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(*b*. Vietnna, Austria, 20 March 1884; *d*. Cambridge, Massachusetts, 21 July 1966)

Physics, mathematics, Philosophy of science, education.

Frank obtained his doctorate in physics in 1907 from the University of Vienna as a student under Ludwig Boltzmann. Frank later wrote of this period:

. . . the domain of my most intensive interest was the philosophy of science. I used to associate with a group of students who assembled every Thursday night in one of the old Viennese coffee houses... We returned again and again to our central problem: How can we avoid the traditional ambiguity and obscurity of philosophy? How can we bring about the closest possible *rapprochement* between philosophy and science?

As a physicist Frank was a creative contributor, working on fundamental problems of theoretical Physics during an exciting period of its growth. Per haps his most widely known publication of those years was the two-volume collection, edited with his lifelong friend Richard von Mises, Die *Differential-und Intergralgleichungen der Mechanik und Physik*. Frank's own research was concerned with variational calculus, Fourier series, function spaces, Hamiltonian geometrical optics, Schrödinger's wave mechanics, and relativity theory. In an early paper with Hermann Rotherhe derived the Lorentz transformation equations without assuming constancy of light velocity from the fact that the equations form a group.

But his first and most lasting love was the philosophy of science. From the beginning Frank was intrigued by Poincare's neo-Kantian idea that many basic principles of science are purely conventional. In 1907 Frank took the bold step of using that idea to analyze the law of causality. This paper attracted Einstein's attention and started a lasting friendship. In 1912 Einstein's reocommended Frank as his successor as professor of theoretical phyiscs at the German University of Prague, a position Frank held until 1938. Frank's original paper on causaitly—Lenin criticized in his 1908 book on positivist philosophy and the sciences — was later expanded into his widely influential work *Das Kausalgestz unde seine grenzen* (1932). In 1947 Frank Published an authoritative biography, Einstein: *His Life and Times*

Frank was a logical positivist, although a less doctrinaire one than many of those with whom he formed the Vienna circle in the 1920's. The breadth of interest which he exhibited in his work and fostered in his students made science a liberal discipline and reflected a style of life as well as of mind. As he once remarked, he sought always to achieve a balanced outlook on man and nature; and for him physics not only provided reliable answers to particular technical problems but also raised and illuminated important questions concerning the nature, scope, and validity of human knowledge. Indeed, Frank believed that a stable perspective on life can best be achieved through the critical, intellectual method of modern natural science.

He therefore saw it as a misfortune that science and philosophy are widely regarded as unrelated and incongruous. But it was also his conviction that this breach between a scientific and a humanist orientation toward life—a breach that he thought to be of relatively recent origin— could be diministhed, if not overcome, by an adequate philosophy of science.

Holding that the meaning and validity of theoretical assumptions can be determined only if detailed consideration is given to the verifiable consequences which the assumptions entail, Frank called attention to certain misinterpretations of relativity theory and quantum mechanics and their fallacious use in support of questionable doctrines. The titles of some of his works indicate these concerns— "Das Ende der mechanistischen physik" (1935), *Interpretations and Misinterpretations of Modern physics* (1938), and *philosophy of Science*; The Link Between Science and Philosophy (1957)

Frank was organizer of chief participant in the *International Encyclopedia of Unified Science, the* Philosophy of Science Association, *Synthèse,* the Institute for the Unity of Science, and the Boston Colloquium for the Philosophy of science.

In 1938 Frank and his wife, Hania, came to the United States. After serving as a visiting lecturer, he remained as lecturer on physics and mathematics at Harvard, where his influential course on philosophy of science, his erudite mastery, and his warm and witty manner were remembered long after his retirement in 1954.

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Frank edited a number of works, including *The Validations of scientific Theories* (Boston, 1956) and *The International Encyclopedia of Unified Science* (Chicago, various dates) He also served on the editorial boards of the journals synthese (1946–1963) and *Philosophy of Science* (1941–1955)

II. Secondary Literature. A *Festchrift* for phillip Frank was published as vol. II of *Boston studies in the Philosophy of Science* R. S. Cohen and M. W. Wartofsky, eds. (Dordrecht-New York, 1965), With tributes by Peter G. Bergmann, Rudolf Carnap, R. Fürth, Gerald Holton, Edwin C. Kemble, Henruy Margenau, Hilda von Mises Ernest Nagel, Raymond J. Seeger, and Kurt Sitte, and essays, in the philosophy of science.

A memorial booklet based on talks delivered by some of Frank's colleagues and friends at the memorial meeting of 25 October 1966 at Harvard University was distributed the following year, and an article "In Memory of Phillipp Frank" appeared in *Philosophy of Science*,**35** (1968), 1–5.

Gerald Holton

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