Robert DeWitt Huntoon

coordinator of Atomic Energy Commission projects at NBS.

From 1951–53, Huntoon served as director of the NBS Corona laboratories in California, overseeing a military research and development program that included guided missiles, infrared measurement and electronic ordnance devices. He then returned to NBS in Washington, DC. In 1958 he was appointed the first deputy director, essentially supervising the internal operations of NBS. In 1963 he became the deputy director for basic standards and services, including the Standard Reference Data program. The following year, when NBS was reorganized into specialized institutes, he became director of the Institute for Basic Standards. In 1967 he was appointed the first chief of the Office of Program Development and Evaluation, serving in this capacity until his retirement the following year.

The positions Huntoon held at NBS indicate his extraordinary range of interests and competence in science and technology, covering atomic beams, experimental nuclear physics, secondary emission phenomena, microwave measurements, electronic ordnance devices, atomic physics, guided missiles, computers and fundamental physical constants.

With Ugo Fano in 1950 Huntoon directed attention to the possibility and desirability of adopting a complete set of atomic standards of physical measurement, replacing the established arbitrary standards.

His most notable achievement was formulating the concept of a national measurement system for modern science and trade. He used a systems approach to improve understanding of the nation's measurement activities and of the vital importance of NBS at the apex of the pyramid, setting the primary standards of measurements. These were then the bases for the network of measurements by industry and commerce. His concept led the White House Office of Science and Technology to establish in 1963 the National Standard Reference Data System, with NBS assigned the responsibility for its administration and coordination. In his active retirement these ideas continued to grow, and he introduced them to the leaders of many other countries, where he bonded technical understanding with personal friendships.

Bob Huntoon is best remembered by those who worked with him for his calm manner, even when surrounded by the near chaos of war, and for his clear scientific thinking. His was the rare and remarkable combination of scientist and manager, with the scientist being predominant.

JACOB RABINOW
National Institute of Standards and Technology
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Carl Oberman

Carl Oberman, formerly of Princeton University and an adjunct professor in the physics department of the University of California, Irvine, died of lung cancer on 12 April 1993.

Carl was born in California on 29 July 1925. He served in the US Army from 1943–46, then received his BS in physics from the California Institute of Technology in 1948. In 1954 he received his PhD in physics from Ohio State University. From 1952–55 he was an assistant professor of physics at Lafayette College in Pennsylvania.

In 1955 Carl joined Princeton University's fledgling Project Matterhorn (later to become the Princeton Plasma Physics Laboratory), whose goal under the direction of Lyman Spitzer was to develop nuclear fusion for commercial power production. In 1966 Carl became both a principal research physicist at PPPL and a lecturer with the rank of professor in the university's department of astrophysical sciences. He remained in those positions until 1991, when he moved to the University of California, Irvine.

In Carl's almost 40-year career in plasma physics, he made seminal contributions to a variety of important areas. With Martin Kruskal, he developed the energy principle for kinetic plasma stability, which is still explored and generalized today. Carl pioneered the rigorous mathematical calculation of the classical high-frequency conductivity of a fully ionized plasma; the insights and techniques for radiation theory that stemmed from this research are now classic. His insight and tenacity were essential in the development of the nonlinear theory of parametric instabilities within the weak-turbulence framework, including the problem of nonlinear saturation. With his students and colleagues, Carl then carried out a campaign to systematize the foundations of plasma turbulence and transport theory, transforming that theory into a practical tool; he remained deeply interested in this topic and other challenges of nonlinear physics for the remainder of his career.

Carl demonstrated superb judgment in his choice of research problems; many of his papers have stood the test of time. He had the highest integrity, both scientific and personal. His passion for physics, deep insight and careful attention to proper foundations inspired the successful research careers of several generations of his graduate students. Carl's sociability, acute wit and constant output of improbable stories brightened the lives of all those who interacted with him. As a pioneering physicist, role model and friend, he is greatly missed.

JOHN KROMMES
ERNEST VALEO
Princeton University
Princeton, New Jersey
NORMAN ROSTOKER
University of California, Irvine

Michael A. Schluter

The death of Michael A. Schluter on 17 November 1992, at the age of 47, was a tragic loss for the condensed matter physics community and especially for his many colleagues who regard his scientific work with deep respect and admiration. He will be remembered as much for the exceptional lucidity of his technical presentations and the diplomatic style of his personal interactions as for his scientific achievements.

Michael was born on 23 February 1945 in Straubing, Germany. He received his Diplom degree in physics in 1969 from Karlsruhe Technical University and his PhD in 1973 from the Ecole Polytechnique Federale in Lausanne, Switzerland, where he did theoretical work in Emanuel Mooser's group on the electronic structure of layered compounds.

Michael then spent two years as a postdoc in Marvin Cohen's group at the University of California, Berkeley, and in 1975 he joined AT&T Bell Laboratories as a permanent member of the technical staff. He stayed at

Bell Labs for the remainder of his career, becoming head of several research departments: condensed state physics in 1986, theoretical physics research in 1990 and semiconductor physics research in 1992.

Michael Schluter published more than 200 technical articles with more than 100 collaborators and edited numerous scientific books. His research focused on the electronic structures of surfaces, interfaces, defects and adsorbates in a broad range of materials. With his colleagues, he developed the self-consistent Green's function method, which became a highly successful standard tool for calculating the electronic structures of defects. Studies of pseudopotentials, density functional theory, quasiparticle excitations, semiconductor clusters, high-T_c oxides and fullerenes attest to the enormous breadth of his scientific interests and theoretical repertoire.

Michael's exceptional ability both to communicate theoretical ideas to experimentalists and to convey to theorists the essence of experimental results was highly valued and made him a sought-after speaker at scientific meetings around the world. Fluent in three languages, he was the mentor for a group of talented young students from around the world who became successful scientists in their own right.

Michael Schluter was diagnosed as having brain cancer in March 1992. He approached his disease as he approached every scientific problem: Get all the information possible, enlist the cooperation of anyone who might be able to help, do everything possible to solve the problem, and communicate the progress being made. He remained a remarkable role model to the end—showing dignity and courage as he dealt with the illness that finally took his life.

GENE A. BARAFF
HORST L. STORMER
AT&T Bell Laboratories
Murray Hill, New Jersey
MARVIN L. COHEN
University of California, Berkeley

Gabriel Bourgois

Our colleague and friend Gabriel Bourgois died in a mountain accident on 22 February 1993. He was director of research at the Centre National de la Recherche Scientifique and had just been appointed director of the Nançay Radio Astronomy Observatory.

Gabriel was born in Paris on 6 September 1939. He graduated in physics from the Ecole Normale Supérieure de Saint-Cloud in 1964 and completed his PhD in radio astronomy at the Observatoire de Meudon in 1969.

Much of Gabriel's professional life was devoted to the study of radio propagation in random media, first in the solar wind and later in the interstellar plasma. Following his PhD thesis, which was on intensity scintillations resulting from the passage of cosmic radio source signals through the solar wind, he published the first such observations at centimeter wavelengths, using the Nançay telescope at 11 cm. In 1974 he began at Nançay a continuing study of the frequency dependence of solar wind scintillations. The spectra he obtained provided an unbiased measure of the level of turbulence near the Sun at which the scintillations are saturated. These observations showed how solar wind turbulence depends on solar latitude and how the turbulence evolves during the solar activity cycle.

In 1983 Gabriel and colleagues from the University of California, San Diego, realized that slow variations in the apparent intensities of pulsars are not intrinsic to the pulsar but are caused by refractive scintillation in the interstellar medium. They also predicted that refractive scintillation would be seen for many other sources, in particular meter-wavelength variable sources and the OH and H_2O masers. This prediction was quickly confirmed, and it is now known that refractive scintillation has an important effect on many radio astronomical observations.

In 1985 Gabriel began a continuing program of precise timing observations of millisecond pulsars at Nançay using an innovative receiver based on a swept local oscillator developed by Francois Biraud. These observations, which have reached a precision of 0.3 microseconds, are a valuable probe of neutron star physics, interstellar plasma turbulence and even gravitational radiation. Gabriel was deeply involved with a project to upgrade the Nançay telescope. His colleagues will carry this project through, in his memory.

Gabriel was a very open and forthright person. If you met him once, you felt you had known him forever. Gabriel has left us, but he will remain present in our memory.

ERIC GERARD
Nançay Radio Telescope Observatory
Meudon, France
WILLIAM COLES
BARNEY RICKETT
University of California, San Diego ■