

Volker Metag and **Dietrich Habs**, both of the Max Planck Institute for Nuclear Physics in Heidelberg. The two share the prize of 5000 DM, given to them for their "development of a new method for measuring the lifetimes of fission isomers and the detection of extremely great deformations of such nuclei."

Charles K. Rhodes, formerly program

manager of the molecular physics center at Stanford Research Institute has been appointed professor of physics at the University of Illinois at Chicago Circle.

John R. Huizenga, professor of chemistry and physics at the University of Rochester has been named Tracy H. Harris Professor of Chemistry and Physics at the University.

obituaries

Karl Herzfeld

The mechanism of the absorption of sound in gases, the theory of the binding of atoms in crystal lattices, the great issues of statistical mechanics and the kinetic theory of gases, the theory of absorption on surfaces, and the electronic structure of benzene and dye molecules are some of the topics to which Karl Ferdinand Herzfeld, who died in June, made distinguished contributions in his 86 years. He was professor of physics at The Johns Hopkins University from 1926 until he resigned in 1936 to accept a professorship at the Catholic University of America, from which he retired in 1968. No one who came so early from Europe to America continued longer to give so richly to this country out of the great European tradition of theoretical physics. Herzfeld was born in Vienna on 24 February 1892 to what today would be called an upper middle class family. Ludwig Boltzmann and Ernst Mach were great and living influences. Herzfeld studied at Vienna, Zurich and Göttingen and received his PhD from the University of Vienna in 1914. On the outbreak of war he was called back from Göttingen to Vienna to begin his four-year service in an Austrian artillery regiment, where he became First Lieutenant. He fought in turn on several fronts. In Galicia, he wrote, "The Russians attacked once in force: I saw one of the last large-scale cavalry attacks (3000 Tartars) in history; if they had gotten through I would not be writing this history."

With the end of the war and the breakdown of so much, Herzfeld sought out the best place to supplement his physics training with analytical chemistry, with a view to an industrial position. He decided on the University of Munich, not least because it was then—January 1919—preeminent in physics. His contacts with Arnold Sommerfeld, professor of theoretical physics and Kasimir Fajans, professor of physical chemistry were stimulating and led, by December 1919, to a position as privatdozent in theoretical physics and physical chemistry and a research assistantship with Fajans. He knew well his colleagues Werner Heisenberg, Wolfgang Pauli, Otto Laporte, Fritz

London, Gregor Wentzel and Alfred Landé and others. After lunch the group often went to the Hofgarten Caffee to discuss physics, where, as a professor of experimental physics put it, "[I] never bothered anymore to make . . . calculations, [I] went to the Hofgarten and said, 'I have here a mathematical problem which *cannot* be solved,' whereupon everybody began to work out the solution on the white marble table top."

Substituting from time to time for Sommerfeld, Herzfeld himself became "ausserordentlicher professor" (the equivalent of an assistant professor). During this period before going to The Johns Hopkins University Herzfeld wrote *Kinetische Theorie der Wärme*, the first modern book on kinetic theory and statistical mechanics, destined to become influential in German-speaking countries, and important contributions to the *Handbuch der Physik* ["Klassische Thermodynamik" and "Absorption und Dispersion"].

Physics for Herzfeld was not a secular, but a religious calling; it aimed, in his view, to make clear the structure and beauty of God's creation.

Herzfeld's joint seminar with Maria Goeppert-Mayer on topical issues of quantum mechanics provided an example of the Johns Hopkins tradition at its best. Freed of the traditional regimentation of

seats, the students and faculty sat around a long table like board members—interrupting, participating, discussing. Among the visitors from afar attracted by Herzfeld's deeper interest in issues of principle were Peter Debye and Paul Ehrenfest. One day Herzfeld tried to get Ehrenfest to lead the seminar discussion. Despite much urging, Ehrenfest declined, insisting that Herzfeld himself should take the floor. Herzfeld finally did. He explained why one might hope for a "separation of variables" even in a wave equation that is non-separable by any standard criterion. Look at a given proper function, he proposed, and look where its nodes lie, and pick new coordinates to conform to those nodal surfaces. Then, he suggested, the wave equation might be separable. Ehrenfest smilingly broke in, "My dear Herzfeld, you are completely crazy"; and the liveliest discussion developed between the two friends.

With his move to the Catholic University of America the direction of his work changed to the electronic structure of polyatomic molecules, a field in which he trained many students, and to his old love, acoustics, in which he wrote with Theodore A. Litovitz the book, *Absorption and Dispersion of Ultrasonic Waves* (1959).

In saying farewell to a man of great human warmth, one who deeply cared, one treasures all the more his contributions to kinetic theory, statistical mechanics, and the structure of matter—and the high human standard he made for what it is to be a physicist.

JOHN ARCHIBALD WHEELER
University of Texas



HERZFELD

L. F. Bates

Leslie Fleetwood Bates, an emeritus professor of physics at Nottingham University in England, died 20 January 1978. Born in 1897 in Bristol, he attended the University there at the age of 16. After graduation he enlisted in the army and was sent to India to run an x-ray laboratory. He returned to the University of Bristol in 1920 and began postgraduate research in magnetism under A. P. Chattock. Bates left Bristol in 1922 and went to the Cavendish Laboratory in Cambridge, where he undertook research concerned with long-range alpha particles under the supervision of Lord Rutherford. In Cambridge he received a PhD from Trinity College. When he left Cambridge for a lectureship at University College London, he turned his attention to the study of permanent magnets using the magnetic potentiometer, which Chattock had invented.

In 1926 Bates was appointed Lancashire-Spencer Professor of Physics at University College, Nottingham, where he remained for almost thirty years, serving as deputy vice-chancellor from 1953 to