BURCH

Radio Research Lab at Harvard. In 1946 he did high-vacuum research at Metropolitan-Vickers Electrical Company and joined the staff at what is now the Institute of Science and Technology at Manchester University. Since 1965 he has been professor of physics at University College, Cardiff. He has also served as vice-president for education at the Institute of Physics from 1970 to 1975, as chairman of the Committee on Teaching Science of the International Council of Scientific Unions from 1978 to 1982, and since 1977 he has been professor of experimental physics at the Royal Institution.

Roger Cashmore was honored with the Charles Vernon Boys Prize "for his many and original outstanding contributions in the field of experimental high energy physics."

Early in his career, Cashmore was interested in experimental baryon and meson spectroscopy, particularly in observing new states and measuring their decay properties. Results from this work contributed to our understanding of quarks. He later investigated the interactions of leptons, quarks and gluons using the PETRA storage ring at DESY. Out of this work come the discovery of the gluon bremsstrahlung, predicted by quantum chromodynamics, and the observation of weak-interaction effects in both lepton and quark production. Cashmore is now interested in developing future e^+e^- and ep colliding-beam machines.

After obtaining his PhD from Oxford University in 1969, Cashmore became a research associate at the Stanford Linear Accelerator until 1974, when he returned to Oxford as Research Officer in the department of nuclear physics. From 1977 to 1979 he was senior research fellow at Merton College; he has also been a lecturer at Oxford and a tutorial fellow at Balliol. From 1982 to 1987 he will be a SERC senior research fellow.

The Thomas Young Medal was given to James Burch "for his many contributions to the application of optical principles to practical engineering problems, including the use of holographic and speckle interferometry and white light moiré photography in the measurement of deformation, vibration and strain."

Burch invented the scatter-plate interferometer used for testing optical systems, and developed new methods for making accurate linear and radial metrological gratings, now used for precise length and angle measurements in modern machine tools. He also played a significant role in the development and application of lasers: he was one of the (independent) inventors of holographic interferometry and was a pioneer in the use of holographic and speckle interferometry as noncontact methods for measuring displacement, vibration and strain. He orginated the use of white-light moiré photography, to extend optical methods of measuring deformation in large structures. He wrote, with Anthony Gerrard, *Introduction to Matrix Methods in Optics*. He is now primarily interested in developing a new form of monocentric axicon lens for close-range photogrammetry.

After serving in the RAF, Burch received his PhD from Bristol University in 1954. Since then he has been at the National Physical Laboratory in Teddington, except for short periods spent as a visiting professor at various universities in the US and the UK.

The Glazebrook Medal was presented to Alan Gibson "for his work in establishing and subsequently operating the laser facility" at the SERC Rutherford Appleton Laboratory.

Gibson had assumed his present position as head of the Laser Division of the Rutherford Appleton Lab in 1977. As the first director of the SERC Laser Facility at the Lab, he has succeeded in

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establishing it as a noted scientific center in a few short years.

In addition to his contributions as director of the facility, Gibson is the author with R. J. Elliott of *Solid State Physics and Its Applications* and has served as the editor for nine volumes of *Progress in Semiconductors*. His research interests have included the use of infrared lasers to study the properties and applications of semiconductors at high light intensities, and he has made contributions to the physics of semiconductors and to the development of laser detectors, especially by making possible the detection of infrared laser pulses and through the stabilization of CO^2 lasers.

After graduating from Birmingham University, Gibson joined the Telecommunications Research Establishment (now RSRE, Malvern) in 1944. In 1963 he became the first professor of physics at the newly established University of Essex, later serving there as head of the physics department, as dean of the School of Physical Sciences and as provice-chancellor.

Fermi Award to Anderson, Neddermeyer

At a ceremony on 25 April in the crowded basement auditorium of the US Department of Energy's Forrestal Building in Washington, D.C., President Reagan named Herbert L. Anderson and Seth H. Neddermeyer to share the 1982 Enrico Fermi Award. The last time a president presented the Fermi prize was in 1968 when Lyndon Johnson honored John Wheeler. Named after its first recipient, who was cited just before his death in 1954, the award is given "for any especially meritorious contribution to the development, use, or control of atomic energy." In the past it has gone to such eminent physicists as E. O. Lawrence, Eugene Wigner, Glenn Seaborg, Hans Bethe, and, sharing it in 1966, to Otto Hahn, Lise Meitner and Fritz Strassmann. For high drama, none of the Fermi awards equalled President Johnson's presentation in 1963 to J. Robert Oppenheimer—the government's first official recognition of Oppenheimer since his security hearings a decade earlier and the occasion on which Edward Teller, who had won the prize a year earlier, asked Oppenheimer's forgiveness for any wrongs he may have committed at those hearings.

Before reading the citations for the latest award winners, Reagan hailed them as "nuclear explorers who repre-

sent the best traditions in American science."

Anderson was cited "for his pioneering collaborations with Enrico Fermi in demonstrating the emission of neutrons in fission at Columbia University; for his essential role in constructing the first chain-reacting piles; for his work on production and determination of the properties of tritium and helium-3; for his collaboration with Fermi in detecting the first hadronic resonance at the University of Chicago; and for his continuing contributions to understanding the nature of strong and weak nuclear forces."

Neddermeyer's citation reads: "For participating in the discovery of the positron; for his share in the discovery of the muon, the first discovered of the subatomic particles; for his invention of the implosion technique for assembling nuclear materials; and for his ingenuity, foresight, and perseverence in finding solutions for what at first seemed to be unsolvable engineering difficulties."

For his part, Anderson observed on accepting the award, "this has a special significance, for Fermi was my teacher and friend. We worked together every day for 15 years." In her book, *Atoms in the Family*, Laura Fermi puts Anderson's relationship with her husband even closer. Virtually every day, Fermi returned home to tell his wife what his young graduate student at Columbia University was teaching him about American culture and customs. In the Fermi home "Anderson says . . ." had the force of Newton's laws.

After earning his PhD in physics at Columbia in 1940, Anderson accompanied Fermi to the University of Chicago to help design and build the first reactor pile in Stagg Fieldhouse and then to Los Alamos. Returning to Chicago after World War II, Anderson and John Marshall designed the 460-MeV proton synchrocyclotron on which they and others established the nature of the pion–proton interaction and investigated how pions account for the nuclear force. From 1958 to 1962 Anderson was director of the Enrico Fermi Institute at Chicago. Now, at 68, he is Distinguished Service Professor of Physics emeritus at the University of Chicago and senior fellow at the Los Alamos National Laboratory, where he has studied lepton conservation and most recently has conducted experiments in nuclear biology.

Neddermeyer was a graduate student of Carl D. Anderson at the California Institute of Technology, where he participated in the discovery of the positron in 1932. In 1937 Neddermeyer was senior author of a paper with Carl Anderson on cloud chamber observations that cosmic rays measured at sea level consist predominantly of muons. At Los Alamos during the war, Nedder-

Herbert L. Anderson (left) and Seth N. Neddermeyer receiving the Enrico Fermi Award at a ceremony on 25 April.

meyer was credited with proposing and perfecting the spherical implosion method for assembling nuclear explosives—the technique used for the first plutonium bomb. After the war he continued his cosmic-ray studies at the University of Washington.

As he accepted the prize, which consists of a gold medal and a $25 000 check, from President Reagan, Neddermeyer, 75, said softly: "This was wholly unexpected. Somebody must have made a mistake."

in brief

Irwin I. Shapiro is director of the Harvard–Smithsonian Center for Astrophysics. Simultaneously he is the Paine Professor of Practical Astronomy at Harvard, a Smithsonian Senior Scientist and director of both the Harvard College Observatory and the Smithsonian Astrophysical Observatory. Shapiro had been Schlumberger Professor of Physics and Geophysics at MIT. As director, he succeeded George B. Field, who returned to teaching and research as a professor of Astronomy at Harvard and a Senior Scientist on the Smithsonian staff.

Philip E. Coyle III, most recently Deputy Assistant Secretary of Energy for Defense Programs, has been named head of Lawrence Livermore National Laboratory's Nuclear Testing Program.

Peter van de Kamp, Director Emeritus of Sproul Observatory, Swarthmore College, has won the **1982 Janssen Prize** for his distinguished career in astronomy and his contribution to research on nearby stars. The Janssen Prize is the highest honor given by the Société Astronomique de France.

obituaries

Herbert Jehle

Herbert Jehle, 75, professor emeritus at George Washington University, died on 14 January in Koblenz, West Germany.

Jehle's research interests spanned particle physics, biophysics and astrophysics. His contributions included the first theoretical description of two-component fields with mass and charge, the prediction of particlelike singular solutions in nonlinear field theory, extension of the formalism of covariant two-component spinor fields, the association of some comets with the orbital parameters of Jupiter, new statistical methods in gravitational systems, calculation of specificity of the van der Waals' interactions between macromolecules due to coherent quantum charge fluctuations, models of DNA replication, and quark models based on the topology of singular quantized magnetic flux loops.

Born in Stuttgart, he graduated from the Technical Universities in Stuttgart and Berlin (1933), did postgraduate work at Cambridge University, and held research positions at the University of Southampton and the University of Brussels. In 1940, he was interned by the Nazis in Vichy, France, for refusing to contribute to war efforts. Arthur S. Eddington was instrumental in his escape through the French and