

NOTES

Professor E. R. Hedrick, after serving as Editor-in-Chief of this Bulletin for seventeen years, has resigned from this position because of his appointment, beginning March 19, 1937, as Vice-President of the University of California and Provost of the University of California at Los Angeles. He will remain a member of the board of editors. Professor D. R. Curtiss has been designated Managing Editor for the balance of this year. Professor Derrick N. Lehmer has resigned as Assistant Editor and has been replaced by Professor Paul A. Smith.

A quarterly devoted to an integration of the scientific disciplines and to a study of the interdependence of science and society has recently commenced publication under the title *Science and Society: A Marxian Quarterly*. The editors are A. E. Blumberg, E. B. Burgum, V. J. McGill, Margaret Schlauch, and B. J. Stern. Among the foreign editors are J. D. Bernol of Cambridge, Paul Langevin of the Collège de France, and H. Levy of the Imperial College of Science, London.

The symposium on the calculus of variations at the University of Notre Dame, announced in the March number of this Bulletin, was held April 7 and 8, in four sessions. Fifty mathematicians, from all parts of the country, were present. Professor H. M. Morse presided at the first session, on Wednesday morning, where the following papers were presented: *Normality and abnormality in the calculus of variations*, by Professor G. A. Bliss; *The reduction of certain problems in the calculus of variations to the problem of Bolza*, by Professor L. M. Graves. At the session on Wednesday afternoon, Professor G. A. Bliss presiding, the following papers were presented: *The method of variation of the independent variable*, by Professor Tibor Radó; *Expansion methods in the calculus of variations*, by Dr. W. T. Reid; *Certain aspects of differential geometry in the large*, by Dr. S. B. Myers. On Wednesday evening Professor Solomon Lefschetz gave a general lecture entitled, *What is Topology?* On Thursday morning Professor Lefschetz presided, and the following papers were presented: *Abstract variational theory*, by Professor Marston Morse; *Existence theorems in the calculus of variations*, by Professor E. J. McShane. At the last session, on Thursday afternoon, Professor Lincoln La Paz presiding, the following papers were presented: *Metric methods in the calculus of variations*, by Professor Karl Menger; *Applications of the calculus of variations to economics*, by Professor C. F. Roos; *The variation principles in quantum electrodynamics*, by Professor L. W. Wordheim; *The variation principles of Maupertuis and Fresnel, and the relation between wave mechanics and the theory of relativity*, by Professor A. E. Haas.

A joint session of Sections A and K of the American Association for the Advancement of Science, and of the Econometric Society, will be held at Denver on the morning of June 24, 1937. The following papers will be presented: *Incidence of taxation in a simplified general equilibrium*, by Mr. R. W.

Shepard; *On mechanical quadratures*, by Professor J. A. Shohat; *Stability of regimes of cooperation and competition*, by Professor G. C. Evans and Mr. Kenneth May; *A certain index number as a mean $f(x_1, x_2, \dots, x_n)$ with $f(c, c, \dots, c)$ defined only when $c=1$* , by Professor E. L. Dodd; *Applications of index numbers to the general economic equilibrium*, by Mr. F. W. Dresch; *The economic meaning of functionals*, by Dr. Gerhard Tintner.

Dr. Georges Bouligand, professor of differential and integral calculus at the University of Poitiers, has been elected correspondent of the Section of Mechanics of the Paris Academy of Sciences, in succession to the late Dr. Joseph Auclair.

Dr. Georg Aumann has been appointed to a professorship in mathematics at the University of Frankfurt.

Dr. Udo Wedner, of the Technical School at Darmstadt, has been appointed to a professorship at the University of Heidelberg.

Dr. Julius Wellstein, of the Technical School at Karlsruhe, has been appointed to a professorship in mechanics at the University of Wurzburg.

The following eighty-two doctorates, with mathematics or mathematical physics as a major subject, were conferred during 1936 in universities in the United States and Canada; the major subject is mathematics unless otherwise specified. The university, month in which the degree was conferred, minor subject (other than mathematics), and the title of the dissertation are given in each case if available.

M. R. Anderson, Chicago, August, *Representation as a sum of multiples of polygonal numbers*.

H. C. Ayres, California (Berkeley), December, *Existence and embedding theorems for a hyperbolic system of partial differential equations*.

A. H. Bailey, Ohio State, June, *An approach to the study of conic sections, based on a group of projective transformations*.

John Bardeen, Princeton, January, *Quantum theory of the work function*.

R. H. Bardell, Chicago, August, *The inequalities of Morse for a parametric problem of the calculus of variations*.

J. W. Blincoe, Virginia, June, *The reduction of plane quartic curves to canonical forms by means of their euclidean concomitants*.

L. H. Bowen, Cornell, June, minor in astronomy, *Composite double curves on rational ruled surfaces*.

J. L. Brenner, Harvard, February, *The linear homogeneous group modulo p* .

J. R. Britton, Colorado, June, minor in celestial mechanics, *Tchebychef orthogonal polynomials in a single real variable*.

J. C. Brixey, Chicago, June, *The null forms $Ax^2 + By^2 + Cz^2 + Du^2$ which represent all integers*.

A. C. Burdette, Illinois, June, minor in astronomy, *On simultaneous expansions of analytic functions in composite power series.*

F. A. Butter, Jr., Stanford, June, minor in physics, *A contribution to the theory of the arithmetic-geometric mean.*

J. F. Calvert, Pittsburgh, June, minor in electrical engineering, *Insulation problems in high voltage rotating machines.*

E. A. Cameron, North Carolina, August, *On loci associated with certain osculants of a plane curve.*

J. E. Case, S. J., Chicago, March, *The behavior of the Hessian at a multiple point of a curve.*

George Comenetz, Columbia, January, *Curvature trajectories.*

E. G. H. Comfort, Brown, June, *On the preservation of Hölder properties of initial conditions in the solutions of wave equations.*

D. C. Dearborn, Duke, June, minor in applied mathematics, *Inequalities among the invariants of Pfaffian systems.*

D. B. De Lury, Toronto, June, *On the representation of numbers by certain indefinite quadratic forms.*

D. M. Dribin, Chicago, March, *Representation of binary forms by sets of ternary forms.*

Nelson Dunford, Brown, June, I. *Integration in general analysis*; II. *On a theorem of Plessner*; III. *A particular sequence of step functions.*

P. S. Dwyer, Michigan, June, *Combined expansions of products of symmetric power sums and of sums of symmetric power products with application to sampling.*

Aaron Fialkow, Columbia, June, *Trajectories and lines of force.*

Sidney Frankel, Rensselaer Polytechnic Institute, June, *On the expansion of functions in series of functions.*

Bernard Friedman, Massachusetts Institute of Technology, June, minor in physics, *Analyticity of equilibrium figures of rotation.*

J. W. Givens, Jr., Princeton, June, *Tensor coordinates of linear spaces.*

André Gleyzal, Ohio State, June, *On transfinite real numbers, general orders, Riemannian and Finsler spaces.*

H. H. Goldstine, Chicago, August, *Conditions for a minimum of a functional.*

J. W. Hahn, Rice Institute, June, *Projective transformations in two complex variables.*

Marshall Hall, Yale, June, *An isomorphism between linear recurring sequences and algebraic rings.*

Israel Halperin, Princeton, April, *Adjoint and closures of linear differential operators.*

H. J. Hamilton, Brown, June, I. *On transformations of double series*; II. *Transformations of multiple sequences.*

R. A. Harrison, Cornell, June, minor in education, *Cremona webs in S_3 without base curves.*

O. G. Harrold, Jr., Stanford, June, minor in physics, *On the expansion of the remainder in the open-type Newton-Cotes quadrature formula.*

Archie Higdon, Iowa State, June, major in applied mathematics, minor in physics, *Stresses in moderately thick plates.*

I. E. Highberg, California Institute of Technology, June, minor in physics, *Polynomials in abstract spaces.*

J. D. Hill, Brown, October, I. *Some theorems on double limits*; II. *A theorem in the theory of summability*; III. *On perfect methods of summability.*

C. C. Hurd, Illinois, June, minor in economics, *Properties of solutions of linear differential equations containing a parameter.*

L. P. Hutchison, Kentucky, August, *On implicit functions and Lagrange multiplier theorems.*

V. P. Jensen, Iowa State, June, major in applied mathematics, minor in structural engineering, *The application of conformal transformation theory to the determination of stress problems.*

M. L. Kales, Brown, October, *Tauberian theorems related to Borel and Abel summability.*

Morris Kline, New York, June, minor in physics, *Homomorphism and isomorphism of rings and fields of point sets.*

Sister Mary Thomas à Kempis Kloyda, Michigan, February, *Linear and quadratic equations, 1550–1660.*

G. B. Lang, Illinois, February, minor in physics, *On finite systems of linear differential equations of infinite order with constant coefficients.*

H. D. Larsen, Wisconsin, March, minor in applied mathematics, *On the bias in the simple arithmetical index number.*

Madeline Levin, Bryn Mawr, June, *An extension of the Lefschetz theory of intersection.*

Dora McFarland, Chicago, August, *Division algebras defined by non-Abelian groups.*

J. C. C. McKinsey, California (Berkeley), May, *On Boolean functions of many variables.*

Harry Matison, Princeton, June, *On certain classes of integral functions.*

A. E. May, Wisconsin, June, *On the equivalence of pairs of Hermitian matrices in $R(\sqrt{k})$.*

L. E. Mehlenbacher, Michigan, June, *The interrelations of the fundamental solutions of the hypergeometric equation.*

L. L. Merrill, Rensselaer Polytechnic Institute, June, minor in physics, *The direct determination of a function knowing the infinite sum of its successive integrals.*

W. A. Mersman, California Institute of Technology, June, minor in physics, *Abstract integration.*

A. H. Odoms, Cincinnati, June, *On the summability of double Fourier series.*

W. A. Patterson, Ohio State, June, *Inverse problems of the calculus of variations for multiple integrals.*

E. L. Peterson, Purdue, June, major in mathematical physics, minors in mathematics, physics, and chemistry, *A wave mechanical computation of the resistivity of metallic sodium.*

Walter Prenowitz, Columbia, June, *The characterization of plane collineations in terms of homologous families of lines.*

E. S. Quade, Brown, June, I. *The category of the class $Lip(\alpha, \rho)$* ; II. *A generalized Parseval's relation*; III. *A note on Lipschitz classes*; IV. *Trigonometric approximation in the mean for functions in the class $Lip(\alpha, \rho)$.*

R. B. Rasmusen, Chicago, December, *Conjugate osculating quadrics associated with the lines of curvature.*

Sister Henrietta Reilly, Catholic University, June, minors in physics and education, *Self-symmetric quadrilaterals in- and circumscribed to the plane rational quartic curve with a line of symmetry.*

Moses Richardson, Columbia, October, *On the homology characters of symmetric products.*

J. S. Rosen, Washington University, St. Louis, June, minor in physics, *Some generalizations of Bessel functions.*

Benjamin Rosenbaum, Yale, June, *On divisibility and irreducibility.*

Arthur Sard, Harvard, February, *The measure of the critical values of functions.*

A. C. Schaeffer, Massachusetts Institute of Technology, June, minor in physics, *Existence theorem for the flow of an ideal incompressible fluid in two dimensions.*

Brother Louis De La Salle Seiler, Catholic University, June, minors in physics and education, *Investigation of the basis numbers and class number of higher algebraic domains.*

W. E. Sewell, Harvard, February, *Generalized derivatives and approximation by polynomials*.

M. E. Shanks, State University of Iowa, August, minor in physics, *Properties of analytic functions on regions bounded by irregular curves*.

O. T. Snodgrass, Missouri, August, *Multiplicative representation of the elements of a ring*.

T. H. Southard, Ohio State, September, *On certain projective geometries and their relation to algebra*.

V. E. Spencer, Pennsylvania, June, *Persymmetric determinant and Jacobi matrix expressions for orthogonal Tchebycheff polynomials*.

N. E. Steenrod, Princeton, June, *Universal homology groups*.

Alvin Sugar, California (Berkeley), December, *Researches on Waring's problem for cubic polynomials*.

A. G. Swanson, Michigan, June, *Factorial moments*.

A. E. Taylor, California Institute of Technology, June, minor in physics, *Analytic functions in general analysis*.

C. B. Tompkins, Michigan, February, *A type of integral invariant associated with a defined class of N -dimensional variety in euclidean $(2N-1)$ -space*.

S. B. Townes, Chicago, August, *Reduced positive quaternary quadratic forms*.

W. S. Turpin, Johns Hopkins, June, *On the fundamental group of a certain class of plane algebraic curves*.

D. L. Webb, California Institute of Technology, June, minor in physics, *Many-valued logics*.

E. P. Wiggin, Chicago, June, *A boundary value problem of the calculus of variations*.

W. L. Williams, Chicago, August, *Permanent configurations in the problem of five bodies*.

H. S. Zuckerman, California (Berkeley), May, *New results for the number $g(n)$ in Waring's problem*.

The following doctorates were conferred in 1935 but not included in the list in the preceding volume of this Bulletin (vol. 42, pp. 309-312):

R. W. Cowan, California (Berkeley), December, *The solution of the linear homogeneous difference equation of the second order with quadratic coefficients*.

W. L. Hutchings, California (Berkeley), May, *On a certain canonical form of a system of two linear homogeneous differential equations of the second order, with applications to the theory of ruled surfaces*.

A. R. Noble, California (Berkeley), September, *On the enumeration of uniform squares.*

J. H. D. Teller, Kentucky, August, *On a class of quaternion algebras.*

J. M. Thompson, California (Berkeley), December, *Mathematical theory of production stages in economics.*

Mr. N. B. Allison, of the University of Kentucky, has been appointed professor of mathematics at Kentucky Wesleyan College, Winchester, Ky.

Dr. E. W. Anderson, of Iowa State College, has been promoted to an assistant professorship.

Dr. S. F. Barber, of the State University of Iowa, has been promoted to an assistant professorship.

Dr. A. H. Black has been appointed to an associate professorship at Lebanon Valley College, Annville, Pa.

Dr. Niels Bohr, director of the University Institute for Theoretical Physics at Copenhagen, has been appointed to a Hitchcock professorship at the University of California, where he will lecture during the spring semester.

Professor Richard Courant has been appointed head of the department of mathematics in the Graduate School of New York University.

Associate Professor R. A. Hefner, of the Georgia School of Technology, has been promoted to a professorship.

Dr. Jack Levine, of North Carolina State College, has been promoted to an assistant professorship.

Professor E. H. McAlister, of Oregon State College, having reached the age of seventy, has retired with the title of professor emeritus of mathematics. He has been connected with the Oregon state system of higher education for forty-six years.

Dr. M. H. Martin has been appointed to an assistant professorship at the University of Maryland.

Associate Professor Susan M. Rambo, of Smith College, has been promoted to a professorship. She has been granted leave of absence for this semester.

Dr. Nathan Schwid, formerly of the University of Wisconsin, has been appointed adjunct professor of mathematics at the Texas College of Mines and Metallurgy.

Associate Professor J. H. Simester, of the University of Louisville, has been promoted to an associate professorship.

Dr. F. C. Smith has been promoted to an assistant professorship in mathematics at the College of St. Francis.

Professor Oswald Veblen, of the Institute for Advanced Study, has been appointed to a Walker Ames professorship in mathematics for the first term of the 1937 summer session at the University of Washington. He will conduct a seminar in the theory of spinors, and will be assisted by Dr. A. H. Taub, formerly of Princeton.

Associate Professor Oscar Zariski, of Johns Hopkins University, has been promoted to a professorship.

The following appointments to instructorships are announced: Brown University: Dr. M. L. Kales; University of Illinois: Dr. W. S. Turpin; Massachusetts Institute of Technology: Dr. Norman Levinson; Princeton University: Mr. R. H. Fox, Dr. N. E. Steenrod; University of Wisconsin: Dr. C. B. Allendoerfer.

Dr. F. S. Macaulay, of Cambridge, England, died on February 9, 1937, at the age of seventy-four years. He was noted for his original work in the general theory of algebraic polynomials. He had been a life member of the Society since 1898.

Dr. C. W. Crockett, professor emeritus of mathematics and astronomy at Rensselaer Polytechnic Institute, died on December 30, 1936, at his home in Troy, N. Y. At the time of his retirement in June, 1934, he had completed fifty years of service on the faculty, having been appointed upon his graduation from Rensselaer in June, 1884.

Professor Raymond Hitchcock, head of the department of mathematics, University of North Dakota, died on March 11, 1937, at the age of fifty-six. He came to the University of North Dakota in 1910, and had been head of the department since 1915.

Dr. Elihu Thomson, noted for his discoveries in electricity, died on March 13, 1937, at his home in Swampscott, Mass., at the age of eighty-three years. He was director of the Thomson Research Laboratory of the General Electric Company.