worked on lithium-induced reactions, heavy-ion fusion cross sections, Coulomb-nuclear interference, and on nuclear aspects of the solar-neutrino puzzle.

A rugged athlete and avid outdoorsman, Bingham was blessed with a gentle nature. His interests also included woodcraft, antiques, music and farming. He is sorely missed by all who knew him.

E. E. Gross
Oak Ridge National Laboratory
Oak Ridge, Tennessee

F. Ajzenberg-Selove
University of Pennsylvania
Philadelphia

Maurice Ewing

Maurice Ewing, founder and director of the Lamont Geological Observatory at Columbia University, died on 4 May at the age of 67.

I first met him in his office in the basement of Schermerhorn Hall, Columbia University in 1947. He had come to Columbia in 1946 after spending the war years at the Woods Hole Oceanographic Institution. During this period he had worked on acoustic problems in the oceans related to anti-submarine warfare. From this research came SOFAR, a long-range communication system based on the low-velocity sound channel in the oceans, seismic techniques for examining the properties of the sea floor and the first deep-sea camera.

Ewing's group at Columbia consisted initially of a handful of graduate students, a collection of war-surplus equipment, a machine shop and enormous enthusiasm. He managed to discover and capture a set of Vening Meinesz submarine pendulum apparatus and to persuade the Navy to lend submarines for measurement of gravity at sea. His group was one of the first to be supported by the fledgling Office of Naval Research and, having no vessels of its own, used ships of the Woods Hole Oceanographic Institution or small boats to carry out its research.

With Mrs Thomas Lamont's gift to Columbia of her estate overlooking the Hudson River, the Lamont Geological Observatory was founded, and in 1953 Ewing acquired his own vessel, *Vema*. This vessel, a three-masted schooner, soon became one of the most productive in the oceanographic fleet. In 1954, while attempting to lash down some barrels on deck during a storm, Ewing and three others were washed overboard. The accident left him with some physical difficulties, but this in no way diminished his enthusiasm or his activities at sea.

Ewing was a strong believer in economy of operation and was also interested in learning as much as possible about the sea floor. As a result, he

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was instrumental in developing, adapting or improving a great number of techniques for use on shipboard including the precision depth recorder, magnetometer, surface ship gravity meter, seismic reflection and refraction techniques and heat-flow measurements. He always liked to have two wires over the side at once so that more data could be collected and was surprisingly successful at keeping them untangled. His ships measured everything they could on a continuous basis while at sea, a practice that reaped large dividends in later years and made verification of the sea-floor spreading concept possible very rapidly.

Ewing is best known for his marine research, but he and his group also made very large contributions to earthquake seismology, particularly in the application of normal mode theory to the propagation of earthquake surface waves, and to instrumentation for both Earth and lunar seismology. Although he had little stomach for committee work, he was very active on many committees of the National Academy of Sciences and other groups. His participation in committee work was very productive, caused by the feeling of indebtedness that he had to those who had sat on committees and helped him when he was a young scientist. It was largely due to his efforts and perception that solid-earth geophysics played such a strong role in the International Geophysical Year.

Ewing leaves a legacy of remarkable scientific findings, of students—many of whom are leaders in the geosciences today, and of a tradition of dedication to good and productive science. His honors were many and well deserved. His perception of the significance and importance of scientific knowledge to the many segments of the nation's activities was outstanding and can serve as a lesson to others.

Charles L. Drake
Dartmouth College
Hanover, New Hampshire

George A. Van Biesbroeck

George A. Van Biesbroeck, noted for his work on double stars, comets and asteroids, died at the age of 94 on 23 February.

Van Biesbroeck was born and educated in Belgium and was an astronomer for the Royal Observatory in Brussels during 1908–15. He joined the staff of the University of Chicago Yerkes Observatory in 1917 where he stayed until he became emeritus professor in 1945. From 1963 to his death, he worked on the staff of the University of Arizona Lunar and Planetary Laboratory.

His work included the charting of Nereid, the second moon of Neptune, the discovery of 11 asteroids and the discovery of two comets, which now bear his name. During the late 1930's he was involved with establishing the MacDonald Observatory in Fort Davis, Texas.

William P. Jesse

William P. Jesse, research professor at Illinois Benedictine College, died on 17 February at the age of 82. He received his doctorate from Yale in 1924 and then worked at several institutions including the University of Chicago (1934–41) and Argonne National Laboratory (1947–56).

His research included ionization of gases, x and cosmic rays, nuclear physics and crystal structure.

Edward L. Hill

Edward L. Hill, emeritus professor of mathematics and physics at the University of Minnesota, died on 7 January at the age of 69.

Hill, an APS fellow, received his physics degrees from the University of Minnesota, the institution where he taught from 1928 until his retirement in 1970. During World War II, he was a consultant to the Navy and was an editor of *Physical Review* in 1950. His fields of work included the theory of relativity, theoretical physics, quantum mechanics and atmospheric physics. □