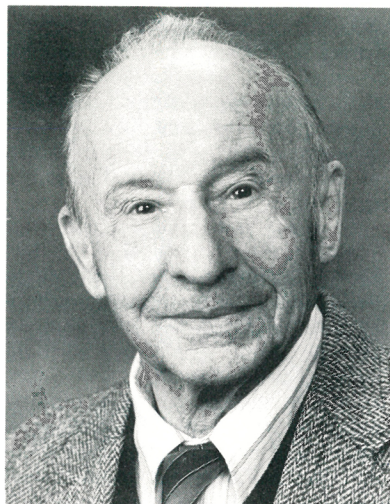




RAYMOND G. HERB

in physics. He remained at his alma mater throughout his academic career, except during World War II when he did radar work at MIT. He became a full professor in 1945, the Charles Mendenhall Professor in 1961 and retired as emeritus professor in 1972.

In the early 1930s, while still a graduate student, Herb initiated nuclear physics at Wisconsin. His subsequent innovations in electrostatic accelerators (including electrostatic gradient control, pressure insulation and an ultrahigh-vacuum accelerating tube) converted Robert Van de Graaff's devices into precision machines, which became the workhorses of nuclear science: Two Wisconsin machines were loaned to Los Alamos in 1943 and operated around the clock to provide needed nuclear data for the Manhattan Project.

After Herb returned to Wisconsin from MIT in 1946, he and his coworkers pioneered the absolute energy measurements (by an electrostatic cylindrical analyzer) of sharp nuclear resonances and of neutron thresholds to give convenient calibration points for precise studies of such parameters as nuclear energy levels.

Herb and his students also developed practical negative ion sources that made tandem accelerators feasible. Their contributions to vacuum science and technology include the titanium getter pump, Orbitron ion gauge and metal ceramic bonding for insulating columns and acceleration tubes. The fabric charging belts were replaced by insulated "pellets," and Herb's machines became "Pelletron accelerators."

Allan Bromley reported that in 1969, 87% of all new results on the nucleus presented at American Physical Society meetings had been obtained with electrostatic accelerators!

But Herb's contributions were not

limited to equipment and accelerators. He and his many students did the early experiments demonstrating sharp resonances in (p,p) and (p, γ) reactions, and they also did the seminal experiments on precise p-p scattering necessary for the charge independence hypothesis of nuclear forces. His work earned him many honors, including election to the National Academy of Sciences.

Along with his scientific stature, Herb demonstrated exceptional talents in dealing with people. His optimism and common sense were no small factor in the building up and holding together of the Wisconsin physics department. They were also factors in the subsequent success of National Electrostatics Corp, which he founded in 1965 with the help of two students.

Over three decades, Herb's company has installed Pelletron accelerators worldwide. Among electrostatic accelerators, the one at Oak Ridge has the highest operating voltage in the world (25.5 MV). NEC also produces MeV ion implanters for modifying materials, as well as other accelerators for analyzing materials with Rutherford backscattering analysis, particle induced x-ray emission and accelerator mass spectrometry. Two of his company's 5 MeV electron accelerators are currently used to x-ray trains for security purposes in the tunnel beneath the English Channel. Another NEC accelerator is used at the Louvre in Paris to detect forged artwork.

Eugene Wigner overlapped with Ray Herb's early years at Wisconsin, and he was impressed with Ray's professional and personal qualities. At the 1963 dinner for Nobel prizewinners, Wigner paid tribute to the teachers who had most influenced him, noting that "We also learn from contemporaries and younger colleagues.... In leadership, a young man at the time, Ray Herb was my tutor."

HUGH T. RICHARDS

University of Wisconsin-Madison

S. Perry Schlesinger

S. Perry Schlesinger, a professor of electrical engineering at Columbia University since 1956, died on 22 July 1996 at the age of 77 from lung cancer.

Perry received his BA in electrical engineering from Michigan State University in 1941. Following service in the US Navy during World War II, he pursued graduate studies, also in electrical engineering, at the US Naval Academy Post Graduate School; Union College, where he received an MS in 1950; and Johns Hopkins University, where he earned a doctoral degree in electrical engineering in 1957.

Perry was a research associate at the Radiation Laboratory of Johns Hopkins University in 1953-56, and participated in the first broad spectral measurement of ocean backscattering parameters.

As a member of both the electrical engineering and applied physics departments at Columbia University (1956-87), he taught and conducted research in the areas of plasma physics, electromagnetics and microwaves. Notable among his early contributions were the study of the phase-controlled V-line antenna, the first analysis of inhomogeneous dielectric waveguides and, with his student Paul Diamant, the discovery of a new class of open dielectric normal modes. This work has had an important impact on the study of optical fibers.

After spending the year 1962-63 as a visiting scientist at the Princeton Plasma Physics Laboratory participating in an experiment on the Model-C Stellerator, Schlesinger became a founding member of the Columbia Plasma Physics Laboratory and began a program of research on electromagnetic wave interaction with plasma. With his student Victor Granatstein, he made the first identification and classification of nonquasistatic, columnar, magneto-plasma guided modes.

In 1973, he and his colleague Tom Marshall began exploring high-powered wave generation from intense relativistic electron beams. With his student Philip Efthimion, he studied the radiation generated from a beam moving along a long rippled magnetic field. This work led to the realization of the first 3-wave Raman free electron laser (FEL) oscillator, in joint experiments at Columbia and the Naval Research Laboratory that have made seminal contributions to Raman FEL research.

Schlesinger was chairman of Columbia's electrical engineering department from 1980 to 1983, and became an emeritus professor in 1987. In addition to his scientific and academic pursuits, he was a man of broad interests with a passion for driving MG sports cars, studying of the Hebrew language, and playing the clarinet in two local orchestras. Perry Schlesinger will be remembered as a caring and kind teacher by his students with whom he formed many lifelong friendships.

VICTOR GRANATSTEIN

University of Maryland at College Park

THOMAS MARSHALL

Columbia University

New York, New York

PAUL DIAMANT

Columbia University

New York, New York

PHILIP EFTHIMION

Princeton Plasma Physics Laboratory

Princeton, New Jersey ■