

reader who wishes to penetrate deeper into this branch of the science. The figures in the text are drawn with great care, and the illustrative examples worked out fully and clearly. The reader of English text-books will miss the long lists of problems usually given at the ends of the chapters in such works; but we predict for the book a very useful career in the lecture room, especially in the hands of an energetic teacher who can supply himself with an abundance of illustrative problems.

J. M. PAGE.

UNIVERSITY OF VIRGINIA,
November 11, 1900.

NOTES.

A NEW edition of the Annual Register of the Society will be issued in January. Forms for furnishing necessary information have been sent to each member, and a prompt response will be of great assistance to the Secretary.

AT the annual general meeting of the London mathematical society held November 8, 1900, the following officers were elected: Dr. E. W. HOBSON, president; Lord KELVIN, Professor W. BURNSIDE, and Major P. A. MACMAHON, vice-presidents; Dr. J. LARMOR, treasurer; Mr. R. TUCKER, and Professor A. E. H. LOVE, honorary secretaries; Mr. J. E. CAMPBELL, Lieut.-Col. A. C. CUNNINGHAM, Professor E. B. ELLIOTT, Dr. J. W. L. GLAISHER, Professor M. J. M. HILL, Messrs. A. B. KEMPE, H. M. MACDONALD, A. E. WESTERN and E. T. WHITTAKER, additional members of the council. The subject of LORD KELVIN's address as retiring president of the society was "The transmission of force through a solid."

AT the anniversary meeting of the Royal Society of London, on November 30, Sir WILLIAM HUGGINS was elected president. Among the new members of the council is Professor E. B. ELLIOTT. A Royal medal was presented to Major P. A. MACMAHON for his contribution to mathematical science.

THE National academy of sciences held its autumn meeting at Brown University, Providence, R. I., on November

13. The following mathematical and physical papers were among those read :

J. TROWBRIDGE : " Investigations of light and electricity with the aid of a battery of twenty thousand cells."

S. L. PENFIELD : " Stereographic projection and some of its possibilities from a graphical standpoint."

T. C. MENDENHALL : " Note on the energy of recent earthquakes."

H. A. ROWLAND : " On the explanation of inertia and gravitation by means of electrical phenomena."

C. BARUS : " On stability of vibration and on vanishing resonance."

THE Royal Academy of Belgium proposes the following prize questions for the year 1901 :

1. Find the form of the principal terms introduced by the elasticity of the earth's shell into the formulas for the change of obliquity and of longitude. Value of the prize, 800 francs.

2. An important contribution is to be made to the theory of mixed forms in any number of series of variables, and the results are to be applied to the geometry of the corresponding space. Value of the prize, 600 francs.

The memoirs may be written in French or Flemish, and should be sent before August 1, 1901, under the usual conditions as to anonymity to the permanent secretary of the academy in Brussels.

UNIVERSITY OF PARIS. The following courses in mathematics are among the announcements of the faculty of sciences for the academic year 1900-1901 :—First semester :—By Professor G. DARBOUX : Fundamental principles of infinitesimal geometry especially with reference to the theory of triple systems of orthogonal surfaces, two hours.—By Professor E. GOURSAT : The operations of the differential and integral calculus, and analytic functions, two hours.—By Professor P. APPELL : The general laws of equilibrium and motion, two hours.—By Professor H. POINCARÉ : The motions of celestial bodies about their centers of gravity, two hours.—By Professor BOUSSINESQ : On the internal friction of fluids, two hours.—By Professor G. KÆNIGS : Kinematics of solid and deformable bodies, with application to the study of machines, two hours.—By Professor L. RAFFY : Elements of analysis and mechanics, two hours.—By Dr. M. ANDOYER : General theory of planetary perturbations, one hour.—Conferences by Pro-

fessors RAFFY, HADAMARD, and PUISEUX, and Messrs. ANDOYER and BLUTEL.—The preliminary announcements for the second semester include courses by Professor E. PICARD on algebraic functions, by Professor E. GOURSAT on differential equations, by Professor P. APPELL on analytical mechanics, by Professor G. KÖNIGS on the study of machines, and by Professor L. RAFFY on the differential equations of mechanics and physics.

OXFORD UNIVERSITY. Advanced mathematical courses for the Michaelmas term of the current academic year are announced as follows:—By Professor E. B. ELLIOTT: Theory of numbers, two hours; substitutions and resolvents, one hour.—By Professor W. ESSON: Analytic geometry of plane curves, two hours; synthetic geometry of plane curves, one hour.—By Professor A. E. H. LOVE: Gravitational attraction and theory of the potential, three hours; theory of sound, one hour.—By Mr. J. E. CAMPBELL: Differential equations, two hours.—By Mr. H. T. GERRANS: Three-dimensional rigid dynamics, two hours.

CAMBRIDGE UNIVERSITY. Mr. A. N. WHITEHEAD and Mr. A. BERRY are the examiners, and Mr. J. G. LEATHAM and Mr. J. H. GRACE the moderators for Part I. of the mathematical tripos, 1901. Professor H. LAMB, Mr. H. W. RICHMOND, Mr. H. F. BAKER and Mr. H. M. MACDONALD are the examiners for Part II. of the same tripos.

THE Smith's prizes for 1900 have been granted to J. F. CAMERON for his essay: "The molecules as electric oscillators," and to R. W. H. T. HUDSON for "Differential equations of the second order and their singular solutions." Mr. Hudson was senior wrangler and Mr. Cameron second wrangler in 1898.

THE library of the late DR. M. C. VERLOREN VAN THEMAAT, containing a number of rare mathematical works, will be sold at auction by Frederick Muller and Company, Doelenstraat 10, Amsterdam, Holland, on December 18–19.

In a pamphlet of forty-seven pages, Ueber die Nomenclatur von M. d'Ocagne, Leipzig, Teubner, 1900, Professor F. SCHILLING presents the salient ideas of M. d'Ocagne's book (reviewed in the BULLETIN, volume 5, p. 362) under the conviction of its great utility for all branches of applied mathematics. As this utility seems generally ad-

mitted, we may hope that a series of abaci for practical use will soon be accessible.

ACCORDING to *Nature*, Dr. CULLIS, professor of mathematics, at Hartley College, Southampton, has been appointed professor of mathematics at the Presidency College, Calcutta; and Mr. J. F. HUDSON, late lecturer in mathematics at Jesus College, Oxford, has been appointed professor of mathematics at Hartley College, Southampton.

PROFESSOR FRANK MORLEY of Johns Hopkins University has recently been appointed editor of the *American Journal of Mathematics*.

PROFESSOR A. TRESSE has been appointed professor of mathematics at the collège Rollin, Paris.

DR. H. LORENZ, of Halle, has been made director of the physical and technical institute of the university of Göttingen.

PROFESSOR G. OLTRAMARE, the venerable dean of the faculty of sciences of the university of Geneva, has retired from the chair of higher mathematics at the age of eighty-four, after a tenure of fifty-two years.

NEW PUBLICATIONS.

I. HIGHER MATHEMATICS.

- BONOLA (R.). Sulla teoria delle parallele e sulla geometria non-Euclidea. Bologna, 1900. 8vo. 80 pp., 2 plates.
- BURONI (S.). See LAVAGGI (L.).
- CANTOR (M.). Vorlesungen über Geschichte der Mathematik. (In 3 Bänden.) Vol. III: Von 1668–1758. Abteilung 1: Von 1668–1699. 2te Auflage. Leipzig, Teubner, 1900. 8vo. 261 pp. M. 6.60
- ERMAKOF (V. P.). Lectures on the integral calculus. (Russian.) Parts 1 and 2. Kief, 1900. 8vo. 350 pp. R. 3.00
- FRENET (F.). Collection of problems in the infinitesimal calculus. Part 2: Integral calculus; part 3: Miscellaneous problems and appendix. Translated into Russian from the 5th French edition by A. P. Nenashaf. (Russian.) Moscow, 1900. 8vo. 4 + 240 pp. R. 2.50