

## NOTES.

THE twenty-sixth summer meeting of the American Mathematical Society will be held at the University of Michigan, Ann Arbor, Mich., on Tuesday, Wednesday, and Thursday, September 2-4, 1919, beginning on Tuesday afternoon at two o'clock. The meeting will be followed by that of the Mathematical Association of America on September 4-5. A joint session of the two organizations is planned for Thursday afternoon, and a joint dinner for Thursday evening. Abstracts of papers intended for presentation at this meeting should be in the hands of the Secretary by August 12 if it is desired that they should be printed in advance of the meeting; otherwise they may be sent in by August 18.

THE committee on arrangements for the summer meeting and colloquium of the Society to be held at the University of Chicago in 1920 announce the following lecturers and provisional subjects: Professor G. D. BIRKHOFF: "Dynamical systems;" Professor F. R. MOULTON: "Certain topics in functions of infinitely many variables."

AMONG the subjects to be considered at the series of scientific conferences to be held at Brussels, beginning July 18, is the formation of an international mathematical union. Such unions have already been organized in astronomy, chemistry, and geophysics. Whatever tentative plans may evolve for a mathematical union will be submitted to the various mathematical organizations of the world for discussion.

THE General education board has appropriated \$16,000 for salaries and other expenses of the National committee on mathematical requirements. Chairman J. W. YOUNG, as representative of the colleges, and vice-chairman J. A. FOBERG, as representative of the secondary schools, will devote their whole time during the coming year to the work of the committee, which will cover the revision of secondary school and college courses and of college entrance requirements in mathematics.

THE technical staff of the U. S. ordnance department has been authorized to secure the services of five experts in mathematics and dynamics, at salaries ranging from \$2,500 to \$5,000, to conduct scientific research on ordnance problems, act as advisers on all mathematical and scientific problems for the ordnance department, and keep up connections between the department and the scientific world.

At the meeting of the London mathematical society held April 24, the following papers were read: By K. A. RAU, "Lambert's series" and "The relations between the convergence of a series and its summability by Cesàro means"; by G. H. HARDY and J. E. LITTLEWOOD, "Tauberian theorem for Lambert's series"; by W. H. YOUNG, "A formula for an area."

At the meeting of May 15 the following papers were read: By G. N. WATSON, "Zeros of Lommel's polynomials"; by W. H. YOUNG, "The triangulation method of defining the area of a surface."

At the meeting of the Edinburgh mathematical society on June 13 the following papers were read: By W. L. MARR, "Systems of apolar triads in the twisted cubic" and "The co-symmedian system of tetrahedra in a sphere"; by D. M. Y. SOMMERVILLE, "Approximations to the length of an arc"; by D. G. TAYLOR, "A new approximate formula for the complete elliptic integrals  $K(k)$ ,  $E(k)$ ."

THE Association of teachers of mathematics in the middle states and Maryland held a joint meeting with the Association of mathematics teachers of New Jersey at the Central high school, Newark, on May 3. Papers were read by Professor A. L. JONES, Mr. H. E. WEBB, Professor H. B. FINE, and Mr. P. C. H. PAPPS.

THE following university courses in mathematics are announced:

JOHNS HOPKINS UNIVERSITY (academic year 1919-1920).—By Professor FRANK MORLEY: Higher geometry, three hours (first term); Theory of functions, three hours (second term); Seminar, two hours.—By Professor L. S. HULBURT: Projective geometry and higher plane curves, three hours.—By

Professor A. COHEN: Elementary theory of functions, two hours; Differential equations and mechanics, three hours.—By Dr. F. D. MURNAGHAN: Electricity and magnetism, three hours (first term); Dynamics of a rigid body, three hours (second term).

UNIVERSITY OF CALIFORNIA (academic year 1919–1920).—By Professor M. W. HASKELL: Higher plane curves, three hours (first term); Advanced analytic geometry, three hours (second term).—Professor C. A. NOBLE: Functions of a complex variable, three hours; Elementary mathematics for advanced students, three hours (first term).—By Professor D. N. LEHMER: Theory of numbers, three hours (first term); Algebraic surfaces, three hours (second term).—By Professor FLORIAN CAJORI: History of mathematics, two hours; History of physics, two hours (second term); Seminar, two hours; Teaching of mathematics, three hours (first term).—By Professor T. M. PUTNAM: Solid analytic geometry, three hours (first term); Theory of algebraic equations, three hours (second term).—By Professor FRANK IRWIN: Advanced calculus, three hours.—By Professor B. A. BERNSTEIN: Algebra of logic, three hours (first term); Theory of probability, three hours (second term); Logic of mathematics, two hours.—By Professor THOMAS BUCK: Advanced calculus, two hours.—By Professor J. H. McDONALD: Analytic mechanics, three hours; Partial differential equations, three hours (first term).

UNIVERSITY OF STRASBOURG (second semester, 1919).—By Professor ESCLANGON: Astronomy.—By Professor M. FRÉCHET: General analysis; Advanced calculus.—By Professor E. GAU: Partial differential equations of the second order; Elementary calculus.—By Professor VERONNET: Astronomy.—By Professor VILLAT: Aerodynamics; Mechanics.

At the celebration, on September 21, 1918, of the 250th anniversary of the founding of the University of Lund, honorary doctorates were conferred on GUSTAF ENESTRÖM, editor of *Bibliotheca Mathematica*, and on J. L. W. V. JENSEN, engineer and member of the editorial board of *Acta Mathematica*.

THE Royal academy of sciences of Denmark offers its gold medal for a memoir on the following subject: "To lay the

foundations of a general theory of surfaces not everywhere convex, projectively closed, and without double lines. It is desirable to reduce as much as possible the hypotheses relative to the infinitesimal properties of the surfaces." Competing memoirs may be written in Danish, Norwegian, Swedish, English, German, French or Latin, and should be sent to Professor KNUDSEN, of the Polytechnic school of Copenhagen, before October 31, 1919.

THE Ackermann-Teubner prize for 1918 was awarded to Professor L. PRANDTL, of Göttingen, for his memoir "Ueber den Luftwiderstand von Kugeln" in the *Göttinger Nachrichten* for 1914.

DR. W. GROSS, of the University of Vienna, has been promoted to a professorship of mathematics.

PROFESSOR E. COSSERAT, of the University of Toulouse, has been elected non-resident member of the Paris Academy of sciences.

PROFESSOR E. GOURSAT, of the University of Paris, has been elected member of the Paris academy of sciences, to succeed Professor E. PICARD who has been chosen perpetual secretary of the academy.

PROFESSOR E. PASCAL, of the University of Naples, and Professor E. ALMANZI, of the University of Rome, have been elected national members of the Reale Accademia dei Lincei, of Rome. Professor G. FANO, of the University of Turin, has been elected a corresponding member.

PROFESSOR G. N. WATSON, of the University of Birmingham, has been elected fellow of the Royal society of London.

PROFESSOR WILLIAM BURNSIDE, of the Royal naval college, Greenwich, has retired from teaching.

PROFESSOR JACQUES HADAMARD, of the Collège de France, has accepted an invitation from Yale University to be a Silliman lecturer in the spring of 1920.

MAJOR J. L. COOLIDGE, of Harvard University, gave a course of two lectures a week at the University of Paris on "Geometry in the complex domain" during the spring term.

AT the University of California, Professor VITO VOLTERRA, of the University of Rome, will deliver a series of six lectures in August or September. Professor FRANK MORLEY, of Johns Hopkins University, will be head of the department of mathematics for the summer session, and will conduct the mathematical seminar.

PROFESSOR O. D. KELLOGG, of the University of Missouri, has been made a fellow of the American Association for the Advancement of Science, and elected vice-president and chairman of section A.

PROFESSOR E. B. VAN VLECK, of the University of Wisconsin, has accepted an invitation as lecturer on mathematics at Harvard University for the second half of the ensuing academic year. Professor Van Vleck will give, besides a course in the calculus, one on the theory of functions of a complex variable and one on the partial differential equations of mathematical physics.

PROFESSOR M. I. PUPIN, of Columbia University, until recently consul general for Serbia to the United States, has been attending the peace conference at Paris.

PROFESSOR G. C. EVANS, who has been in service as scientific attaché to the American Embassy at Rome, has returned to Rice Institute.

PROFESSOR F. R. SHARPE, of Cornell University, has been promoted to a full professorship of mathematics. Mr. V. C. GROVE has been appointed instructor in mathematics.

AT the Sheffield scientific school, Yale University, the following instructors in mathematics have been appointed: Mr. HERMAN BETZ, Dr. E. A. T. KIRCHER, Dr. J. M. STETSON, and Mr. EUGENE TAYLOR.

IN the mathematics department of the University of Illinois, Dr. J. R. KLINE, of the Sheffield scientific school, has been appointed associate and Dr. C. C. CAMP has been appointed instructor.

DR. C. A. FISCHER, of Columbia University, has been appointed Seabury professor of mathematics and astronomy at Trinity College, Hartford.

AT the University of Colorado assistant professor G. H. LIGHT has been promoted to an associate professorship of mathematics.

MR. C. A. NELSON has been appointed instructor in mathematics at the University of Kansas.

MR. A. D. CAMPBELL, of Cornell University, has been appointed instructor in mathematics in Yale University.

AT Brown University, Captain R. E. GILMAN, of Cornell University, and Captain R. W. BURGESS have been appointed assistant professors of mathematics, and Mr. C. R. ADAMS instructor in mathematics.

PROFESSOR E. G. BILL, who has been serving as director of the military service branch at Ottawa, Canada, will return to Dartmouth College in the fall.

PROFESSOR P. P. BOYD, of the University of Kentucky, has been elected president of the Kentucky academy of science.

PROFESSOR E. D. ROE, Jr., of Syracuse University, has been elected director of the observatory. His position in the department of mathematics remains unchanged.

CAPTAIN A. L. UNDERHILL, of the University of Minnesota, has been appointed commandant at the University of Grenoble, where several hundred American soldiers are studying.

DR. H. C. M. MORSE and Dr. I. A. BARNETT have been appointed Benjamin Peirce instructors in Harvard University.

MR. RAYMOND DOUGLAS of the University of Maine, Dr. J. S. TAYLOR, of the University of California, and Dr. NORBERT WIENER have been appointed instructors in mathematics in the Massachusetts Institute of Technology.

DR. H. L. SLOBIN, of the University of Minnesota, has been appointed head of the department of mathematics in New Hampshire College.

MR. H. M. SHOWMAN, of the Colorado School of Mines, has been appointed assistant professor of mathematics at the Case school of applied science.

PROFESSOR E. E. MOOTS, of Cornell College, Iowa, has been elected head of the department of mathematics and engineering.

MR. P. W. HILL, who has been in service over seas, will resume his instructorship in mathematics at Wabash College.

MR. H. L. SMITH and Mr. WARREN WEAVER have been appointed instructors in mathematics at the University of Wisconsin.

MISS HELEN BARTON, of Salem College, and Miss MARION E. STARK, of Meredith College, have been appointed instructors in mathematics at Wellesley College.

DR. MARION B. WHITE, of the Michigan State normal college, Ypsilanti, has been appointed professor of mathematics at Carleton College.

The death is announced, on February 27, 1919, of Professor A. M. LIAPOUNOFF, of the University of Petrograd.

PROFESSOR M. B. WEINSTEIN died recently at Berlin in his sixty-fifth year.

MR. ROBERT BOWES, of the firm of Bowes and Bowes, Cambridge, publishers of the *Messenger of Mathematics*, died February 9, 1919, in his eighty-fourth year.

PROFESSOR A. B. NELSON, of Central University, Danville, Ky., died in November, 1918.

BOOK CATALOGUES: Cambridge University Press, list of publications, including over 200 titles in mathematics, physics and chemistry; Librairie Paul Ritti, Paris, list of 45 titles in mathematics.