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Obituary

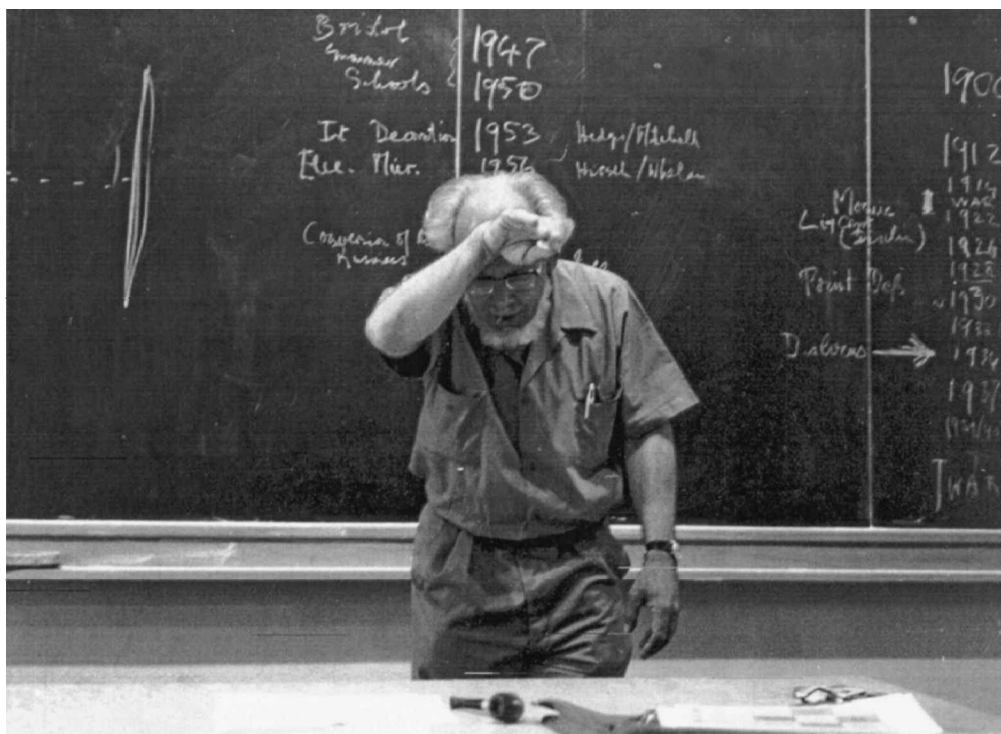
Sir Frederick Charles Frank, OBE (1911–1998)

We all learned with the deepest sadness of the death of Sir Charles Frank on 5 April 1998. He was born in 1911, obtained his PhD degree in 1934 at Oxford, and immediately after made a postdoctoral stay in Debye's laboratory in Berlin. He spent the war as the Deputy Head of the Intelligence Department of the Air Ministry, where he was successfully concerned with the German radionavigational system, for which achievements he was made Officer of the Most Excellent Order of the British Empire in 1946.

Sir Charles joined the University of Bristol in 1946, becoming Professor of Physics in 1954 and Melville Wills Professor of Physics in 1964. Later in 1969 he was appointed to the Henry Overton Wills Chair of Physics and Directorship of the HH Wills Physics Laboratory at Bristol. Thirty years after the original invitation of Sir Neville Mott to join the Bristol Laboratories, Sir Charles retired in 1976.

His fame in the physics of liquid crystals cannot be measured by the number of his publications—they are few—but by their importance. In his 1958 paper

(*Faraday Society Discussions*, 25, p. 19) on The Theory of Liquid Crystals, he first revisits critically the Oseen equations and gives to the free energy of a continuum of directors its modern features, while in a second part he shows the relation of G. Friedel's pioneering observations of defects in liquid crystals with (translation) dislocations, coining the term disinclination (soon transformed to disclination) for their rotational counterpart. This outstanding and decisive progress in the physics of liquid crystals has to be understood in the context of the entire scientific work of Sir Charles, mostly directed towards the study of mesoscopic scales, in the light of atomic and molecular pictures, helped by a love for and original interest in geometry. His contributions to materials science are well known, in particular to the plastic deformation of solids. With Kasper he noticed that in the structure of $Z=12$ coordinated atomic systems (tetrahedrally packed complex alloys), the minority atoms for which the coordination number differs from 12 lie necessarily along lines which were later on recognized as disclinations!



In 1979, Sir Charles was awarded the Royal Medal of the Royal Society and in 1994, the Royal Society Copley Medal, but during his career he also received a number of other awards and distinctions from Belgian, French, Swedish and US Institutions. He was knighted by Queen Elizabeth in 1997.

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