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(b. Striegau, Germany, 30 September 1883; d. Chicago, Illinois, 28 March 1950)

mathematics.

Hellinger was the son of Emil Hellinger and Julie Hellinger. He grew up in Breslau, where he received the diploma of the Gymnasium in 1902. He studied at the universities of Heidelberg, Breslau, and Göttingen, where in 1907 he received the Ph.D. in mathematics. Like many outstanding mathematicians of his time, Hellinger was a student of [David Hilbert](#). In his dissertation on the orthogonal invariants of quadratic forms of infinitely many variables, Hellinger introduced a new type of integral which is known today as the Hellinger integral. The Hilbert-Hellinger theory of forms profoundly influenced other mathematicians, in particular E. H. Moore of the [University of Chicago](#). From 1907 to 1909, Hellinger was an assistant at the University of Göttingen. There he edited Hilbert's lecture notes and [Felix Klein](#)'s influential *Elementarmathematik vom höheren Standpunkte aus* (Berlin, 1925) which was translated into English ([New York](#), 1932).

A *Privatdozent* at the University of Marburg from 1909 to 1914, Hellinger became professor of mathematics at the newly founded University of Frankfurt am Main and taught there until 1936, when the Nazi government forced him to retire because he was a Jew. His monumental article "Integralgleichungen und Gleichungen mit unendlichvielen Unbekannten," on integral equations and equations with infinitely many unknowns, which he wrote with Otto Toeplitz over a period of many years for the *Enzyklopädie der mathematischen Wissenschaften*, has attained the status of a classic document. It first appeared in 1927, was separately published in 1928, and was reprinted in 1953.

On 13 November 1938 Hellinger was arrested and held in a [concentration camp](#). He was released after a month and a half, with the stipulation that he leave the country immediately. In March 1939 he found refuge in the [United States](#), where he taught mathematics at Northwestern University in Evanston, Illinois, first as lecturer and later as full professor. He acquired American citizenship in 1944. After retiring at age sixty-five, he took a position at the Illinois Institute of Technology in 1949 but fell ill that November and never recovered.

Although his main field was analysis, Hellinger also worked in the history of mathematics with Max Dehn. Hellinger's lectures were of supreme clarity. Deeply concerned with all aspects of his students' lives, he was an unpretentious, highly effective mentor.

BIBLIOGRAPHY

I. Original Works. Hellinger's works include "Grundlagen für eine Theorie der unendlichen Matrizen," in *Nachrichten der Gesellschaft der Wissenschaften zu Göttingen* (1906), pp. 351–355, written with O. Toeplitz; *Die Orthogonalinvarianten quadratischer Formen von unendlichvielen Variablen* (Göttingen, 1907), his diss.; "Neue Begründung der Theorie quadratischer Formen von unendlichvielen Veränderlichen," in *Journal für die reine und angewandte Mathematik*, **136** (1909), 210–271; "Grundlagen für eine Theorie der unendlichen Matrizen," in *Mathematische Annalen*, **69** (1910), 289–330, written with O. Toeplitz; "Zur Einordnung der Kettenbruchtheorie in die Theorie der quadratischen Formen von unendlichvielen Veränderlichen," in *Journal für die reine und angewandte Mathematik*, **144** (1914), 213–238, written with O. Toeplitz; and "Die allgemeinen Ansätze der Mechanik der Kontinua," in *Enzyklopädie der mathematischen Wissenschaften*, **4**, no. 30 (1914), 601–694.

See also "Zur Stieltjesschen Kettenbruchtheorie," in *Mathematische Annalen*, **86** (1922), 18–29; "Integralgleichungen und Gleichungen mit unendlichvielen Unbekannten" in *Enzyklopädie der mathematischen Wissenschaften*, **2**, no. 13C (1927), 1335–1648, written with O. Toeplitz, repr. separately ([New York](#), 1953); "Hilberts Arbeiten über Integralgleichungen und unendliche Gleichungssysteme," in [David Hilbert](#), *Gesammelte Abhandlungen*, III (Berlin, 1935), 94–145; "On James Gregory's Vera Quadratura," in H. W. Turnbull, ed., *James Gregory Tercentenary Memorial Volume* (London, 1939), pp. 468–478, written with M. Dehn; *Spectra of Quadratic Forms in Infinitely Many Variables*, no. 1 in Northwestern University Studies in Mathematics and the Physical Sciences, Mathematical Monographs, vol. I (Evanston, III., 1941), 133–172; "Certain Mathematical Achievements of James Gregory," in *American Mathematical Monthly*, **50** (1943), 149–163, written with M. Dehn; and "Contributions to the Analytic Theory of Continued Fractions and Infinite Matrices," in *Annals of Mathematics*, **44** (1943), 103–127, written with M. Dehn.

II. Secondary Literature. For a biography of Hellinger, see C. L. Siegel, *Zur Geschichte des Frankfurter mathematischen Seminars. Gesammelte Abhandlungen*, III, no. 81 (Berlin–Heidelberg–New York, 1966), 462–474.

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