in all commercial and industrial parking lots. This summer, Lick astronomers held a party at the observatory for San Jose friends to celebrate the resolution of what once were quite unpleasant disputes, according to Lick astronomer, Sandra Faber.

Arizona astronomers, working hard to avoid the acrimony that marked some of California's battles, have persuaded more than 30 towns and counties to pass lighting ordinances. Tucson passed a landmark lighting ordinance in 1972 and revised it in 1981. Phoenix, at this writing, appears to be on the verge of passing an ordinance. Flagstaff, home of the Lowell Observatory and the Naval Observatory Flagstaff Station, has had an outdoor sign and searchlight ordinance since 1958.

The Arizona astronomers have worked especially closely with local businesses, advertisers and lighting engineers to work out consensus solutions to the pollution problem. David Burstein, an astronomer at Arizona State University in Tempe, collaborated with an economist and a lighting-design architect at the university on a survey of lighting practices in 110 communities in the Southwest and an economic report on Arizona astronomy. The main point of the exercise has been to focus the attention of people in Arizona on their economic stake in what Burstein calls the "world's largest collection of research-quality telescopes."

David Crawford, an astronomer at Kitt Peak and chairman of the AAS Committee on Light Polution, has "infiltrated" (as he puts it) the Illuminating Engineering Society of North America and serves as chairman of the Society's Committee on Light Trespass. Many IES members have been helpful, according to Crawford. "Everybody worries about being blinded by intense light in the rain," Crawford says, "and nobody likes intrusive light from neighbors." The Arizona astronomers, according to Crawford, have been particularly successful in working with the local billboard industry. The industry resisted shifting lamps from the bottom to the tops of billboards because displays are typically replaced from above. But a compromise was worked out involving shielding of the lamps and time-clocking them, in many cases, to go out at midnight.

Probably the single most important factor in persuading people to adopt better lighting practices, however, has been the push for more efficient lighting. "The energy crunch has been a tremendous ally," Crawford says. The superior economics of low-pressure sodium lamps has been a special blessing, he adds.

The degree to which astronomers succeed in getting communities to grapple with the light-pollution problem could have an important bearing on whether the 15-meter National New Technology Telescope is sited in Arizona or Hawaii. The communities near Mount Graham, the proposed site in Arizona, have passed ordinances. Hawaii has as well, and besides, the observatories on Mauna Kea are protected much of the time by cloud cover below the peak of the mountain on the northeast side of the island. —ws

Education

Larger share of PhDs goes to foreigners

In the 1982–83 academic year, for the first time since the late 1970s, there was an increase in the proportion of foreigners among students earning physics PhDs at US universities, according to the latest AIP *Graduate Student Survey*. The survey results, based on questionnaires sent to graduate students, indicate that the proportion of foreigners earning PhDs increased to about 27% from 24%. Foreign students tend to become theorists rather than experimenters, and because they make up a larger share of the graduate population as a whole, there also was an increase in 1982–83 in the proportion of advanced physics graduate students in theoretical fields.

Starting salaries for persons earning physics PhDs and master's degree simproved slightly in 1982–83. Among PhDs, the median salary for postdoc sincreased 6% to $1650/month, while the median salary for potentially permanent jobs rose 3% to $2760/month. The median salary earned by students graduating with master's degrees climbed 5% to $2250.

Only about 4% of the 1982–83 PhDs received no job offers—roughly the same as in previous years—and 49% of the PhDs received two or more offers. Among the PhDs who got no offers, there were five experimenters for every two theorists—a reversal of the normal pattern. The switch can be attributed to the increase in foreign graduates, who are more likely to be theorists and more likely to accept postdocs without delay because they can remain in the country on student visas. Foreigners took about 10% of the potentially permanent positions in the United States and 30% of the postdoctoral positions.

The *Graduate Student Survey*, the largest of the AIP manpower reports, contains information on subfields, minorities, and sources of financials upport, and it includes a separate section on astronomy. While 921 PhDs were awarded in physics in 1982–83, just 81 students received doctorates in astronomy. By comparison with physics, there were more women and fewer minority students among the graduating astronomers.

The Graduate Student Survey can be obtained free from Susanne D. Ellis Manpower Statistics Division, AIP, 335 East 45th Street, New York, NY 10017. —ws

AAPM chooses McCullough president-elect for 1985

The American Association of Physicists in Medicine has chosen Edwin C. McCullough president-elect for 1985. McCullough will succeed the president for 1985, James Purdy, who is professor and chief of radiation physics at the Washington University School of Medicine.

McCullough was educated at the State University of New York at Stony Brook (BS in physics, 1964), the University of Maryland (MSc in physics, 1967) and the University of Wisconsin (PhD in radiological sciences, 1971). After a year as visiting scientist at the MRC Cyclotron Unit, Hammersmith Hospital (London), he returned to the University of Wisconsin and worked there until 1973, when he joined the Mayo Clinic. He is now professor and head of medical physics in the division of radiation therapy there. His professional activities include serving on the editorial boards of *Radiology*, *Journal of Computer Assisted Tomography* and *Neuroradiology* as well as being the current physics program chairman for the annual meetings of the Radiological Society of North America. He has published widely in therapeutic radiological physics (quality assurance, intraoperative therapy physics) and diagnostic radiological physics (computed tomography) and is particularly interested in the teaching of radiological physics to physicists, technologists and resident physicians.

Jean St. Germain has been elected Secretary of the AAPM. St. Germain has been a member of the Board of Directors and served on various scientific and professional committees of the Society. She is an assistant attending physicist in the department of medical physics at the Memorial Sloan-Kettering Cancer Center and assistant professor of clinical radiology at Cornell University Medical College. The fol-

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lowing persons have been elected as members-at-large on the AAPM Board of Directors: Jerald Hilbert, President of Medical Physics Associates, Inc; C. Clifton Ling, professor of radiology at George Washington University Hospital; Mary Ellen Masterson, associate director, Northeast Center for Radiological Physics, Memorial Sloan-Kettering Cancer Center; and Bhudatt Paliwal, professor at the University of Wisconsin at Madison. Frances Harshaw of the University of Connecticut, Storrs, was elected to fill the unexpired term created by the Secretarial election. All officers begin their term on 1 January 1985.

Tennessee distinguished scientist program begins

As the first appointments of the Distinguished Scientist Program funded by the State of Tennessee and the US Department of Energy, George F. Bertsch and Gerald D. Mahan have been named to joint teaching and research positions at the University of Tennessee in Knoxville and Oak Ridge National Laboratory, effective September 1984.

Bertsch, professor at Michigan State University, is a theoretical physicist; Mahan, distinguished professor and director of the Materials Research Laboratory at Indiana University, specializes in condensed-matter physics. Both will be full professors in the University's physics department and distinguished scientists at ORNL. The program was created to attract researchers with national and international stature to the Knoxville–Oak Ridge community, to strengthen science education, research and technological development in Tennessee. Other appointments in areas of joint interest to Oak Ridge and the University will be made over the next five years.

While Oak Ridge is not the only national laboratory to make joint appointments with a local university, its program appears to be unusually ambitious. Altogether, the laboratory and the University of Tennessee hope to hire as many as 30 distinguished scientists at salaries as high as $100 000. The program is coordinated by the Oak Ridge director's office and it was established as part of the new contractual agreement negotiated when Martin-Marietta Corporation took over management of the lab from Union Carbide earlier this year.

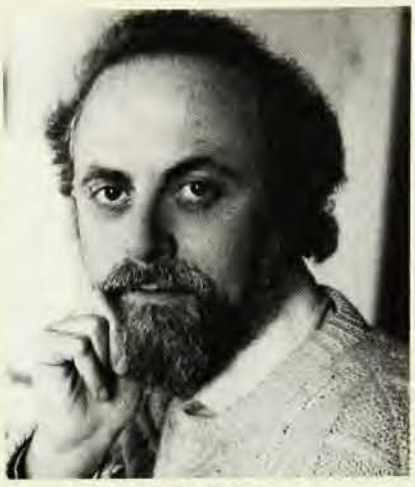
DOE research director Alvin Trivelpiece has provided moral support for the program, but DOE has not committed itself to providing an overall amount of money to fund appointments. Allocation of funding will depend on how many people are hired and how their time is distributed between projects at the university and projects at the laboratory. —MM & WS

Science Writing Award for Greenstein's *Frozen Star*

The AIP–US Steel Foundation Science-Writing award in physics was presented this year to George Greenstein, professor of astronomy at Amherst College, for his book, *Frozen Star*, published by Freundlich Books. Greenstein received his PhD from Yale in 1968 with a thesis discussing the physical processes believed to have occurred during the first ten minutes of the universe. During subsequent fellowships at Yeshiva University and Princeton University, he worked on models of stellar atmospheres, gravitational radiation and cosmology. He also began work in his primary field of interest, the physics of neutron stars and pulsars. Greenstein joined the faculty of Amherst College in 1971, serving as chairman of the Five College Astronomy department from 1981 to 1984.

AIP Director H. W. Koch recently announced the establishment of the 1985 AIP Science Writing Awards in Physics and Astronomy, one of which will go to a professional journalist and one to a scientist. United States Steel no longer is cosponsoring the awards, but AIP is actively looking for support from another industrial foundation.

Journalists wishing to be considered for the 1985 Science Writing Award should submit material published between 1 January 1984 and 31 December 1984, by 10 January 1985. Scientists applying for the 1985 Award should submit material published between 1 June 1984 and 31 May 1985, by 10 June 1985. Applications should be addressed to Science Writing Award, AIP, 335 East 45th Street, New York, NY 10017.



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Only widely accessible printed material that is geared to the general public will be considered. Material from purely scientific, technical or trade publications is not eligible.

Education

SPS establishes new scholarship

The Society of Physics Students has established a new scholarship, which will help support a college senior, and a new award, which will honor an outstanding SPS chapter adviser. The scholarship consists of $1000, funded from income of the Sigma Pi Sigma Fund, and it will be awarded on the basis of an individual's scholastic performance, exhibition of potential, seriousness of intention, and active participation in SPS chapters. Applications and supporting materials should be postmarked by 31 January and should be addressed to SPS Scholarship Committee, AIP, 335 East 45th Street, New York, NY 10017.

The award to an outstanding chapter adviser will consist of a citation for the faculty member and a $500 grant to the adviser's institution to support a lecture by a prominent scientist on the occasion of the award ceremony. The award will be made on the basis of the adviser's encouragement and support of a chapter's program, as well as the program's quality as such. Letters of recommendation, preferably from both a student and a fellow faculty member, should be postmarked by 31 March and should be addressed to Outstanding SPS Chapter Adviser Award, AIP, 335 East 45th Street, New York, NY 10017. The scholarship selection will be announced on 31 March and the adviser award on 1 October. □