

atomic spectra.

Rapoport involved many of his students in scientific research. His high standards for teaching made him a leader in education, not only in physics but in many other programs at Voronezh State University. For example, he was a member of the university's scientific council, on which he actively influenced both the curricula and the scientific research of the university's mathematics and science departments. During the last quarter century of his life, he was the leading professor at Voronezh State University. In all, he trained 25 PhD students, 8 of whom subsequently obtained the DSc degree in physics and became professors who are now working in Russia and abroad. One may say that Rapoport guided the development of both the curricula and the faculty of the department of theoretical physics.

The high quality of his research brought Rapoport increasing recognition. For his pioneering contributions to the theory of multiphoton processes in atoms, he was awarded the DSc degree in 1970 by Leningrad State University (now St. Petersburg State University). In 1980, he was given the title Distinguished Scientist of the Russian Federation, which is an honor granted annually by the Russian government to only about 100 scientists in all scientific fields. Additionally, he was among the first recipients of grants for fundamental research from both Russian and international scientific foundations, including the Russian Foundation for Basic Research and the International Science Foundation. Rapoport also served on the Russian Academy of Science's Scientific Council for Atomic Spectroscopy and Scientific Council for Coherent and Nonlinear Optics.

Rapoport was intellectually inquisitive; his interests were not limited to physics or science. For example, he was quite knowledgeable about literature and the arts. Although he was apolitical, when decisions needed to be made, he took a democratic position. But most of all, he was known to be enthusiastic about his interests. Consequently, he was a natural-born leader and the life of any gathering. Also, he typically devoted himself entirely to whatever he was doing, regardless of whether it was science or playing chess with his students. He was fortunate that his vitality lasted essentially all his life. When he turned 80 years old, a television program (on Voronezh's regional TV) about him showed him as both physically and intellectually vigorous.

One of the many anecdotes about

his passion for his interests was an occasion on which he was playing chess with students until very late at night. His wife Svetlana telephoned his office, wondering why he was not coming home. Rapoport was so involved and excited about the game that he blurted out, "Oh, it is raining so hard here! I must wait until it slows down." Since his office was not far from his home, his surprised wife replied, "But we do not have any rain here! The weather is nice!" to which he answered, "Oh, it is a real disaster here. It is raining very hard!"

Especially at the Voronezh State University's department of theoretical physics, we have suffered a deep loss in the departure of Rapoport. We mourn his passing.

NIKOLAI L. MANAKOV
VITALI D. OVSIANNIKOV
Voronezh State University
Voronezh, Russia

Translation assistance by Anthony F. Starace

Raymond Leroy Kelly

Raymond Leroy Kelly, an atomic spectroscopist, compiler of spectroscopic data, and emeritus professor of physics at the Naval Postgraduate School (NPS) in Monterey, California, died of complications of cancer on 29 September 2000 at a hospital in Monterey.

Born on 2 February 1921 in Rockford, Illinois, Raymond served as a cryptographic expert in the US Army Air Force during World War II. In 1947, he earned his BS in physics from the University of Wichita, Kansas. He received his doctorate in physics from the University of Wisconsin-Madison in 1951. His doctoral thesis was entitled "Infrared Dispersion in Acetylene."

That same year, Raymond accepted a position as a staff scientist at the Stanford Research Institute (SRI) in Palo Alto, California, where he began his detailed studies of ultraviolet atomic spectra. In 1960, he joined the physics department of the NPS, where he taught a range of courses in optical and atomic physics, advised thesis students, and served one term as department chairman. He became a full professor in 1967.

Raymond's meticulous attention to detail resulted in numerous critical compilations of spectroscopic data extending from the ultraviolet to the x-ray spectral regions. During a period spanning from 1966 to 1980, he closely collaborated first with the Naval



RAYMOND LEROY KELLY

Research Laboratory (NRL) in Washington, DC, and later with NASA on spectral line identifications. Raymond pioneered the use of computers to both collect and electronically print the volumes listing wavelengths and energy levels of ions and atoms. His compilations proved to be extremely valuable to spectroscopists in the fields of astronomy, astrophysics, and laser and plasma physics.

In 1971, he was appointed to the National Academy of Science's National Research Council committee on spectral lines. He also generated extensive Grotrian diagrams for ions commonly found in laboratory plasmas. In his close interactions with NRL, he initiated a program whereby naval officers pursuing advanced degrees at the NPS could obtain hands-on experience in the laboratory while, in turn, lending their naval viewpoint to the research projects in a mutually beneficial experience. Raymond retired from the NPS in 1983.

His efforts in compiling the spectroscopic data eventually culminated in a monumental three-volume set entitled *Atomic and Ionic Emission Lines Below 2000 Angstroms: Hydrogen through Krypton*. That work, published in 1987 by the National Bureau of Standards (now NIST), contains 35 000 entries.

After he retired, Raymond spent much of his time as an avid photographer who had a keen eye for the beauty of nature. He brought much pleasure to his associates at the NPS and elsewhere with his beautiful photographs, some now on permanent display in the NPS library.

Raymond shared a unique and enjoyable sense of humor. He is missed as an esteemed and valuable

colleague and as a close friend to his associates and former students.

RAYMOND C. ELTON

University of Maryland, College Park

OTTO HEINZ

KARLHEINZ F. WOEHLE

Naval Postgraduate School

Monterey, California

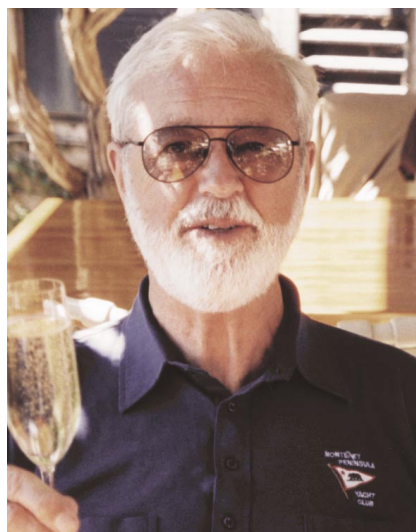
John Robert Neighbours

John Robert Neighbours, emeritus professor of physics at the Naval Postgraduate School (NPS) in Monterey, California, died of an inoperable brain tumor on 16 September 2000 in his Monterey home.

Born on 22 November 1924 in Cleveland, Ohio, John served as a US Army photographer in the Pacific theater at the end of World War II. He was among the first US soldiers to enter Nagasaki after it had been devastated by "Fat Man," the second atomic bomb used in war. After serving almost three years in the Army, he entered the Case Institute of Technology, where he earned three degrees in physics: a BS in 1949, MS in 1951, and PhD in 1953.

Immediately after graduation, John served for two years as an assistant professor of physics at Rensselaer Polytechnic Institute. He joined the scientific laboratory of Ford Motor Co in 1956 as a senior research scientist. In 1959, he became an associate professor of physics at the NPS, which had recently relocated from Annapolis, Maryland, to Monterey. John spent the remainder of his career with the school.

John's physics interests were eclectic: His earlier work (until the 1970s) was in solid-state physics and the properties of materials, but he also was active in the fields of phase transitions, cryogenics, elastic-wave propagation, and energy flow in anisotropic media. Of specific interest to him was that ultrasonic waves propagating in various directions in a single crystal yielded the various elastic constants of the material. In the 1950s and 1960s, John, Charles S. Smith, George A. Alers, and Frank H. Featherston conducted their earliest measurements of the elastic constants of nickel and copper. Later, their measurements included silver, gold, and zinc. The measurements were generalized to high pressures and lower temperatures. John supervised the work of Featherston, who received the first physics PhD granted by the NPS in 1963.



JOHN ROBERT NEIGHBOURS

Maintaining the NPS as his primary affiliation, John also was the chairman of the physics department at Colorado State University from 1969 to 1970 and a visiting scientist at the Naval Research Laboratory in Washington, DC, periodically during the 1970s. In the early 1970s, John edited two classified editions of *Handbook of Laser Effects* for the US Navy. His later work involved research in the generation of coherent radiation with relativistic electron beams. John worked as a liaison scientist with the London branch of the Office of Naval Research from 1980 to 1981. During his career, he also consulted for TRW Inc; Sandia Corp (now Sandia National Laboratories); Boeing Research Laboratory; and several Navy laboratories. With us (Buskirk and Maruyama), John predicted and measured microwave Čerenkov radiation as a diffraction phenomenon at the NPS electron linear accelerator in the 1980s.

After his retirement from the NPS in 1994, John completed perhaps the greatest task in his career: building almost single-handedly his 28-foot racing sloop *Calphurnia*. John possibly holds the record for maintaining his position on the waiting list for a slip at Monterey Harbor for the longest period while he constructed the yacht. His other myriad interests included politics, sports, photography, movies, mountaineering, and good Irish whiskey shared with friends.

Until the last few days of his illness, John was in good spirits and maintained his sense of humor and his love for family, friends, and stray cats.

XAVIER K. MARUYAMA

FRED R. BUSKIRK

*Naval Postgraduate School
Monterey, California ■*