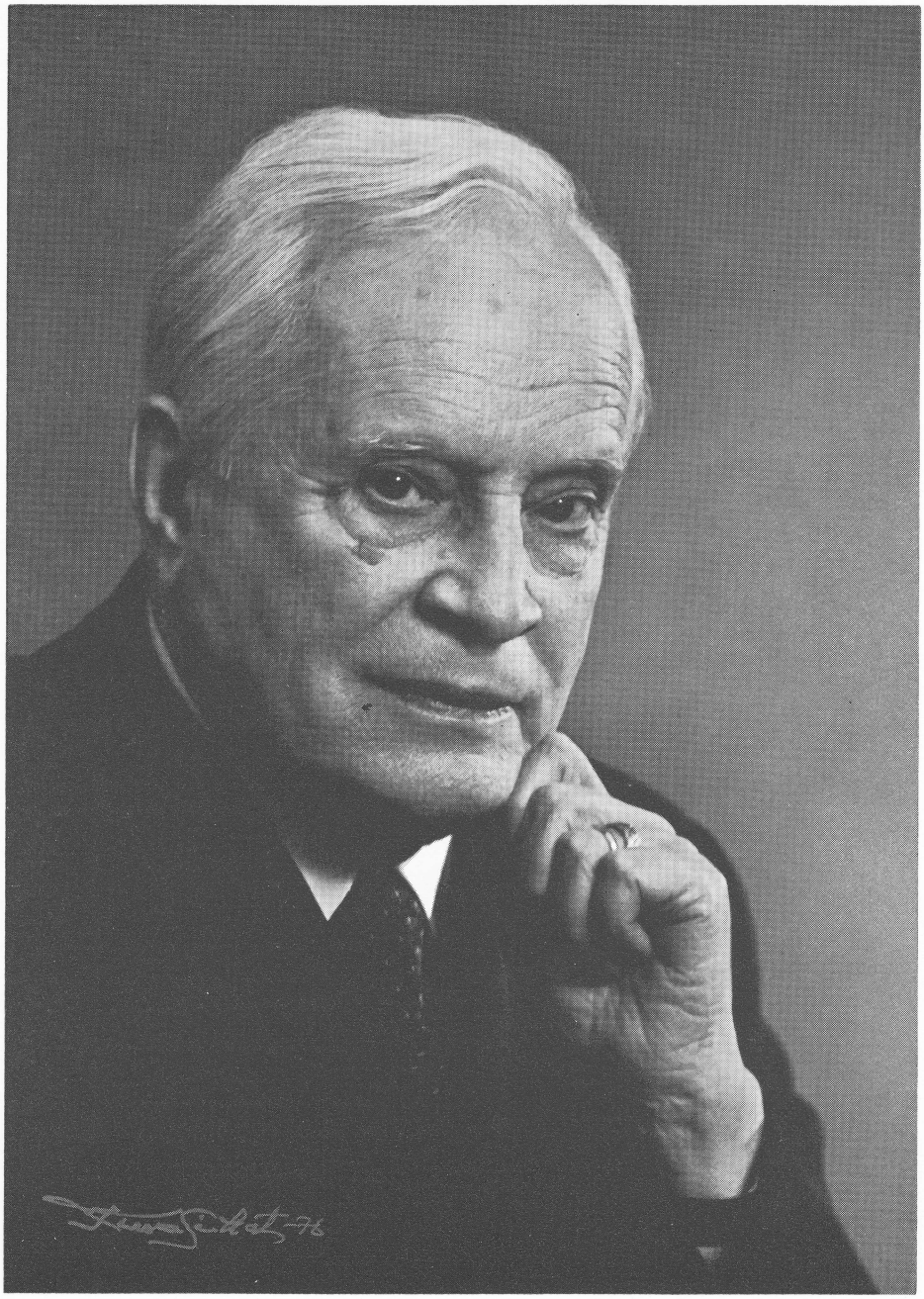

Rolf Nevanlinna

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# ROLF NEVANLINNA

Rolf Herman Nevanlinna, Member of the Academy of Finland, was born on the 22nd of October in 1895 in Joensuu. His father Otto Wilhelm Nevanlinna was head teacher of mathematics in the Normal Lycée of Helsinki. The mother Margarete Henriette Louise Romberg was German by birth.

In previous generations there had been an unusually high number of prominent mathematicians in the family, whose name was changed in 1906 from Neovius to Nevanlinna. Enthusiasm and exceptional talent for mathematics were also manifest in Rolf Nevanlinna and led him to enter into studies in mathematics, physics, astronomy and chemistry at the University of Helsinki in 1913. In his outstanding teacher, Professor Ernst Lindelöf, Rolf Nevanlinna found a guide and an ideal for all his life. In 1917 Rolf Nevanlinna took the degree of Master of Philosophy, which opened for him the road to scientific research. True to the tradition of Ernst Lindelöf, the young mathematician devoted himself to the theory of analytic functions and received the degree of Doctor of Philosophy in 1919.

In 1922 Rolf Nevanlinna was appointed Docent of Mathematics at the University of Helsinki. At this time he developed an unusual "analytic power" in his function-theoretic studies. Inspired by the French school of function theory, he developed new ideas, partly in collaboration with his brother Frithiof Nevanlinna, laying the basis of what was to grow into a comprehensive and ingenious theory of the distribution of values of meromorphic functions. This theory culminated in two important theorems, which today are known as Nevanlinna's Main Theorems. These significant discoveries turned out to be an amazing stimulus for function theory, at that time already counted as one of the classical fields of mathematics.

Thanks to his outstanding achievements, the 31-year-old docent was appointed to the newly established second professorship of mathematics at the University of Helsinki.

Two years before, Nevanlinna had worked for a few months with the leading German mathematicians in Göttingen. During his two stays in

1926 and 1929 in Paris, he also became personally acquainted with people representing the French school, always so important to him. A comprehensive account of his research appeared in Paris in 1929 under the title "Le théorème de Picard–Borel et la théorie des fonctions méromorphes". The second edition of this work came out as a reprint in the United States in 1974.

Interest in Nevanlinna's research was aroused in ever wider circles. During the winter term of the academic year 1928 – 1929 he was invited as a guest docent to the Eidgenössische Technische Hochschule in Zürich and was offered there the chair left vacant by Hermann Weyl. But in order to continue his work at his Finnish university, he declined the invitation to this important position, as well as another from Stanford University in the United States.

In 1936 Rolf Nevanlinna published in Berlin his second great monograph "Eindeutige analytische Funktionen". Even today it is considered one of the fundamental works of modern function theory, both as regards its material and the style of presentation. Besides questions of potential theory, systematically treated by means of the theory of harmonic measure, Nevanlinna exhibited his theory of meromorphic functions and its connection with the theory of covering surfaces. A Russian translation of this monograph was published in 1941. In 1953 a second revised edition of "Eindeutige analytische Funktionen" came out, and in 1970 an English translation of it appeared under the title "Analytic functions".

During the war in 1939 – 1940 Nevanlinna served as a scientific expert of artillery and developed new ballistic tables for the Finnish defensive forces.

In addition to the outstanding scientific works of Rolf Nevanlinna, his administrative activities should be mentioned. Among other things, he was Rector of the University of Helsinki in 1941 – 1945.

In 1946 Rolf Nevanlinna accepted an offer of a professorship at the University of Zürich and thus became a successor of his famous student Lars V. Ahlfors, who had moved to Harvard.

In the thirties Nevanlinna's scientific interest was increasingly directed to the theory of Riemann surfaces and to related questions in potential theory. The studies were first closely connected with problems of value distribution theory, but soon Riemann surfaces in their own right became the target of his investigations. Using his theory of harmonic measure and applying Hilbert space methods, Nevanlinna achieved definitive progress in the theory of open Riemann surfaces and created important new problems. This extensive research activity was embodied in Nevanlinna's third comprehensive work "Uniformisierung", which came out in 1953. This monograph has also been translated into Russian (1955).

A special honour was bestowed on the untiring scientist in 1948, when he was appointed as one of the first members of the newly founded Academy of Finland. Its twelve permanent members at that time were elected from among the most outstanding scientists and artists of the country. This appointment led him to resign his ordinary professorship at the University of Zürich, but he continued to lecture there as an honorary professor.

In the 1950's Rolf Nevanlinna's scientific interest turned to the theory of linear spaces and the so-called absolute analysis. His studies in this direction seem to have had influence in many different areas of mathematics and mathematical physics. The monograph "Absolute Analysis", which he wrote together with his brother Frithiof and which appeared in 1959, gives an account of these research activities. An English translation of this work was published in 1970.

On his 70th birthday in 1965 Rolf Nevanlinna retired from the Academy of Finland and entered the office of the Chancellor of the University of Turku. He held it for five years until 1970.

Besides his exceptionally active research work – the number of his mathematical publications exceeds 100 – Rolf Nevanlinna has always found enough time and spared no pains to educate younger mathematicians. Under his direction more than 40 doctoral dissertations have been completed. General pedagogical questions in mathematics have always aroused his interest, and he has published Finnish textbooks for the university level, on linear algebra in 1951 and, together with Professor V. Paatero, on function theory in 1964. Of the latter work, a German edition "Einführung in die Funktionentheorie" (1965) appeared in Switzerland and an English translation in the United States (1969). Together with Professor P. Kustaanheimo, he published in 1976 in Switzerland a German edition of his new Finnish textbook (1973) on the foundations of geometry.

Numerous universities and institutes all over the world have invited Rolf Nevanlinna as a visiting professor or to give guest lectures. He has been granted many scientific honours: In 1958 he was awarded the International Prize of Wihuri's Foundation and in 1966 the Henrik Steffens Prize of F. V. S. Stiftung in Hamburg. Nevanlinna is Ehrenbürger of the University of Göttingen; he has received the degree of Doctor honoris causa of the Universities of Berlin (Freie Universität), Bucharest, Giessen, Glasgow, Heidelberg, Istanbul, Jyväskylä and Uppsala. Nevanlinna is an honorary member, an ordinary member, or a foreign or corresponding member of many academies and scientific societies or organizations. On his 80th birthday, he was invited to become an honorary member of the Finnish Academy of Science and Letters.

An acknowledgement of Nevanlinna's exceptional position among the world's mathematicians is the fact that he was elected President of the

International Mathematical Union for the years 1959 – 62. He has also played an important role in the International Congresses of Mathematicians, holding the duties of President in the Congress in Stockholm in 1962 and being chairman of the committee that planned the scientific program of the Congress in Moscow in 1966. In the discussions whether the 1978 Congress could be arranged in Helsinki he had an active part. When Rolf Nevanlinna announced the invitation to Helsinki at the final session of the Congress in Vancouver in 1974, it was accepted with great acclamation.

In 1963, when Nevanlinna resigned his teaching post in Zürich, his colleagues, friends and numerous previous students expressed their wish to found the institution "Rolf Nevanlinna -Kolloquium" in order to promote mathematical contacts between Finland and Switzerland. In the first colloquium in June 1964 Rolf Nevanlinna lectured to an enthusiastic audience on the state of mathematics in the present cultural life. Thus far eight such colloquia, which have attracted leading analysts from all over the world, have been held in Zürich, the latest in November 1975 on the occasion of Rolf Nevanlinna's 80th birthday.

Rolf Nevanlinna's activities would be only incompletely described without calling attention to his interest in music, which occupies an outstanding place in his life. With his violin he plays sonatas by Mozart and Beethoven in a masterly manner. Besides the composers of the Vienna classical period, Sibelius has always been his great idol. As a schoolboy and student he lived in the atmosphere of the concerts and orchestra rehearsals in which Sibelius conducted his own compositions. Even today, he can describe exactly how the great composer performed his fourth symphony.

In 1955, on the occasion of Rolf Nevanlinna's 60th birthday, mathematical papers by his Finnish colleagues and pupils were collected in the volume "Commentationes in honorem Rolf Herman Nevanlinna die natali eius sexagesimo". Ten years later, two special volumes were dedicated to him. One, partly international, "Studia logico-mathematica et philosophica in honorem Rolf Nevanlinna die natali eius septuagesimo", resulted from the initiative of the Philosophical Society of Finland. The other, "Festband zum 70. Geburtstag von Rolf Nevanlinna", was edited by H. P. Künzi and A. Pfluger and consisted of the lectures given in the second Rolf Nevanlinna colloquium in Zürich in November 1965.

The present volume, produced by authors close to Rolf Nevanlinna personally and mathematically, is dedicated to the great master with respect and affection.

Olli Lehto  Ilppo Simo Louhivaara

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