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sity, Fullerton, was shot and killed in his office on 13 October 1984. A Vietnamese student refugee confessed to the shooting, was convicted of involuntary manslaughter, and on 17 May 1985 was sentenced to three years in prison (see PHYSICS TODAY, July, page 71).

Cooperman was born on 4 September 1936 and received his PhD in physics from Pennsylvania State University in 1963. He was trained as a nuclear physicist and worked jointly at Arizona State University and Los Alamos National Lab (1963–64). After an appointment at the University of Strasbourg (1964–67), he joined the Fullerton faculty in 1967. He served the department as acting chairman for three years, chairman for three years and vice-chairman for six years.

Cooperman was known for his commitment to quality teaching, for his tireless efforts and untold hours spent in tutoring students, and for his research and humanitarian activities in the transfer of science and technology to less-developed countries. Cooperman's concern for the "wretched of the Earth," and especially for the children, manifested itself most particularly in his scientific aid to Vietnam. He founded and was president of the US Committee for Scientific Cooperation with Vietnam. He was the principal adviser to UNESCO for scientific assistance to Vietnam. In addition, he was active in the US–Vietnam Friendship Association and became fluent in Vietnamese.

Converting the destruction of war into reconstruction for peace was a major theme of Cooperman's work. For example, he arranged consultations for the conversion of mosquito-infested bomb craters into fish farms. He also encouraged the use of high technology in ways that improved the human condition, such as using microchips to develop inexpensive hearing aids for hard-of-hearing children.

At the time of his death, Cooperman was translating the book *Where There Is No Doctor* into Vietnamese, to provide medical advice to those living in rural areas where trained MDs are unavailable. He had also begun a study of the long-range effects of human exposure to Agent Orange and dioxin, recognizing that Vietnam is a primary human laboratory for such work. In addition, Cooperman was working with the National League of Families to obtain information from the Vietnamese government about US personnel still listed as missing in action. He worked for the release and immigration of prisoners still confined to re-education camps, knowing that some of these refugees would probably oppose his efforts to rebuild Vietnam and that it was probably from such refugee groups that he had received threats against his life.

He also tried as an individual to help establish a rapprochement between the governments of Vietnam and the United States. After virtually every trip to Vietnam, he was contacted by officials of the US State Department regarding his observations and his impressions of the Hanoi government's views. The Vietnamese government knew of and respected his efforts.

Cooperman was known and admired in our university for his personal, active and absolutely unswerving commitment to academic freedom, civil liberties and human rights, and to the collective development of a social responsibility among scientific and technological workers. Our colleague and friend will be sorely missed, but we take consolation in the fact that we had such a close association with him all these years and in knowing that his example survives and that his work will continue.

DOROTHY S. WOOLUM
ROGER DITTMANN
*California State University*
*Fullerton, California*

## Gerald Chanin

On 8 January 1985, after a year-long illness, Gerald Chanin died in Verrières-le-Buisson, France.

Chanin was born on 25 February 1933 in New York City. He pursued his education in physics at Rutgers University, receiving a doctorate in 1959. At Rutgers he developed a lasting interest in the technology of experimental low-temperature physics, continuing to apply the techniques to other fields of physics throughout his career.

Chanin's PhD thesis on the effect of impurities on the superconducting transition temperatures of indium and aluminum subsequently led to the development of a theory of "dirty superconductors." In 1959 he joined the physics faculty at the University of

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Pittsburgh. He continued his research in superconductivity, determining the critical magnetic field of superconducting aluminum, and started similar measurements on superconducting lead, work which he completed after leaving Pittsburgh.

In 1963, Chanin moved to suburban Paris (Verrières-le-Buisson), where he began research at the aeronomy department of CNRS.

In France, while continuing research in superconductivity, Chanin applied cryogenic techniques to the development and use of infrared detectors on vehicles launched into the upper atmosphere or into space. At the aeronomy department he became an expert on cryogenically cooled infrared detectors and was one of the leaders in advancing a program to exploit high-resolution infrared spectroscopy for the Infrared Satellite Observatory. Although his health during the past year was so poor that he was able to work for only an hour or two each day, Chanin was still actively engaged in the developments associated with infrared detectors for the ISO project.

In addition to his professional work, Chanin had an acute awareness of the impact that science has had on society, particularly regarding the development of military systems. He was an active participant in the debate about the likely success of various programs that were proposed to insure the survival of our society after a nuclear war.

M. P. GARFUNKEL
*University of Pittsburgh*
*Pittsburgh, Pennsylvania*

## James Howard McMillen

James Howard McMillen, the first program director for physics at the National Science Foundation, died on 26 March 1985. In his 19 years as program director, McMillen provided early leadership for the development of the physics programs of NSF.

Born on 24 April 1904 in Ft. Wayne,