

## NOTES

The third number of volume 23 of the TRANSACTIONS OF THIS SOCIETY (April, 1922) contains the following papers: *Some generalizations of geodesics*, by E. J. Wilczynski; *On the gyroscope*, by W. F. Osgood; *The relative distribution of the real roots of a system of polynomials*, by C. F. Gummer; *A general theory of conjugate nets*, by E. P. Lane; *Parallel maps of surfaces*, by W. C. Graustein.

The Alfred Ackermann-Teubner prize of the University of Leipzig has been awarded to Professor Paul Koebe, for his three memoirs *Über die Uniformisierung der algebraischen Kurven*, published in volumes 67, 69, and 72 of the MATHEMATISCHE ANNALEN.

The Lasserre prize has been awarded by the minister of instruction of France to Professor Paul Langevin, of the Collège de France.

At Cambridge University, the Adams prize for this year has been awarded to Professor J. Proudman, of the University of Liverpool; the subject was *Tidal theory*. The subject announced for this prize for the period 1923-1924 is *The physical state of matter at high temperatures*. Smith's prizes have been awarded to Mr. J. C. Burkill, Trinity College, for an essay on *Functions of intervals and the problem of area*, and to Mr. A. E. Ingham, Trinity College, for an essay on *Mean value theorems in the theory of the Riemann zeta-function*. Rayleigh prizes have been awarded to Mr. E. F. Collingwood, Trinity College, for an essay on *The formal factorization of an integral function of finite integral order*, to Mr. W. R. Dean, Trinity College, for an essay on *The elastic stability of a plane plate*, to Mr. E. C. Francis, Peterhouse, for an essay on *The Denjoy-Stieltjes integral*, to Mr. C. G. F. James, Trinity College, for an essay on *The analytical representation of systems of space curves*, and to Mr. M. H. A. Newman, St. John's College, for an essay *On discontinuities of functions of a single real variable*.

Professor William Cain, of the University of North Carolina, has been awarded the J. James R. Croes medal of the American Society of Civil Engineers for his paper on *The circular arch under normal loads*.

Professor H. Ludendorff, of the Astrophysical Observatory at Potsdam has been elected member of the Berlin Academy of Sciences.

Professor Albert Einstein delivered a course of lectures at Madrid in March. On this occasion he was elected a member of the Madrid Academy of Science.

Professor Florian Cajori, of the University of California, has been elected Vice-president of Section L of the American Association for the Advancement of Science.

The following 19 doctorates with mathematics as major subject were conferred by American universities in the academic year 1921-1922; there is added in each case the month and year in which the degree was granted, the minor subject (or subjects) if outside of mathematics, and the title of

the dissertation. C. R. Adams, Harvard, June 1922, *The general theory of the linear partial  $q$ -difference equation and of the linear partial difference equation of the intermediate type*. B. H. Brown, Harvard, June 1922, *The equiangular transformations of Euclidean space*. Margaret Buchanan, Bryn Mawr, June 1922, Physics, *Systems of two linear integral equations with two parameters and symmetrisable kernels*. E. H. Carus, Chicago, December 1921, *Invariants as products: a vector interpretation of the symbolic method*. W. E. Cederberg, Wisconsin, June 1922, Astronomy, *On the solution of the differential equations of motion of a double pendulum*. H. S. Everett, Chicago, June 1922, *Determination of all general homogeneous polynomials expressible as determinants whose elements are homogeneous polynomials*. V. D. Gokhale, Chicago, March 1922, *Concerning compact Kürschák fields*. Claribel Kendall, Chicago, September 1921, *Certain congruences determined by a given surface*. R. E. Langer, Harvard, June 1922, I. *Developments associated with a boundary problem not linear in the parameter*. II. *The boundary problems and developments associated with a system of linear differential equations of the first order*. C. C. MacDuffee, Chicago, September 1921, *Invariantive characteristics of linear algebras with the associative law not assumed*. E. D. Meacham, Chicago, June 1922, *Properties of surfaces whose osculating ruled surfaces belong to linear complexes*. Eugenie M. Morenus, Columbia, June 1922, *Geometric properties completely characterizing the set of all the curves of constant pressure in a field of force*. Anna M. Mullikin, Pennsylvania, June 1922, *Certain theorems relating to plane connected point sets*. Eleanor Pairman, Radcliffe, June 1922, *Expansion theorems for solution of a Fredholm's linear homogeneous integral equation of the second kind with kernel of special non-symmetric type*. H. P. Pettit, Illinois, June 1922, Physics and Statistics, *A general cyclide with special reference to the quintic cyclide*. J. F. Reilly, Iowa, July 1921, Physics, *On certain generalizations of osculatory interpolation*. W. P. Udinski, Illinois, June 1922, Chemistry and Electrical Engineering, *On a series of rational functions formally analogous to Fourier's series*. B. C. Wong, California, May 1922, Astronomy, *A study and classification of ruled quartic surfaces by means of a point-to-line transformation*. E. B. Zeisler, Chicago, June 1922, Astronomy, *Definite integral representation of invariants*.

The following five doctorates, conferred in the latter half of the calendar year 1922, are listed in the same way as the preceding. E. H. Clarke, Chicago, September 1922, Astronomy, *On the minimum of the sum of a definite integral and a function of a point*. J. D. Eshleman, Chicago, September 1922, *The Lagrange problem in parametric form in the calculus of variations*. W. S. Kimball, Chicago, September 1922, Physics, *Scattering of particles by an Einstein curve*. Harry Langman, Columbia, November 1922, *Conformal transformations of period  $n$  and groups generated by them*. J. S. Turner, Chicago, *Fundamental system of formal invariants of a modular group of transformations*.

The following four doctorates in mathematical physics or mathematical astronomy were conferred during the calendar year 1922; there is added in each case the month in which the degree was conferred, the major sub-

ject, the minor subject, and the title of the dissertation. F. E. Carr, Chicago, December, mathematical astronomy, pure mathematics, *A solution of the problem of two bodies one of which is a rotating oblate spheroid*. H. C. Levinson, Chicago, September, mathematical astronomy, pure mathematics, *The gravitational field of masses relatively at rest according to Einstein's theory of gravitation*. Louis Slichter, Wisconsin, June, mathematical physics, applied mathematics, *An experimental study of an acoustic system*. Warren Weaver, Wisconsin, June, mathematical physics, applied mathematics, *A summary of the analytic formulation of the theory of electrodynamics*.

Professor K. Heun, of the Karlsruhe Technical School, has retired from active teaching.

Dr. P. Finsler has been admitted as privat docent at the University of Cologne.

Cambridge University has invited Professor H. A. Lorentz, of the University of Haarlem, to deliver the Rede Lecture, on May 15; the subject will be *Maxwell's electromagnetic theory*. Mr. A. Hutchinson, of Pembroke College, has been appointed university lecturer in crystallography.

At New Hampshire State College, Mr. W. E. Wilbur, Mr. Hubert Huntley, and Mr. P. F. Howard have been appointed instructors in mathematics. Professor H. I. Slobin, head of the department of mathematics, has been reappointed Director of the Summer School for the 1923 session.

Assistant Professor G. W. Mullins, of Barnard College, Columbia University, has been promoted to an associate professorship of mathematics.

Mr. W. F. Shields has been appointed professor of freshman mathematics at Fordham University. He succeeds Rev. L. J. McGarry, who has gone to Woodstock College, Maryland.

Assistant Professor F. N. Bryant, of Syracuse University, has been promoted to a full professorship of mathematics.

Dr. L. L. Smail, assistant professor of mathematics at the University of Washington, has been appointed assistant professor of mathematics at the University of Oregon, effective October 1, 1923.

Professor Max Abraham, formerly professor of mechanics at the Milan Technical School, died November 16, 1922, at Munich, at the age of forty-seven years.

Dr. Fritz Cohn, professor of theoretical astronomy at the University of Berlin, and director of the Berlin Rechen-Institut, died December 14, 1922, at the age of fifty-seven years.

Dr. James Gow, formerly headmaster of Westminster School, and author of *A short History of Greek Mathematics*, died February 16, 1923.

Mr. Rawdon Levett, one of the founders of the Association for the Improvement of Geometric Teaching, later the (British) Mathematical Association, and its first secretary, died February 1, 1923.