

exchange diagrams for multiparticle processes, and for his work on high-energy hadron-nucleus collisions. Most recently he had investigated the implications of confinement on the parton model and carried out an exhaustive study of two-dimensional QCD that made possible a consistent parton interpretation of this theory with confined quarks.

His intensity and enthusiasm in tackling a physics problem and his friendly and incisive questioning were stimulating to all who were fortunate to know him. High-energy physics, as a discipline, has lost a theorist of great talent and accomplishment, and, as a community, has lost a magnanimous and inspiring colleague.

MARSHALL BAKER
University of Washington

RICHARD BROWER
University of California at Santa Cruz
CARLETON DETAR
University of Utah

Frank J. Sacherer

Frank J. Sacherer, a theoretical physicist who specialized in accelerator science at the CERN laboratory in Geneva, died 30 August. Sacherer met his death in the same mountaineering accident that killed Joseph Weis (see preceding obituary). He was 38.

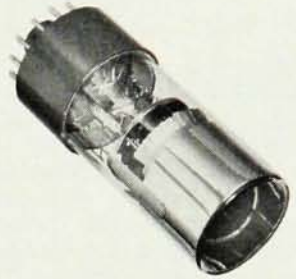
Frank was born in San Francisco, attended the University of San Francisco as an undergraduate and then came to the University of California at Berkeley, where he received his PhD in physics under my supervision at the end of 1968. He became a member of the CERN staff in 1970, and in the brief time since then developed into one of the world's foremost accelerator theorists. Success in that discipline includes close participation in machine development, so that CERN, in particular, has suffered a grievous loss through his unexpected death.

His major interest had been in collective effects, phenomena arising from the interaction of intense beams with themselves and their surroundings and which, in large part, limit achievable intensities in high-energy accelerators. He established a general framework for dealing with these effects, which is in wide use. In the last few years he had also become a leading authority on stochastic cooling, a scheme that increases the density of particles in phase space and opens the way to a practical proton-antiproton colliding-beam facility. One such facility is now under construction at CERN and another is planned for FermiLab; the confidence to go ahead with such plans is due in considerable part to Sacherer's contributions in understanding and controlling the process.

He was always extremely diffident about his accomplishments, bemoaning the fact that he couldn't accomplish more. The world accelerator community has lost

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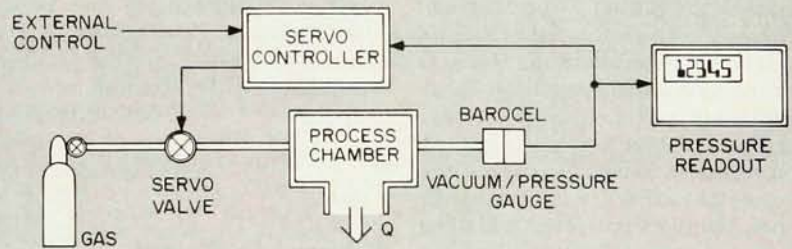
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obituaries

an important colleague whose help we were counting on for many years to come.

LLOYD SMITH
Lawrence Berkeley Laboratory

Merriam Hartwick Trytten

Merriam H. Trytten, who died on 8 September 1978 in Decorah, Iowa, aged 84, was in the vanguard of physicists who went to Washington during World War II and stayed as advisers to government. Trytten dedicated himself to solving problems of "scientific manpower," as it was called then. His concerns spread to other fields, and, as director of the Office of Scientific Personnel of the National Research Council for over two decades, he helped to mold public policy and conduct programs in all fields of science and engineering. But his roots were in physics.

Trytten's PhD was awarded by the University of Pittsburgh in 1928. He had earlier received his bachelor's degree from Luther College in Decorah and a master's in physics from the University of Iowa, and had served in the Army in World War I. As the head of the small physics department at the Johnstown branch of the University of Pittsburgh he then came face to face with the products of the regional high schools. He became concerned about the improvement of school physics teaching, and his articles on the preparation of physics teachers soon brought him national attention.

In 1941 Trytten joined the Office of Scientific Research and Development under Vannevar Bush to help recruit scientists for the Manhattan Project. Assignments with the National Manpower Commission, the National Committee of Physicists, and as director of the Office of Scientific Personnel followed. He was also active on physicists' behalf in Selective Service matters.

After the war there was a surge of activity in response to concerns about the adequacy of the nation's stock of scientific personnel. University science had to be rebuilt, a gap created by the missing generation of graduate students filled, and connections in international science restored. There was much to be done, and Trytten and the Office of Scientific Personnel were in the thick of it.

Trytten played a key role in setting up several graduate and postdoctoral fellowship and associateship programs in science, including a predoctoral fellowship program supported by the Atomic Energy Agency, a graduate fellowship program and a series of postdoctoral awards originated with support by the new National Science Foundation in 1952, and the National Research Council's Postdoctoral Research Associateship programs, which began in 1955.



TRYTTEN

Among the studies of human-resource problems of many different kinds that were stimulated by Trytten were a series, published in the 1950's and 60's, on the process by which the nation identifies talent, educates young people and provides employment. Also in the 1950's Trytten encouraged a study of the system of education in the Soviet Union.

I could cite many other of Trytten's contributions, but these will serve as evidence of his busy and productive life. In the flux of Washington committees, projects, legislation and reports, Trytten maintained a reputation for objectivity and intellectual integrity that earned him universal respect.

The family and friends are establishing a memorial scholarship fund at Luther College. Contributions may be sent to the Merriam H. Trytten Memorial Scholarship Fund, Luther College Development Office, Decorah, Iowa 52101.

WILLIAM C. KELLY
*Commission on Human Resources
National Research Council*

Edward O. Salant

Edward O. Salant, a physicist at Brookhaven National Laboratory for almost 20 years and Professor Emeritus of Physics at Vanderbilt University, died 13 September at the age of 78. Salant received his BA from Columbia College in 1922 and his PhD in physical chemistry from the University of London in 1924. He was an associate professor of physics from 1929 to 1941 at Washington Square College of New York University.

During World War II, Salant worked with the Proximity Fuse Project at Johns Hopkins. After the war, he divided his time between New York University and the Applied Physics Laboratory at Johns

Hopkins, where he began research on flame spectra and on cosmic rays.

In 1947 Salant formed the Nuclear Interaction Group at Brookhaven National Laboratory. He remained at Brookhaven until 1966, when he became a professor of physics at Vanderbilt University in Nashville, Tennessee. He retired from Vanderbilt in May 1972 and was made Professor Emeritus of Physics by the university. At the time of his death, Salant was a Guest Senior Physicist at Brookhaven.

Andrew Longacre

Andrew Longacre, retired professor at Syracuse University, died 26 September in Rutland, Vermont at the age of 74. Longacre received his BS in 1926 from Wesleyan University and his PhD in physics in 1933 from Princeton University. He served as an instructor at Phillips Exeter Academy in New Hampshire from 1933 to 1941, when he joined the staff of the MIT Radiation Laboratory. In 1946 he became assistant director of physics at Oak Ridge National Laboratory, a post he held for 2 years, when he was appointed professor of physics at the University of Illinois. He joined the faculty of Syracuse University in 1957 and remained there until his retirement in 1971. Longacre also held various research positions with the US Army throughout his career, and developed and patented several basic radar devices and microwave systems, especially noncoherent Doppler techniques and systems.

Alma Marcus Gray

Alma Marcus Gray, research physicist at Watervliet Arsenal in Watervliet, New York, from 1964 to 1976, died 1 September. Born in Rotterdam, the Netherlands in 1925, she emigrated to Canada in 1940 and earned a BS in mathematics and physics from McGill University in 1948 and an MS in applied mathematics in 1950. During the early 1950's she worked with Gerhard Herzberg at the Canadian National Research Council and with Frederik Seitz at the University of Illinois. In the late 1950's Gray worked at Sprague Electric Company in North Adams, Massachusetts. She received her PhD in solid state physics from Rensselaer Polytechnic Institute in 1964.

A theoretician, she was author or coauthor of numerous articles on semiconductors and crystals, and she recently helped pioneer a perturbation approach to the calculation of pressure-induced band structure shifts in crystals.

In the early 1970's she became increasingly concerned about the environment, and she received an MS in environmental engineering from Rensselaer Polytechnic Institute in May 1978. □