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x-ray masks.

Vratny followed his interests in integrated-circuit technology to packaging, where he produced inventive solutions to the packaging problems posed by modern VLSI circuitry. His work in this area again focused on materials and processes required for the solution of practical problems. In all, Vratny was awarded 18 patents for inventions in sputtering technology, plating, imaging devices, x-ray lithography and device fabrication. A like number of patent applications remained pending at the time of his death.

Vratny was a dedicated, generous colleague whose presence at Bell Laboratories will be missed.

H. J. LEAMY
AT&T Bell Laboratories
Murray Hill, New Jersey

Orren C. Mohler

Orren Mohler, professor emeritus of astronomy at the University of Michigan, died on 17 September 1985. Mohler was born in Indianapolis, Indiana, on 29 July 1908. He received his AB from Michigan Normal College (now Eastern Michigan University) in 1929, his MA in 1936 and his PhD in astronomy in 1933 at the University of Michigan. From 1933 to 1940 he held appointments as astronomer at the Cook Observatory of the University of Pennsylvania and as instructor in astronomy at Swarthmore College. One of his papers written in this period foreshadows his lifelong devotion to the development of instrumentation and its application to the study of the Sun: "Measurement of the intensity of sunlight in the extreme ultraviolet" describes an application of photoelectric Geiger-Müller counters to the solar problem.

In 1940 Mohler became the first full-time professional astronomer at the McMath-Hulbert Observatory of the University of Michigan. From 1942 to 1945 the observatory's staff concentrated on military R&D (Mohler's contribution being recognized by a Naval Ordnance Development Award), but in 1944 Mohler wrote the first of a long series of papers describing solar instrumentation and research at the observatory. He was appointed professor of astronomy in 1956, and director of the McMath-Hulbert Observatory in 1961. In 1962, following a year in Liège, he became chairman of the astronomy department at the University of Michigan, serving in this capacity until 1970. He retired in 1979.

Mohler loved fine instrumentation. With Robert McMath he designed spectrographic equipment to exploit the wartime development of the Cashman lead sulfide photoconductive cell, and



MOHLER

in 1955 he published his "Table of solar spectrum wavelengths 11 984 Å to 25 578 Å," which gave data at a resolving power about 100 times higher than had previously been possible. In the visible spectrum, his experiments made it evident that poor "seeing" in the spectrograph prevented the full resolving power of a superb new Babcock grating from being achieved. This discovery led to the design and construction of the first astronomical vacuum spectrograph, which inaugurated a new era in solar spectroscopy.

Mohler's interests covered a wide range of topics in astronomy and its history. As a member of the Board of Governors of the Association of Universities for Research in Astronomy from 1962 to 1974 he contributed in many ways to the planning and operation of the Kitt Peak National Observatory and the Cerro Tololo Interamerican Observatory.

FREEMAN D. MILLER
University of Michigan
Ann Arbor, Michigan

Henry Lewis McMurtry

Henry Lewis McMurtry died in Idaho Falls, Idaho, on 9 June 1985, at the age of 73. At the time of his death he was actively involved in theoretical studies to explain the interatomic forces in molecules and crystals.

McMurtry was born on 28 March 1912 in River Vale, New Jersey, and received his PhD in physics from the University of Chicago in 1941. He taught at Rensselaer Polytechnic Institute in 1941-45 and was a research physicist with Phillips Petroleum Company in Bartlesville, Oklahoma, in 1945-51. He then moved to the National Reactor Testing Station at Idaho Falls, Idaho, working first for Phillips, then for the Idaho Nuclear Corporation and finally for the Aerojet Nuclear

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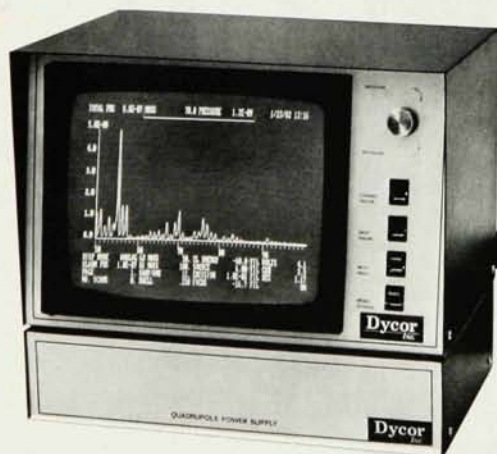
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Company.

Because of teaching demands during World War II, time for research at RPI was very limited. McMurry sought a job in industry to get "some idea of what the world in industrial physics was like," and settled at Phillips, where he investigated the usefulness of infrared spectra in studying molecular binding and configuration.

After a cutback at Phillips in 1950, R. L. Doan recruited McMurry and other physicists to work at the National Reactor Testing Station in Idaho under a new Phillips contract. This work was entirely different from McMurry's previous studies, involving theoretical problems associated with operating the Materials Testing Reactor efficiently and safely. McMurry spent the first several years learning how to calculate what neutrons do in a reactor. Starting about 1956, he was called on to help design reactor cores for the nuclear safety test program then just getting under way.

When the job became more and more what McMurry called putting out "brush fires which taught us little," he took a year off to work at Oxford University with C. A. Coulson on developing a different method of calculating molecular-vibration modes (1957). Upon his return, McMurry collaborated with the experimental neutron-scattering group at MTR in explaining the data they were obtaining on inelastic neutron scattering. As the experiments progressed, the focus shifted from molecules to crystals. Applying methods used in calculating molecular vibrations to the problem of calculating crystal vibrations, McMurry was able to study the forces that bind atoms and molecules together in crystals.

When the Atomic Energy Commission shut down MTR in 1970, the neutron-scattering program disintegrated. After spending several years working on reactor theory and reactor design, McMurry retired in 1974 to again concentrate on his molecular theory work. His year at the Technical University of Denmark in Copenhagen (1974) precipitated a collaboration with Flemming Y. Hansen, which continued during his year with Robert M. Brugger at the University of Missouri Research Reactor (1975) and beyond. In 1976 he began an association with Idaho State University that continued until his death. At the time of his death he was working on lattice dynamics calculations of dispersion relations for molecular crystals using semiempirical potentials.

ROBERT M. BRUGGER

JAY F. KUNZE

University of Missouri, Columbia

FLEMMING Y. HANSEN

Technical University of Denmark

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