mathematiker-Vereinigung a committee on mathematical bibliography was appointed, who will soon publish a list of rare mathematical books and periodicals, and of the various libraries in which they are to be found. In order to make this list as useful and complete as possible, the committee requests those who have information of rare important mathematical works to communicate with any of its members: Professor FELIX MÜLLER, Friedenau-Berlin, Rönnebergstrasse 16; Professor E. WÖLFFING, Stuttgart, Hackländerstrasse 38; Professor A. GUTZMER, Jena, Schäfferstrasse 4.

THE universities named below offer the following courses for the summer semester of 1904:

UNIVERSITY OF GÖTTINGEN. — By Professor F. KLEIN: Differential equations, four hours; Seminar, two hours.—By Professor D. HILBERT: Theory of functions, four hours; Exercises in theory of functions, two hours; Conception of number and quadrature of the circle, two hours. By Professor H. MINKOWSKI: Geometry of the line and sphere, four hours; Mechanics of continua, two hours; Exercises in theory of functions (with Professor Hilbert), two hours. — By Professor M. BRENDDEL: Mathematics of insurance, four hours; Theory of probabilities, two hours; Exercises in insurance and probabilities, two hours.—By Professor F. SCHILLING: Analytic geometry, four hours; Exercises in descriptive geometry, and perspective, two hours.—By Dr. E. ZERMELO: Curves and surfaces, four hours.—By Dr. O. BLUMENTHAL: Differential and integral calculus I, four hours; Exercises, two hours.

UNIVERSITY OF INNSBRUCK. — By Professor OTTO STOLZ: Differential and integral calculus of real functions (continuation), with exercises, four hours; Theory of functions of a complex variable according to Cauchy and Weierstrass, with exercises, three hours.—By Professor K. ZINDLER: Elements of the theory of numbers, three hours; Applications of the calculus to geometry, with exercises, four hours.

UNIVERSITY OF KÖNIGSBERG. — By Professor F. MEYER : Theory of numbers, four hours. — By Professor A. SCHOENFLIES : Analytic geometry, four hours. — By Professor L. SAALSCHÜTZ : Differential calculus, four hours. — By Dr. T. VAHLEN : Algebra, four hours.

UNIVERSITY OF WÜRZBURG. — By Professor F. PRYM : Integral calculus, six hours ; Exercises, two hours. — By Professor E. SELLING : Partial differential equations, four hours ; Analytic mechanics, four hours. — By Professor G. ROST : Applications of the calculus to the theory of plane curves, four hours ; analytic and synthetic geometry of conics, four hours ; Theory of twisted curves and surfaces, four hours ; Theory of elliptic functions, two hours.

AT the annual public meeting of the Paris academy of sciences, December 21, 1903, the following mathematical prizes were awarded: Francoeur prize, 1,000 francs, ÉMILE LEMOINE ; Poncelet prize, 2,000 francs, DAVID HILBERT ; d'Ormy prize, 10,000 francs, JACQUES HADAMARD ; Saintour prize, 3,000 francs, MARCEL BRILLOUIN ; Extraordinary prize of 6,000 francs, divided between MM. MAUGAS, JEHENNE, GAILLARD, and GERMAIN.

DR. C. STÖRMER, of the University of Christiania, has been promoted to a professorship of mathematics.

PROFESSOR S. A. F. WHITE, of Wadham College, Oxford, has been appointed to the professorship of mathematics, and Professor J. B. DALE, of St. John's, Cambridge, to an assistant professorship of mathematics, in King's College, London.

PROFESSOR L. BOLTZMANN of Vienna has been elected honorary member of the Academy of science at Moscow.

PROFESSORS D. HILBERT, of Göttingen, and H. WEBER, of Strassburg, have been elected corresponding members of the Academy of science at Munich.

PROFESSOR F. W. HANAWALT, of Iowa Wesleyan University, has been appointed to the professorship of mathematics and astronomy at Albion College, Michigan.

PROFESSOR R. J. ALEY, of the University of Indiana, has been elected to the editorship of the *Educator-Journal*.

DR. SAUL EPSTEEN, of the University of Chicago, has been made an editor of the *American Mathematical Monthly*.

DR. G. A. BLISS, instructor in mathematics at the University of Minnesota, has been appointed associate in mathematics in the University of Chicago.

MR. W. J. RISBY has been appointed instructor in mathematics at the Armour Institute, Chicago.

REV. GEORGE SALMON, provost of Trinity College, Dublin, died January 23.

NEW PUBLICATIONS.

I. HIGHER MATHEMATICS.

- ANDRAE (A.). Hilfsmittel zu einer allgemeinen Theorie der linearen elliptischen Differentialgleichung zweiter Ordnung. (Diss.) Göttingen, 1903. 8vo. 111 pp.
- BJERKNES (V.). Till minde om Carl Anton Bjerknæs. Christiania, 1903. 8vo. 24 pp.
- BOCCARDINI (G.). See SACCHERI (G.).
- CAMPBELL (J. E.). Introductory treatise on Lie's theory of finite continuous transformation groups. New York, Oxford University Press, 1903. 8vo. 20 + 416 pp. Cloth. \$4.75
- CASTELNUOVO (G.). Lezioni di geometria analitica e proiettiva. Vol. I. Milano, 1903. 8vo. 516 pp. Fr. 12.00
- CHEMIN (O.). See SALMON (G.).
- COMBEROUSSE (C. DE). Algèbre supérieure, à l'usage des candidats à l'École polytechnique, à l'École normale supérieure, à l'École centrale. Ie partie: Compléments d'algèbre élémentaire (déterminants, fractions continues, etc.); combinaisons; séries; étude des fonctions; dérivées et différentielles; premiers principes du calcul intégral. 3e édition. Paris, Gauthier-Villars, 1904. 8vo. 21 + 767 pp. (Tome III du Cours de mathématiques.) Fr. 15.00
- DASSEN (C. C.). Etude sur les quantités mathématiques. Grandeurs dirigées. Quaternions. Paris, Hermann, 1903. 8vo. 6 + 135 pp.