## NOTES.

THE following papers have been read at recent meetings of the Edinburgh mathematical society. May 13: by G. E. CRAWFORD, "Properties of quadrilaterals and five-point space figures"; by D. M. Y. SOMMERVILLE, "Note on the geometries in which straight lines are represented by circles." June 10 : R. C. ARCHIBALD, "Discussion and history of certain geometrical problems of Heraclitus and Apollonius"; C. M'LEOD and W. P. MILNE, "Triangles triply in perspective."

THE eighty-second meeting of the society of German naturalists and physicians will be held at Königsberg, September 18 to 24. As usual, the Mathematiker-Vereinigung will meet in affiliation with the general society. Papers to be presented at this meeting should be submitted to the secretary, Professor A. KRAZER, Karlsruhe, Westendstrasse 57.

THE summer meeting of the British association for the advancement of science will be held at Sheffield during the week beginning August 31. Professor E. W. HOBSON is chairman of the section of mathematics and physics.

THE French association will hold its general meeting at Toulouse during the last week in August. The section of mathematics and astronomy is under the presidency of Professor E. BELOT.

A MEETING of the commissioners of the international commission of mathematical instruction will be held at Brussels during the week of August 9. While the meeting is of particular interest to Belgium and adjacent countries, some of the sessions will be public and of general interest. After the routine business, the chairman, Professor F. KLEIN, will deliver an address on the aims of the commission and give a report of the work already accomplished ; Professor BOURLET will speak on the reciprocal relations between pure and applied mathematics in secondary instruction. A third report of the German sub-committee is in the press, and will be presented at the forthcoming meeting ; it is by W. LIETZMANN, on the organization of mathematical instruction in the boys' high schools of Prussia. Three reports from Austria, and one from France are also in the press ; the latter is to appear in the next number of the *Enseignement Mathématique*.

In the press of B. G. Teubner, Leipzig, are the following books on mathematics (compare the list on page 94 of the present volume of the BULLETIN): "E. B. Christoffels gesammelte mathematische Abhandlungen," by L. MAURER; "Logische Grundlagen der exacten Wissenschaften (Wissenschaft und Hypothese, volume 12)," by P. NATORP; "Schröders Abriss der Algebra der Logik, Band 3," by E. MÜLLER; "Determinanten," by E. NETTO; "Graphische Statik der starren Systeme," by L. HENNEBERG; "Enriques Fragen der Elementargeometrie, vol. 1," by H. FLEISCHER and H. THIEME.

THE first volume of Lectures on elliptic functions, by HARRIS HANCOCK, has just been published by Wiley and Son, New York. The present volume treats of the analysis of the subject, a second will consider applications to geometry and to mechanics, while a third will be devoted to higher algebra and the theory of numbers.

THE publishing house of Ginn and Company has in press a volume on The Hindu-Arabic Numerals, by D. E. SMITH and L. C. KARPINSKI.

THE following advanced courses in mathematics are announced for the year 1910–1911.

HARVARD UNIVERSITY. — By Professor W. E. BYERLY: Dynamics of a rigid body, three hours; trigonometric series, three hours, with Professor B. O. PEIRCE.— By Professor W. F. OSGOOD : Advanced calculus, three hours; Infinite series and products, three hours, first half year; Advanced algebra, three hours, second half year; Theory of functions, II, three hours. — By Professor M. BÔCHER: Linear differential equations, three hours.— By Professor J. L. COOLIDGE: Introduction to modern geometry and modern analysis, three hours. — Projective geometry, three hours, first half year; Non-euclidean geometry, three hours, second half year.— By Professor J. K. WHITTEMORE: Theory of functions, I, three hours; Calculus of variations, three hours, first half year; Equations of mechanics, three hours, second half year; Introduction to differential geometry of curves and surfaces, three hours, first half year. Professors Osgood and Whittemore will conduct a fortnightly seminary in the theory of functions.

UNIVERSITY OF PENNSYLVANIA. — By Professor E. S. CRAWLEY : Modern analytic geometry, two hours : Theory of numbers, three hours. Mathematics of insurance, two hours. — By Professor G. E. FISHER : Differential equations, three hours ; Theory of functions of a complex variable, three hours ; The calculus of variations, two hours. — By Professor I. J. SCHWATT : Theory of functions of a real variable, three hours : Infinite series and products, three hours. — By Professor G. H. HALLETT : Introduction to modern higher algebra, first term, three hours ; The Galois theory of equations, second term, three hours ; Theory of groups of a finite order, three hours. — By Professor F. H. SAFFORD : Partial differential equations, three hours. — By Dr. O. E. GLENN : Geometry of contact transformations, first term, three hours : Higher algebraical equations, second term, three hours.

NEW lectureships in mathematics have been established at the University of Glasgow ; students in engineering will receive separate instruction in mathematics and allied subjects.

PROFESSOR F. HAUSDORFF, of the University of Leipzig, has been appointed associate professor of mathematics at the University of Bonn.

DR. O. PERRON, of Munich, has been appointed associate professor of mathematics at the University of Tübingen.

DR. G. W. HILL has been elected foreign member of the Brussels academy of sciences.

AT the University of Missouri, Dr. O. D. KELLOGG has been promoted to a professorship of mathematics.

AT Purdue University, Professor ERASTUS TEST will retire at the close of the present academic year. Professor JACOB WESTLUND has been promoted to a full professorship of mathematics.

AT the University of Pennsylvania, Dr. G. H. HALLETT has been promoted to a full professorship and Drs. M. J. BABB, G. G. CHAMBERS, and O. E. GLENN to assistant professorships of mathematics.

AT the University of Kansas Drs. C. H. ASHTON and J. N. VAN DER VRIES have been promoted from assistant profes-

sorships to associate professorships of mathematics. Dr. U. G. MITCHELL, of Princeton University, and Drs. ARTHUR PITCHER and M. B. WHITE, of the University of Chicago, have been appointed assistant professors of mathematics.

AT the University of Michigan Dr. W. B. FORD has been promoted to a junior professorship, and Dr. L. C. KARPINSKI to an assistant professorship of mathematics. Professor J. L. MARKLEY has been granted leave of absence for the academic year 1910–1911.

PROFESSOR D. N. LEHMER, of the University of California, has been promoted to an associate professorship of mathematics.

MR. N. C. GRIMES has been appointed professor of mathematics in the University of Arizona.

DR. L. I. HEWES has been appointed assistant professor of mathematics at Whitman College, Walla Walla, Wash.

ON the occasion of his retirement from the University of Chicago, Professor OSKAR BOLZA was presented with a loving cup and a testimonial volume signed by more than a hundred of his former students.

CATALOGUES of mathematical books : A. Hermann et Fils, 6 rue de la Sorbonne, Paris, catalogue no. 102, 2200 titles.— Ottmar Schönhuth Nachf., Schwanthalerstrasse 2, Munich, catalogue no. 22, books before 1800, 116 titles in mathematics and exact sciences. — Bernard Quaritch, 11 Grafton Street, New Bond Street, London, catalogue no. 286, 247 titles in mathematics and physics. — Galloway and Porter, Cambridge, England, catalogue no. 49, 432 titles.

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# NEW PUBLICATIONS.

## I. HIGHER MATHEMATICS.

BASSET (A. B.). A treatise on the geometry of surfaces. London, Bell, 1910. 8vo.                                                                10s. 6d.

CAPELLI (A.). Istituzioni di analisi algebrica. 4a edizione, ampliata, ad uso degli aspiranti alla licenza universitaria in scienze fisiche e matematiche. Napoli, Pellerano, 1909. 8vo. 28 + 953 pp.            L. 17.00

DESCHAMPS (J.). Notes de géométrie analytique. Démonstration de quelques identités fondamentales, et premières applications. Paris, 1909. 8vo. 42 pp.