

ests, Staub started his research with the investigation of solids by x-ray scattering, but later turned to studies of cosmic rays on the Jungfrauoch and to his first experiments in nuclear physics, which, from then on, remained the principal concern of his scientific activities.

An important new phase of his life began when Staub came in 1937 to the California Institute of Technology as an International Exchange Fellow, expecting to return afterwards to Switzerland. As it happened, the year spent in Pasadena was only the first of twelve he and his wife were to live in the United States. Before leaving Caltech, he accepted an offer from Stanford University, where in 1938 he started as an instructor in the department of physics. His gift for finding simple solutions enabled him, with very limited funds, to advance significantly previous investigations of the scattering of neutrons on helium and their polarization in the passage through magnetized iron. A small cyclotron, built for the latter purpose during World War II, was converted under contract with the Manhattan District to determine the energy distribution of fission neutrons. Upon completion of this work, he brought some of the equipment with him to the newly formed enterprise at Los Alamos and remained there until a year after the war. His work with Bruno Rossi and the progress in the development of detectors achieved during that time led to the later publica-

tion of their book on ionization chambers and counters.

In the fall of 1946 Staub returned as a full professor to Stanford, happy and eager to engage himself again in the peacetime pursuit of research. By incorporating the results on the polarization of neutrons obtained before the war, he, with David Nicodemus and myself, succeeded in measuring the neutron magnetic moment with high accuracy; in a separate, elegant experiment with Emery Rogers, he ascertained unambiguously the sign of the moment.

Except for two later visits as a guest professor, Staub's long and fruitful association with US physics ended in 1949 when he was chosen to become the new director of the Physics Institute at the University of Zurich. It was not an easy decision for him to accept this position. However, the 24 years he held it were to show that a better choice could hardly have been made. From its rather antiquated state he brought the Institute to modern standards, not only by installing a Van de Graaff accelerator in an excellent new building but also by inspiring his colleagues and students with the free spirit of inquiry. His lectures were distinguished by the same lucid presentation that one finds in the textbook on atomic physics he wrote with Paul Huber.

Staub continued to make important contributions in undiminished devotion to his research until he retired at the age of 65. His health steadily declined during the last few years, and in December 1980 he died peacefully at his home.

F. BLOCH

Stanford University

Lester Winsberg

Lester Winsberg, professor of physics at the University of Illinois at Chicago Circle, died on 26 August 1981 in Pasadena. He was spending the summer at the Jet Propulsion Laboratory, where in typically vigorous and enthusiastic fashion he had just embarked on a new venture in solar energy.

Les was born in Montreal on 31 January 1921 and became a naturalized US citizen. He spent his youth and much of his professional life in the Chicago area and also worked at Los Alamos (1945-46), at the Lawrence Berkeley Laboratory (1955-59) and at the Weizmann Institute in Israel (1950-52 and 1954-55). He maintained close ties to Israel throughout his career.

Les was a highly regarded nuclear chemist and physicist. He was educated at the University of Chicago (BS in chemistry in 1942 and PhD in chemistry in 1947). He began his research

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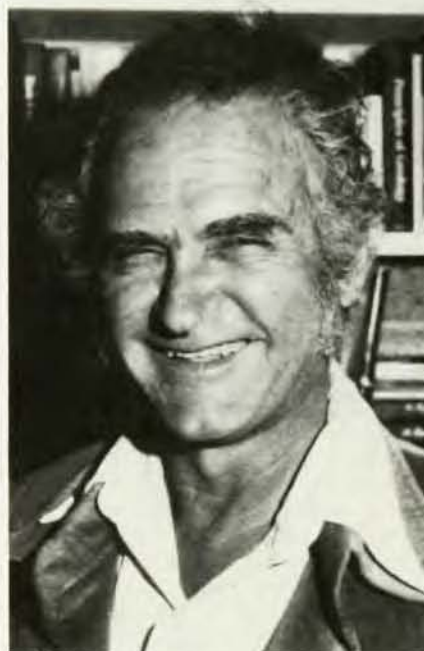
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career at the University, first on a boron hydride project under H. I. Schlesinger and then in the fission product group at the Metallurgical Laboratory (Atomic Bomb Project), where he did pioneering work on rare-earth nuclides. The latter studies formed the basis of his doctoral thesis. From 1947 to 1950, on the staff of the Physics Division at Argonne National Labora-



WINSBERG

tory, he carried out studies on neutron diffraction and small-angle neutron scattering. While in Israel, he organized a radiochemistry laboratory and initiated a survey of the radium and radon content of the springs and wells of Israel. He also investigated the production of ^{39}Cl in the lower atmosphere by cosmic rays and the application of ^{85}Kr to geochemical surveys.

His central and most persistent interest was in nuclear reactions induced by high-energy projectiles, pursued at the University of Chicago synchrocyclotron, the Berkeley Bevatron, the Argonne ZGS and, most recently, Fermilab. He did pioneering work on meson-induced reactions, fragmentation reaction and the analysis of fragment recoil measurements. During the last few years he made a major effort to correlate the extensive literature on high-energy nuclear reaction mechanisms, especially that involving fragment recoils, in terms of some simple, unifying principles.

In 1961, while still on the staff of the Chemistry Division at Argonne National Laboratory, Les was appointed professor of physics at the then two-year undergraduate branch of the University of Illinois in Chicago. Moving to the University full time in 1964, he was

head of the physics department from 1964 to 1967, during which time the two-year school started to become a comprehensive graduate campus. Under his leadership the graduate faculty was greatly expanded and an MS program was successfully initiated. His interest in communicating the excitement and broad perspectives of science found a successful outlet in his favorite course, Natural Science for Nonscience Majors, for which he prepared a draft manuscript of a book, "The Evolving Universe."

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Emerson M. Pugh

Emerson Martindale Pugh, professor emeritus of physics at Carnegie-Mellon University, and his second wife Kathryn died in an automobile accident in Fremont, Ohio, on 1 July 1981.

Pugh was born in 1896 in Ogden, Wyoming (now a part of Utah). He saw active service as an engineering officer in the US Navy in 1918-19 and worked as a cashier at Unita County State Bank in Mountain View, Wyoming in 1919-20. His early adventures at sea and the hardships of life in a frontier town are recalled with humor in his autobiography *Wyoming Scientist: From Horses to Spaceships*.

He obtained a doctorate in physics under Robert A. Millikan's guidance at the California Institute of Technology in 1929. Having started teaching as an instructor in physics at the Carnegie Institute of Technology (now Carnegie-Mellon University) in 1920, Pugh became a full professor in 1948.

Most of his basic research in physics concerned the Hall effect of ferromagnets. He published a few experimental investigations between 1928 and 1940, despite his heavy teaching loads and sparse research funds. Following World War II, financial support from the Office of Naval Research and other agencies enabled him to equip a modern laboratory with instruments including a 125-kW magnet designed by Francis Bitter and manufactured by A. D. Little Co., which bore the serial number 2. Between 1950 and 1965, he carried out systematic measurements on ferromagnetic elements and alloys together with his many students and collaborators. To the present day, their work remains the most comprehensive and reliable source of Hall data for concentrated ferrous alloys.

They found the Hall voltage varied linearly with field above ferromagnetic saturation, with a (very small) slope R_0