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(*b*. Budapest, Hungary, 30 March 1921; *d*. Budapest, 1 February 1970)

mathematics.

Rényi was the son of Artur Rényi, an engineer and linguist, and of Barbara Alexander, both of whom were Jewish. Rényi's paternal grandfather, originally named Rosenthal, left Germany and settled in Hungary under the name of Rényi after an adventurous interlude of sheep farming in Australia. In Budapest he founded a walking-stick factory and made a modest fortune. Rényi's maternal grandfather, Bern´t Alexander, was professor of philosophy at the University of Budapest and a literary critic.

At school Rényi excelled in classical Greek. From early on, he was interested in astronomy, and that led him to physics, which in turn sparked his interest in mathematics. His university studies (1940–1944) were in mathematics and physics. In 1944 he was called up for forced labor service, but he managed to escape and lived in hiding. When conditions normalized, he obtained a Ph.D. in mathematics at Szeged (1945) under Frigyes (Friedrich) Riesz for work on Cauchy-Fourier series. Among his other teachers were Rózsa Péter (in high school) and Lipót Féjér (at Budapest). In 1946 he was awarded a scholarship that made it possible for him to go to Leningrad with his wife, Katalin Schulhof, whom he had married earlier that year. In Leningrad he worked with Yuri V. Linnik and made spectacular discoveries in the theory of numbers, which he expounded in his 1947 paper on the representation of an even number as the sum of a prime and an almost prime. There he also encountered the theory of probability, and he returned to Hungary already embarked on his brilliant career as a probabilist.

Rényi was the acknowledged founder of the school of probabilists centered at the Mathematical Research Institute of the Hungarian Academy of Sciences in Budapest, of which he was the director from 1950 to 1970. Among his Ph.D. students were many who subsequently made their mark in probability theory, including A. Prékopa, P. Révész, J. Mogyorodi, J. Kumlös, G. Tusnády, G. Katona, and D. Szász. His interest in the theory of numbers persisted throughout his life and (often in probabilistic contexts) found expression in his regular collaboration with Pál (Paul) Erdös and Pál (Paul) Turin. He held many important and influential positions—professor of mathematics at the universities of Debrecen (1949–1950) and of Budapest (1952–1970), general secretary of the Bolyai János Mathematical Society (1949–1955), and secretary of the Mathematical Section of the Hungarian Academy of Sciences (1949–1953)—and soon was recognized worldwide as one of the leaders in probability theory. Indications of the geographical range of this influence are his publication of a paper in Chinese and his receipt of an Overseas Fellowship from Churchill College, Cambridge, where he gave the prestigious Rouse Ball lecture in 1966. His publications and occasional writings, 355 in number, are listed in his *Selected Papers* (1976), which contains English translations of many of the most important items.

In the hands of writers like Linnik, Erdös, and Rényi, the theory of numbers is not clearly distinguished from the theory of probability. Each lends techniques to the other, and important problems lie along their common frontier. Thus, when Rényi is referred to as a great applied probabilist, this is partly because of his interest in probability applied to other parts of mathematics. A joint paper with Erdös, "On the Evolution of Random Graphs" (1960), illustrates this interest very well. A set of points called vertices is given, and "edges" joining pairs of vertices are then created by some specific time-dependent random mechanism. What results is an evolving "random graph." This is truly applied mathematics, important, for example, in studies of the spread of disease.

Another illustration is "random space-filling," which at first may be seen as a problem in stochastic geometry but turns out to be very important in chemistry, in physics, and in such applications as the design of parking lots. A careful study of the complete bibliography in Rényi's *Selected Papers* reveals (especially in the titles of the shorter notes, usually published in Hungarian) the practical origin of many of Rényi's more famous "pure" papers. An example of an explicitly practical paper is "On Two Mathematical Models of the Traffic on a Divided Highway" (1969).

Rényi was, however, an important contributor to fundamentals. In 1954, at the International Congress of Mathematicians in Amsterdam, he announced a new system of axioms for probability (for a later account, see "On a New Axiomatic Theory of Probability" [1955]), based on conditionality as a fundamental concept. The full impact of this has yet to be absorbed. He also made seminally important contributions to the foundations of information technology.

Rényi's most famous single achievement was his proof of the representability of each even number as the sum of a prime and an "almost prime"; in the best contemporary improvement (by Chen Jing-run), "almost prime" has been refined to "integer with at most two prime factors."

Rényi wrote many books; among them, *Foundations of Probability* (1970) is perhaps the most beautiful text ever written on the subject. He had an exceptionally clear and lucid style, and his longer papers are full of comments and insights that enhance their value. His great interest in the history of ideas found expression in fictitious dialogues and letters (*Dialogues on Mathematics* [1967] and *Letters on Probability* [1972]), which combine great depth with astonishing artistry. *A Diary on Information Theory* (1984), published after his death, is a natural successor to these two remarkable works.

Rényi traveled widely, especially in Europe, and did much to reunify the mathematical community after World War II. One of his sayings, now widely current, defined a mathematician as "a machine for converting coffee into theorems." Turán improved on this by a remark, prompted by a cup that was too weak: "This coffee is fit only for lemmas.") These anecdotes show that for Rényi, mathematics, was a social activity through which he generated a great number of friends.

In 1969 Rényi's wife, also a distinguished mathematician, with whom he had written "The Prüfer Code for *k* hyphen;Trees," died; and less than six months later, Rényi died at the age of forty-eight.

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