

probably benefited from President Reagan's coattails, which turned out to be much longer in North Carolina than in any other state. Three other Republicans won House seats from incumbent Democrats in North Carolina, and in the nation's most closely watched race, Republican Senator Jesse Helms beat back a challenge from Democratic governor James Hunt. Republican James Martin, a former chemistry professor and a North Carolina representative from 1972 to 1984, was elected to the governorship vacated by Hunt.

Martin will now be the second governor in office to have some substantial science background. Bruce Babbitt, the Democratic governor of Arizona, has a geology BA from Notre Dame and an MA in geophysics from the University of Newcastle in England, where he studied as a Marshall Scholar. During President Carter's administration, Babbitt served on the Kemeny Commission, which evaluated the implications of the nuclear reactor accident at Three Mile Island, and he was chairman of the Nuclear Safety Oversight Committee. Babbitt has an article on industrial policy in the first issue of the new journal published by the National Academy of Sciences, *Issues in Science and Technology*.

In the 1984 gubernatorial races, one other noteworthy development was the election of Shien-Biau Woo as Lieutenant Governor of Delaware. Woo is a physics professor at the University of Delaware. He ran as a Democrat.

'Friends of Science.' All ten members of Congress honored last year by the National Coalition for Science and Technology as "Friends of Science" will return to Congress this January. The National Coalition, which was established in 1982 to lobby for stronger education, training and research in science, had recognized ten members of Congress to recognize those who had been particularly helpful. They are Sen. Pete V. Domenici (R-N.M.), Rep. Joseph D. Early (D-Mass.), Rep. Bill Frenzel (R-Minn.), Rep. Albert Gore Jr (D-Tenn.), Rep. Judd Gregg (R-N.H.), Sen. Daniel K. Inouye (D-Hawaii), Rep. Stan Lundine (D-N.Y.), Sen. Sam Nunn (D-Ga.), Rep. Henry Waxman (D-Calif.), and Rep. Zschau.

Gore of Tennessee, one of the Coalition's ten friends, was elected to the Senate for the first time this election, and he is expected to emerge quickly as a leading figure with Presidential aspirations. Another noteworthy addition to the Senate is former Representative Paul Simon of Illinois, who took a strong interest in education policy as a House member from 1974 to 1984. He defended student aid programs, and in 1983 he played a key role in getting Congress to enact a bill to improve science and mathematics education.

The science community loses a friend with the retirement of Senator Paul Tsongas of Massachusetts. Tsongas took a strong interest in high technology and arms-control issues, and his well-regarded staff provided a home for two APS Congressional Fellows, James Treglio (1982-83) and Aviva Brecher (1983-84). —ws

Optical Society elects Greenler new vice-president

Robert G. Greenler of the University of Wisconsin, Milwaukee, has been elected to serve as the 1985 vice-president of the Optical Society of America. He will succeed to the office of president-elect in 1986 and become president in 1987. The 1985 president of the Optical Society of America is Robert R. Shannon of the Optical Sciences Center, University of Arizona, Tucson. President-elect is Jean M. Bennett of the Naval Weapons Center, China Lake, California.

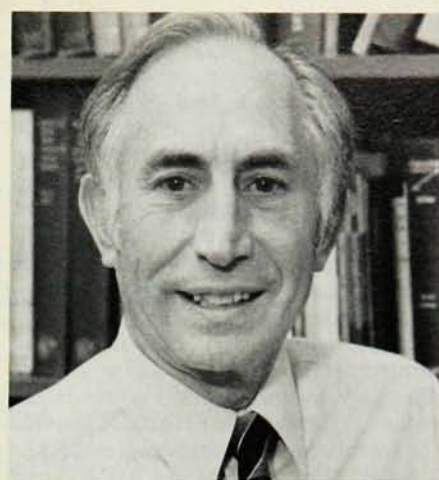
Three directors-at-large also have been elected by the membership to serve two-year terms: Hyatt M. Gibbs of the Optical Sciences Center, University of Arizona; Tingye Li of AT&T Bell Laboratories, Holmdel, N.J.; and Leonard Mandel, University of Rochester.

Greenler joined the Department of Physics at the University of Wisconsin in 1962 and has been instrumental in developing the interdisciplinary Laboratory for Surface Studies in Milwaukee. His research interests have included the molecular interactions that take place at solid surfaces, and optical sky effects, especially halo effects from airborne ice crystals. His book on optical sky effects, *Rainbows, Halos and Glories*, was published in 1980.

Greenler received his BS degree from the University of Rochester in 1951 and his PhD from the Johns Hopkins University in 1957. As a graduate student at Johns Hopkins, and then as a research scientist with Allis Chalmers from 1957 to 1962, Greenler worked on infrared interferometric spectroscopy.

Gibbs has been a professor of optical sciences at the University of Arizona, Tucson, since 1980. He has also taught at the University of California, Berkeley and worked at AT&T Bell Laboratories from 1967 to 1980. He is a fellow of the Optical Society of America and an associate editor of *Optics Letters*, a monthly journal published by the Society. The Franklin Institute awarded him the 1984 Michelson Medal for his experiments on self-induced transparency, neoclassical theory of radiation, superfluorescence, and optical bistability.

Li joined AT&T Bell Laboratories in 1957 and is the present head of the Lightwave Systems Research Depart-



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ment. He previously headed the Repeater Techniques Research Department and the Lightwave Media Research Department. He has done research on laser resonator theory. A fellow of the Society, Li is also an associate editor of the *IEEE and OSA Journal of Lightwave Technology* and has chaired the Optical Communications Technical Group.

Mandel has been a professor of physics at the University of Rochester since 1964, and does research in optical coherence, lasers and quantum optics. He is a fellow of the Society and has served as an associate editor of both the *Journal of the Optical Society of America* and *Optics Letters*. He was the first recipient, in 1982, of the Max Born Award, which recognizes distinguished contributions to physical optics, both theoretical and practical.

AIP directory of staff members is more widely distributed

The 1984-1985 edition of AIP's *Directory of Physics & Astronomy Staff Members*, hot off the press, is available to members of AIP Member Societies on terms much more favorable than in previous years. The American Physical Society has provided the *Directory* to its members free, as a special supplement to the December 1984 issue of the *Bulletin*. The American Association of Physics Teachers has ordered 5000 copies of the *Directory* for low-cost distribution to its membership. Persons in the other Member Societies can purchase the *Directory* for \$10, a very sharp reduction from the \$60 charged for the 1982-83 edition. The 424-page *Directory* will be sold to non-members and institutions for \$30.

The AIP *Directory* should not be confused with the directory of APS members, the next issue of which will appear in December 1985. The AIP *Directory* is a listing of physicists and astronomers, including many who are

not members of AIP Member Societies. The names listed in the AIP *Directory* are obtained from responses to queries sent to academic and nonacademic institutions and departments. The APS directory, on the other hand, is an APS membership directory, and it includes many individuals who are not employed as physicists and astronomers. Each of the other eight Member Societies has a corresponding membership directory.

In past years, AIP has distributed around 1500 or 2000 copies of the *Directory*, an increasingly costly publication. The decision by APS to provide its members with free copies of the 1984-85 *Directory* enabled AIP to print many more copies at reduced unit costs. Additional savings were achieved by sending the *Directory* out with an APS *Bulletin* cover, which entitled APS to take advantage of the *Bulletin's* second-class mailing permit.

The 1984-1985 edition of the *Directory* has been substantially reorganized for more convenient use. The first part consists of an alphabetical list of all physics and astronomy staff members—some 30 000 persons at responding institutions—with their addresses and telephone numbers. Part II is an alphabetical listing of academic institutions and their staffs. Part III is an alphabetical listing of nonacademic research and development institutions. The fourth section arranges the academic institutions by state, and the fifth categorizes the non academic institutions as government laboratories, Federally funded research and development centers, and not-for-profit and industrial labs.

In cases where individuals or institutions were omitted from the 1984-85 *Directory*, persons are urged to fill out the forms found at the end of the *Directory* and return it to the Education Division, American Institute of Physics, 335 East 45th Street, New York, NY 10017.

AIP made every effort to provide a comprehensive listing of physics and astronomy staff members, but there inevitably were some oversights, and some institutions did not respond to requests for information—in certain cases as a matter of policy.

Vanden Bout is new director of National Radio Observatory

Paul Vanden Bout, former chairman of the astronomy department at the University of Texas, took office on 1 January as the new director of the National Radio Astronomy Observatory, which is headquartered in Charlottesville, Va. Vanden Bout, who also was director of the millimeter-wave radio telescope at the University of Texas

McDonald Observatory, will have responsibility for overall administrative management of the National Radio Astronomy Observatory. Among other things, he will be responsible for planning the Very Long Baseline Array.

The National Radio Astronomy Observatory's facilities include radio telescopes at Green Bank, W. Va., a millimeter-wave radio telescope at Kitt Peak, Ariz., and the Very Large Array, which is near Socorro, N.M. The National Radio Astronomy Observatory is managed under contract for NSF by Associated Universities Incorporated.

Vanden Bout received his PhD in physics in 1966 at the University of California, Berkeley, where he did research on hyperfine structure and nuclear magnetic moments. He became interested in x-ray astronomy and interstellar spectroscopy at the Lawrence Radiation Laboratory and at the Columbia University Radiation Laboratory. In his research, Vanden Bout has made use of the National Radio Astronomy Observatory in investigations of the chemical and physical environments of molecular clouds in our galaxy and their associated regions of star formation.

Education

Pine honored as nation's outstanding college teacher

Charles Pine, professor of physics at the Newark College of Arts and Sciences of Rutgers University and chairman of the Mathematics Advisory Committee to the New Jersey Basic Skills Council, has been named the nation's outstanding college teacher of 1984 by the Council for Advancement and Support of Education. The award, which consists of \$5000, was first made in 1980 and is supported by the Carnegie Foundation for the Advancement of Teaching. Pine received the award on 18 October in a ceremony at the Smithsonian Institution, where he delivered a public lecture describing his philosophy of education and the results of work he has done with colleagues on the implications of standardized test results.

In analyzing basic skills and SAT answers, Pine says it was found that what ostensibly are deficiencies in basic skills can be reduced, in fact, to an "underlying problem with sequential thinking." Because students apparently "are not learning how to reason," Pine believes that "kids need to learn how to reason algebraically in elementary school." The main thing, Pine thinks, is for children to think of equations concretely and to develop the ability to manipulate them without being bound to any particular sequence

of steps.

As for his general philosophy of education, Pine believes that the "teacher should have the expectation that all students should learn." He has a special aversion to curve grading, because he feels that the goal should be for every student to get an A, and he favors cumulative testing—tests that draw on all the material covered in a course to date.

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Blume takes over as Deputy Director at Brookhaven

Martin Blume succeeded Warren Winsche as Deputy Director of Brookhaven National Laboratory. Blume, who previously was Brookhaven's Associate Director for Low Energy Physics and Chemistry, will continue to have primary responsibility for the lab's work in the basic energy sciences. In addition, he will work closely with the Director, Nicholas Samios, in the general administration of the laboratory.

Seymour Baron has taken office at Brookhaven as Associate Director for Applied Programs. Baron, who previously was senior corporate vice-president of Burns and Roe Inc, will have responsibility for the research programs in the High Flux Beam Reactor Division, departments of applied science and nuclear energy, applied programs in other departments, and the lab's technology transfer efforts.

Duggal Award in cosmic-ray physics is established

A new award in cosmic-ray physics has been established to inspire young scientists in the field and commemorate the work of Shakti P. Duggal, who worked for 22 years at the Bartol Research Foundation and died in 1982 at the age of 50. The Duggal Award consists of \$1000 and a plaque and will be given biennially to an outstanding young cosmic-ray physicist. The recipient can be from any place in the world, but must be less than 36 years old at the end of the year preceding the award. The first Duggal Award will be presented at the 19th International Cosmic Ray Conference, which will be held in La Jolla, California, 10-20 August 1985. Persons wishing to make nominations should send copies of the nominee's vita and publication list with a supporting letter and, if possible, one or two of the candidate's more significant publications to: Duggal Award Committee, Bartol Research Foundation of the Franklin Institute, University of Delaware, Newark, Delaware 19716.