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(*b*. Boston, Massachusetts, 11 May 1887; *d*. Berkeley, California, 8 December 1973)

mathematics.

Evans was the son of George William Evans, author of such textbooks as *Algebra for Schools* and teacher of mathematics at English High School in Boston. and of Mary Taylor Evams's After graduating from English High School in 1903, he entered Harvard. He earned the A.B. degree there in 1907, the A.M. in 1908, and the Ph.D. in mathematics in 1910. Among his professors professors at Harvard were William Fogg Osgood, Julian Coolidge, and Maxime Bôcher.lEvans was an instructor in mathematics in the academic years 1906–1907 and 1909–1910. His dissertation, "Volterra's Integral Equation of the Second Kind with Discontinuous Kernel." appeared in two parts in *Transactions of the American Mathematical Society* (1910–1911).

After receiving the doctorate. Evans went to Europe on a Sheldon Traveling Fellowship from Harvard. There he studied at the University of Rome with Vito Volterra, who exerted a lasting influence on his work; in line with his interest in the applications of mathematics, Evans also spent a summer in Berlin, working with the physicist Max Planck.

Upon his return from Europe in 1912. Evans had job offers from M.I.T., the university of California at Berkeley, and the newly founded Rice Institute in Houston. Because of its opportunities he chose Rice and, as assistant professor, began teaching there in 1912. In 1916 he was promoted to full professor of mathematics. On 20 June 1917 Evans married Isabel Mary John: they had three sons.

During World War I. Evans was commissioned a captain in the U.S. Army Signal Corps. His scientific assignments concerning bomb trajectories and sights, and antiaircraft defenses took him to England, France, and Italy. With the help of Volterra. Evans facilitated the enrollment of U.S. military personnel in special wartime courses at Italian universities.

Evans was elected vice president of the American Mathematical Society for the years 1924–1926 and held the same office in the Mathematical Association of American he was twice elected vice president of the American association for the Advancement of Science (for mathematics, 1931–1932, and for economics, 1936–1937). He served as an editor of the *American Journal of Mathematics* from 1927 to 1936. During his years at Rice, Evans traveled widely in the United States and Europe. He spent half a year in Belgium, France, and Italy in the period 1929–1930, and the summers of 1921 and 1928 at the University of Minnesota and at Berkeley. While at Minnesota in 1921, discussions with the British statistician R. A. Fisher encouraged Evans to promote the study of mathematical statistics in the United States. He also brought such mathematicians as Szolem Mandelbrojt. Karl Menger, and Tibor Rado as visiting professors to enrich the program at Rice.

Other institutions bid for Evans's services during these years. Harvard made several offers. and the University of California renewed its efforts to lure him to Berkeley in 1927. He declined these offers, but by 1933 he had changed his mind. The Berkeley administration had long planned a reorganization of its mathematics department upon the retirement of the department chairman, and approved the search for a new chairman and other faculty members in 1933 despite the financial difficulties confronting the university during the Great Depression. Evans was viewed as an exceptionally strong leader, and Berkeley negotiated long and hard to secure his services. Having been elected to the national Academy of Sciences in that year, he was offered a generous salary (subject to cuts applicable to all faculty salaries) and assured that he would enjoy considerable latitude in making new appointments. He extricated himself from his obligations at Rice and moved to Berkeley in the summer of 1934.

Evans's fifteen years as chairman at Berkeley marked a period of change and growth for the Mathematics Department. He had high expectations for Berkeley. As R. G. D. Richardson put it, Evans hoped "to build up [there] a great center in our subject comparable to Princeton, Harvard, and Chicago" (Richardson to E.R. Murrow, 3 May 1935, Emergency Committee Papers, box 109, New York Public Library). In building the Berkeley program, Evans at first argued against favoring displaced foreigners over unemployed Americans; as the economic picture improved, he changed his mind and added Hans Lewy, Jerzy Neyman, and Alfred Tarski to the department. Altogether Evans brought fifteen new faculty members to Berkeley between 1933 and 1949, and engineered such innovations as courses and seminars in mathematical economics (one of his own research interests), a statistical laboratory (headed by Neyman), and greater attention to the applications of mathematics. Evans later described his first few years at Berkeley as "an opportune time" for expanding and strengthening the department there (Evans to Henry Helson, 12 February 1966, Evans Papers, The Bancroft Library).

Evans assumed the presidency of the American Mathematical Society in 1938. In this capacity he encouraged the formation of the American Mathematical Society-Mathematical Association of America War Preparedness Committee (later the War Policy Committee) to guide research on problems of importance to national defense and to design mathematical training programs for the military. As president of the society until 1940. evans seved on the National Research Council committee charged with compiling a national scientific roster; after Pearl Harbor he addressed wartime issues as a member of the Mathematics Committee of the National Academy of Sciences and of the Applied Mathematics Panel of the National Defense Research Council. Between 1943 and 1947 he served as consultant for the Office of the Chief of Ordnance on gun design.

Evans continued as department chairman at Berkeley until 1949. After his retirement at the end of the 1954–1955 academic year, he continued to write and lecture for many years. In 1971 the new mathematics building on the Berkeley campus was named Evans Hall, in recognition of his contributions to mathematics and his dedication to building a world-class center of mathematical sciences at Barkeley.

Much of Evans's work built upon mathematical innovations introduced by Henri Lebesque. Vito Volterra, Maurice Frechet. and Henri Poincaré during his student years. His first paper. published in 1909, while he was still in graduate school, dealt with functional analysis, a field to which he would contribute much in the next decade. Evans's principal results concerned integrodifferential equations and integral equations with singular kernels. The American Mathematical Society invited him to deliver the Colloquium Lectures on this subject in 1916; they were published in 1918 as *Functionals and Their Applications*. These lectures illustrated the utility of integral expression: for example, replacing second-order partial differential expressions by integral expressions for variable domains with first-order terms permitted derivation of a theorem for integral expressions analogous to Green's theorem.

Another aspect of Evans's work concerned surfaces of minimum capacity. solution of the problem. of minimal surfaces, the so-called plateau problem, depends on local properties. Evans was able to prove, however, in a series of papers beginning in 1920 that, among the surfaces with a given boundary s, there exists a surface of minimum (electric)capacity. In this work he used comparisons of energy integrals. The generalization of such problems led Evans to extensive research, especially in his later years, on multiple-valued harmonic functions.

Beginning with his paper on Kirckhoff's law, written while he was a graduate student and published in 1910, Evans concerned himself with the applications of mathematics. His work during both world wars evinces this interest, as does his innovative work in applying mathematics to economic theory. Evans formulated a model of the economy as a whole and posed the problem of defining an aggregate variable in terms of microeconomic components. His 1924 paper on the dynamics of monopoly, which introduced time derivatives in demand relations. was recognized as the beginning of dynamic theories of economics. Evans's textbook on mathematical economics was published in 1930 and formed the basis of his pioneering courses at Rice and Berkeley.

BIBLIOGRAPHY

1.Original Works. Evans's writings include "The Integral Equation Equation of the Second Kind of Volterra. with Singular Kernel." in *Bulletin of the American Mathematical Society*. 2nd ser., **16** (1909), 130–136; "Note on Kirchoff's Law," in *Proceedings of the American Academy of Arts and Sciences*. **46** (1910), 97–106; "Volterra's interal Equation of the Second Kind with Discontinuous Kernel," in *Transactions of the American Mathematical Society*, **11** (1910), 393–413, and **12** (1911), 429–472; *Functionals and Theirr Applications* (Providence, R.I., 1918; repr., New York, 1964); "Fundamental Points of Potential Theory," in *The Rice institute Pamphlet*, **7** (1920), **252–329;** "Problems of potenttial Theory," in *Proceedings of the National Academy of Sciences*, **7** (1921), **89–98,** ; "The Dynamics of Monopoly," in *American Mathematical Monographs*, **31** (1924), 77–83; *The Logarithmic Potential. Discontinuous Dirichlet and Neumann Problems, American Mathematical Society Colloquium Publications*, 6 (Providence. R.I., 1927); and *Mathematical Introduction to Economics* (New York, 1930); "Potentials of General Masses in Single and Double Layers. The Relative Boundary Value Problems," in *American Journal of Mathematics*, **53** (1931), **493–516,** written with **E. R. C.** Miles: "Complements of Potential Theory," *ibid***57** (1935), **623–626;** "On Potentials of Positive Mass., Parts I and II." in *Transactions of the American Mathematical Society*, **37,** (1935), 226–253, and **38** (1935), 201–236; "Potentials and Positively Infinite Singularities of Harmonic Functions," in *Monatshefte für Mathematik und Physik*, **43** (1936), 419–424; "Modern Methods of Analysis in Potential Theory," in *Bulletin of the American Mathematical Society*, **43** (1937), 481–502; "Surfaces of Minimal Capacity" and "Surfaces of Minimum Capacity," in *Proceedings of the National Academy of Sciences*, **26** (1940), 489–491, 662–667; and "Continua of Minimum Capacity," in *Bulletin of the American Mathematical Society*, **47** (1941), 717–733.

Evans's papers at Bancroft Library, University of California. Berkeley. include twenty cartons of notebooks journals, correspondence. course notes, and drafts and reprints of writings. as well as some papers of his father and of his son George William. Noteworthy among the unpublished materials is correspondence with American and European mathematicians and a typescript of a calculus textbook by Evans and H. E. Bray. The Bancroft collection also documents Evans's wartime activities and participation in professional organizations and university committees. The University Archives at Berkeley contain additional correspondence concerning Evans's appointment and the growth of the mathematics department under his leadership.

II. Secondary Literature. The principal biographical notice on Evans is bya colleague at Berkeley, Charles B. Morrey, "Griffith Conrad Evans." in **Biographical** memoirs. national Academy of Sciences. **54** (1983), **127–155.** It contains a summary of Evans's of Evans's major contributions to mathematics and a ninety-five-item bibliography of his publications. It is supplemented by Charles B. Morrey. Hans Lewy, R. W. Shephard, and R. L. Vaught. "Griffith Conrad Evans," in *University of California, In Memoriam* (1977), 102–103. Evans's success in building the mathematics program at Berkeley is explored in Robin E. Rider. "An Opportune Time: Griffith C. Evans and Mathematics at Berkeley," in Peter Duren. ed., A *Century of Mathematics in America* II(Providence. R.L., 1989).

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