

and ought to be in the hands of all ; hence we gladly record the fact that Professors Beman and Smith have given us a version that can be read with pleasure. Here and there the translators have perhaps overstepped the legitimate bounds of freedom in the matter of rearrangement ; for example, the alteration made in the order of the proof in Part I., Ch. IV., § 6, seems unnecessary. On the other hand, in Part II., Ch. IV., § 1 (p. 68), they might with advantage have availed themselves of the license that they have rightly taken elsewhere, instead of attempting to translate the statement of the nature of the transcendence of e literally ; the apparent anacoluthon in the sentence as it stands makes it almost unintelligible without reference to the original. This however seems to be about the only awkward turn in the version, to which as a whole can be given the high praise that no one would suspect it of being a translation from the German. The pages are of a convenient size, and attractive in appearance ; the printing is singularly free from errors, and the few obvious ones in the original have been corrected. The little volume in its present dress deserves to be widely circulated among mathematical students at a comparatively early stage of their work.

CHARLOTTE ANGAS SCOTT.

NOTES.

WE have to record the death of ERNST SCHERING, professor of mathematics and director of the magnetic observatory at the University of Göttingen. He died at Göttingen, on November 2, at the age of sixty-four years.

THE mathematical seminar at Göttingen is concerned for this semester with dynamics, much attention being given to the differential equations. The seminar, which is under the guidance of Professors KLEIN and HILBERT, is in connection with Professor KLEIN's course on mechanics, mention of which was omitted in our list of Göttingen lectures in the BULLETIN for November (see p. 81).

AT the Collège de France, in Paris, two mathematical courses were announced for the term which began December 6th. Professor C. JORDAN offered a course in theory of differential equations ; and Professor J. HADAMARD, formerly of the Faculty of Sciences of Bordeaux, but recently appointed deputy professor of mechanics at the Collège de France, offered a course on the curves which satisfy the differential equations of dynamics.

PROFESSOR HERMITE has ceased to lecture at the Sorbonne, and has been given the title of honorary professor.

At the anniversary meeting of the Royal Society of London, held November 30, one of the Royal medals was awarded to Professor A. R. FORSYTH.

THE Royal Academy of Sciences, Letters and Arts, of Belgium offers six prizes of six hundred francs each to be awarded during 1898. The subject assigned for one of these prizes is "To make an important contribution to the study of the correspondences which can be established between two spaces." The Academy explains that it will accept, for example, a study of the relations between two systems of four homogeneous variables in the sense understood in the researches of Clebsch (See his "Lectures on Geometry," Chapter 7), or, equally well, a geometrical and analytical study of the equation

$$a_{11}x_1^2 + a_{22}x_2^2 + a_{33}x_3^2 + a_{44}x_4^2 + 2a_{12}x_1x_2 + 2a_{13}x_1x_3 + 2a_{14}x_1x_4 + 2a_{23}x_2x_3 + 2a_{24}x_2x_4 + 2a_{34}x_3x_4 = 0$$

in which the coefficients are functions of the second degree in y_1, y_2, y_3, y_4 . Memoirs should be written in either the French or the Dutch language, and should be sent to the secretary of the Academy, Palais des Académies, Brussels, before August 1, 1898.

AMONG the scientific publications announced as in press by G. CARRÉ ET C. NAUD we note the following: "Cours d'Analyse, professé à l'École centrale," by Professor APPELL; "Potentiel newtonien. Leçons professées à la Sorbonne," by Professor POINCARÉ; a new edition of "Electricité et Optique," by Professor POINCARÉ; "Cours de Thermodynamique, professé à la Sorbonne," by Professor LIPPMANN; "Unités électriques et leur mesure en valeur absolue, professé à la Sorbonne," by Professor LIPPMANN. Among the recent publications of the same firm are: A translation of Greenhill's Elliptic Functions by Professor J. GRIESS; "Introduction à l'étude des théories de la mécanique," by HENRI BOUSSE; "Leçons sur l'attraction et la fonction potentielle, professées à la Sorbonne," by Professor APPELL; "Traité élémentaire de cristallographie géométrique," by G. LION; "Leçons de cinématique, professées à la Sorbonne," by P. PUISEUX; "Astronomie sphérique. Notes sur le cours professé à la Sorbonne," by Professor OSSIAN-BONNET; "Exposition de la méthode d'interpolation de Cauchy," by E. CARVALLO; "Traité

d'astronomie théorique, contenant l'exposition du calcul des perturbations planétaires et lunaires et son application à l'explication et à la formation des tables astronomiques," by ABEL SOUCHON.

THE *Revue générale des sciences pures et appliquées* for November 15 contains a full report of the address of Professor POINCARÉ, "The relations between pure analysis and mathematical physics," prepared for the international mathematical congress at Zürich. Among the articles of interest to mathematicians which have appeared in this journal during 1897, are one by JULES TANNERY on mathematical infinity, one by Professor EMILE PICARD on the work of Galois, and a report of the Zürich congress by EMILE BOREL. We observe also two other articles by Professor POINCARÉ, one on the ideas of Hertz in mechanics, the other an annual report on the progress of physics.

PROFESSOR HENRY S. PRITCHETT, formerly head of the department of astronomy at Washington University, St. Louis, and recently appointed Superintendent of the U. S. Coast and Geodetic Survey, assumed the duties of his new office on December 1.

PROFESSOR E. S. HOLDEN, director of the Lick observatory, has resigned. Professor J. M. SCHAEBERLE has been appointed acting director.

THE REV. GEORGE M. SEARLE has resigned as director of the astronomical observatory of the Catholic University of America, Washington, and Mr. Alfred Doolittle has been appointed to succeed him.

NEW PUBLICATIONS.

I. HIGHER MATHEMATICS.

BEMAN (W. W.). A chapter in the history of mathematics. An address by vice-president W. W. Beman, chairman of section A, before the section of mathematics and astronomy, American Association for the Advancement of Science, Detroit meeting, 1897. (*Proceedings of the American Association for the Advancement of Science*, vol. 46, 1897.) Salem, Mass., 1897. 8vo. 20 pp.

ENGEL (F.). See STÄCKEL (P.).

JAHRBUCH über die Fortschritte der Mathematik, begründet von C. Ohrtmann, herausgegeben von E. Lampe. Vol. 26 : Jahrgang 1895. (In 3 Hefen.) Heft 2. Berlin, Reimer, 1897. 8vo. Pp. 529-784. Mk. 6.40

LAMPE (E.). See JAHRBUCH.