



ZICHICHI, WITTEN AND SALAM

Zel'dovich began working at the Ioffe Physicochemical Institute of Leningrad in 1931 (later the Institute of Chemical Physics). His initial research was in the crystals section on catalysis, and absorption on inhomogeneous surfaces. Zel'dovich outlined the mechanism for the formation of nitrogen oxide (NO) at high temperatures (an important ecological effect), the theory of combustion, and the theory of detonation (1940). From 1939 to 1949 he and Y. B. Khariton did the first theoretical analysis of the nuclear chain reaction in uranium fission. During World War II Zel'dovich worked on solid propellant combustion in short range missiles. Since 1984 he has worked in astronomy—on the relativistic physics of singular objects such as neutron stars and (nonrotating) black holes. He has studied the interaction of the 3-K background radiation with matter; he and his former student Sunyaev predicted a Compton interaction with hot gas in galaxy clusters, which has been confirmed. Zel'dovich has written, with I. D. Novikov, *Relativistic Astrophysics*.

Witten received the first Dirac Medal for his "path-opening contributions to the physics of elementary particles and gravity, to the search for unification, and to the imaginative pursuit of the implications for cosmology." Witten received his PhD from Princeton University in 1976. From 1976 to 1980 he was a postdoctoral and, later, a junior fellow at Harvard University. In 1980 he became a professor of physics at Princeton. One of Witten's initial research projects was in quantum chromodynamics in a world with many colors. (See *PHYSICS TODAY*, July 1980, page 38.) He then studied applications of topology in quantum field theory. He has worked extensively on many aspects of unification theory: dynamical symmetry breaking of supersym-

metry, the Skyrme model, Kaluza-Klein theory, Morse theory and superstring theory (see *PHYSICS TODAY*, July 1985, page 17). In addition he showed the applicability of anomalies to the Skyrme model of mesons and baryons, and with Luis Alvarez-Gaume (Boston University) he introduced the idea of gravitational anomalies, which



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impose constraints on higher-dimensional theories.

ICTP instituted the medals in 1985; they are awarded annually on Dirac's birthday, 8 August, to both a senior and a junior physicist for work in theoretical physics. Nobel laureates and recipients of the Wolf Foundation prizes are not eligible for the award.

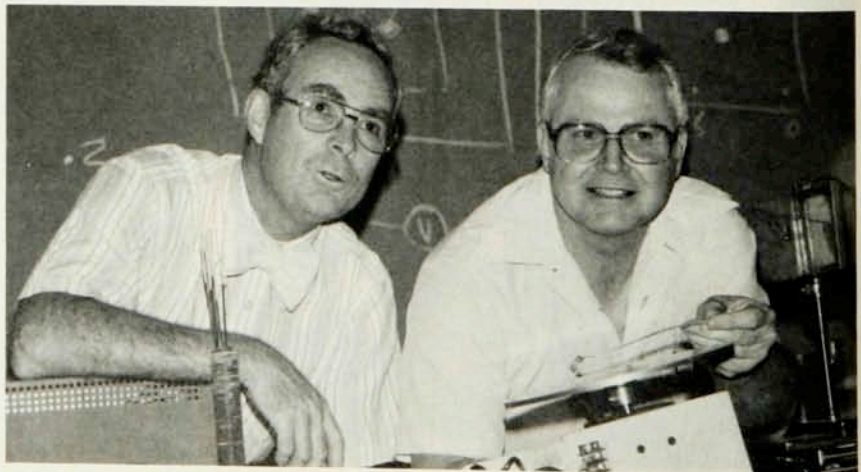
Pegram and Beams awards presented

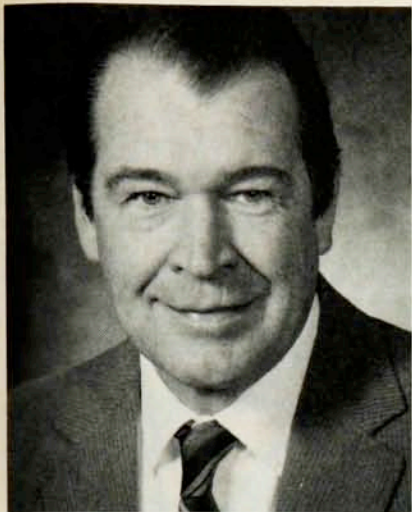
At its annual meeting last November, the Southeastern Section of The American Physical Society presented the George Pegram Award for outstanding physics teaching in the southeast jointly to Delma Rae Carpenter Jr and Richard Bryant Minnix (both of the Virginia Military Institute, Lexington) and the Beams Award for distinguished research in physics to Paul Hugh Stelson (Oak Ridge National Laboratory).

Carpenter received his BS in 1949 from Roanoke College, his MS from Cornell University in 1951, and his

PhD in physics from the University of Virginia in 1957. He has taught physics at the Virginia Military Institute since 1951, and was named professor of physics in 1963. He has served as head of the department (1969-74) and as Director of Research for the institute's research laboratories (1965-85). Minnix received his BS from Roanoke in 1954, his MS from the University of Virginia in 1957, and his PhD from the University of North Carolina at Chapel Hill in 1965. He began teaching at the institute in 1956, was named full pro-

CARPENTER AND MINNIX





STELSON

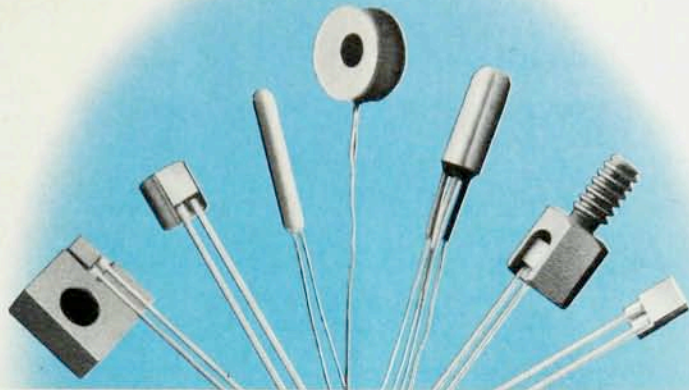
fessor in 1969, and served as head of the physics department from 1974 to 1979. In addition, both are known regionally for their physics lecture demonstrations, and both have served as coeditors of the apparatus section of *The Physics Teacher*. The section notes that "their teaching careers have been so outstanding and so intertwined that, for the first time, the Pegram Award has been made to two persons."

Stelson was honored "for his work in Coulomb excitation, for his seminal papers with colleague Francis McGowan that remain the backbone of this field, for his foresight and energy in leading the proposal effort which culminated in construction of the Holifield Heavy Ion Facility at Oak Ridge, and for his contributions to enhancing the research climate at Oak Ridge through his service first as director of the high voltage laboratory and later as director of the physics division." Stelson received his BS (1947) and MA (1948) from Purdue University, and his PhD (1950) from the Massachusetts Institute of Technology. He went to Oak Ridge in 1952 as a senior physicist, and in 1973 was named director of the physics division. His research has centered on experimental studies of low-lying collective states of nuclei, and has involved Coulomb excitation, direct reactions and the population of collective states by heavy-ion fusion and by radioactive decay.

Engineering academy honors two, elects new members

At its annual meeting last October, the National Academy of Engineering honored two individuals for their contributions to engineering and technology.

John R. Whinnery (University of California, Berkeley) received the



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