

Washington, Lindsay said that most agencies "probably have never asked themselves what they might do with a metallurgical engineer," and confronted with such a highly skilled person, they are likely to be "scared to death."

Matching volunteers with appropriate jobs may be trickiest in education. Even in the Washington area, where there is an abundance of highly experienced scientists and engineers, many of whom have worked for government agencies and might enjoy working with children during their retirements, school systems have had little experience in dealing with highly trained volunteers. When science organizations have attempted to get their retired members to give time to educational projects, the results have not always been encouraging.

A couple of years ago, a committee headed by physicist Wolfgang Franzen of Boston University sent a request for volunteers to some 650 people listed in APS files as retirees. Franzen says that about 70-75 people responded, some negatively, and when the committee sent a second mailing to the 15 respondents who seemed most enthusiastic, they too "virtually evaporated." The committee wound up with just two serious volunteers and decided last fall not to pursue the project. Judy Franz of Indiana University, who chairs the APS Committee on Education, reports that the American Chemical Society had a similar experience when it tried to set up a volunteer program in the Philadelphia area. A retired school teacher contacted 400 retired chemists for the Society and got just 12 responses, she said.

F. James Rutherford, chief education specialist for the American Association for the Advancement of Science, observes that successful volunteer projects in education tend to be "local and ephemeral." Still, Rutherford hastens to add, a few years with a good project are better than a few years without one. Echoing a view heard from many education specialists, Rutherford said that successful volunteer projects almost always depend on "one person who is exceptionally eager."

One such person is retired physicist Milton Slawsky, who runs a volunteer teaching program at the University of Maryland, and another is his identical twin brother Zaka Slawsky, also a retired physicist, who co-directs the program. When they retired in the mid-1970s—Zaka as head of physics research at the Naval Ordnance Laboratory, Milton as head of physics at the Air Force Office of Scientific Research—they were asked to do tutoring by the University of Maryland physics department, which considered mathematics the main stumbling block for students who were having trouble with

physics. The Slawsky brothers soon found, however, that the real problem for most students was learning to express physical concepts in mathematical language, not the technicalities of mathematics as such. They switched to a conceptual approach, which has proved helpful and appealing to thousands of students over the years. Altogether, with the help of four other retired physicists, the Slawsky brothers coach roughly 500 Maryland students per semester. Their physics "clinic" is open five hours a day, Monday through Friday, and the six volunteers put in a total of about 100 hours a week. By a conservative estimate, based on standard teaching salaries for tenured professors, the time they donate as a team is worth about \$125 000 per year.

The Slawsky brothers believe that physics clinics are a necessity for all big universities, and they are convinced that such programs can only be run on a volunteer basis, because it would be economically unfeasible to employ salaried professors full-time to coach significant percentages of students from large lecture courses. At the same time, Milton Slawsky admits that it is "not easy to get people to do this." "You need at least one guy who is really dedicated," says brother Zak, and the person "has to really love working with young people." On the other hand, Zak notes, "being a tutor is stress-free: There are no exams, no grades, no acting like God. All you have to do is help kids."

Another innovative project designed to help children in the Washington area is "Adventure in Science," a Saturday-morning seminar somewhat similar to ones being run at some laboratories and universities around the country. Located in Gaithersburg, Maryland, about 20 miles north of Washington, Adventure in Science is for pupils aged 8 to 15. It was started 11 years ago by Ralph R. Nash, a retired physicist who worked at NASA headquarters for 23 years. Nash originally held all sessions in his basement at home and he has supplied much of the equipment used in the seminars, which stress a "hands-on" experimental approach. Sessions currently take place at two basement labs and in space provided by the National Bureau of Standards, and the Bureau may provide additional room.

Nash says that parents drive their children from as far away as Alexandria, Virginia, south of Washington, to attend the sessions, which cover "everything from astronomy to zoology." Nearly 100 pupils participated this year, and about 70 area professionals helped conduct the sessions. All the volunteer instructors are mid-career people at the present time, but Nash thinks that retirees would be "even

better," partly because they have a "whole lifetime of experience," partly because they would be free to teach days other than Saturday. Nash thinks that retired scientists and engineers represent a "field of expertise that is lying fallow."

Many retired scientists and engineers would resent any implication that they are unoccupied, but it is not necessary to be bored to find some reward in putting one's mind and one's skills to work on problems that communities have had trouble coping with. According to AIP Director H. William Koch, "the Institute has had many inquiries in the past from retired physicists interested in volunteering their services for some worthy purpose, but we have not always been able to suggest the right match to useful work." Koch said that AIP will be delighted to forward such requests to AARP.

A free report listing volunteer opportunities, mainly in the Washington area but also to an extent nationwide, can be obtained from Charlotte Nusberg, AARP, 1909 K Street, Washington, D.C. 20049. —ws

Floyd Dunn elected Acoustical Society President

The Acoustical Society of America announced the results of this year's election at its meeting in Norfolk, Virginia, last May. The Society's new president-elect is Floyd Dunn of the University of Illinois, Urbana. The new vice-president-elect is Harvey H. Hubbard of The College of William and Mary's Virginia Associated Research Campus in Newport News, Virginia.

Dunn earned his PhD in electrical engineering at the University of Illinois in Urbana in 1956. He joined the faculty of the University of Illinois at Urbana in 1957 and he has been a professor of biophysics, electrical engineering and bioengineering at the university since 1965; he also received his BS (1941) and MS (1951) degrees there. Since 1976, Dunn has been director of the university's Bioacoustics Research Laboratory. His research has been in ultrasonics, ultrasonic biophysics, ultrasonic absorption microscopy and spectroscopy, bioacoustics and infrasound. He is an associate editor of the *Journal of the Acoustical Society of America* with responsibility for bioacoustics.

Hubbard, a specialist in aeroacoustics, was assistant chief of the Acoustics and Noise Reduction Division of NASA from 1973 to 1980. He previously was head of research on atmospheric acoustics for NASA and, before that, for the National Advisory Committee for Aero-



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navitics. Hubbard earned a BS degree at the University of Vermont in 1942.

ASA also announced last May the election of two new members to its Executive Council: Carleen M. Hutchins, secretary of the Catgut Acoustical Society, Montclair, New Jersey, and William W. Lang, of the IBM Acoustics Laboratory in Poughkeepsie, New York.

Education

Funding increases for arms-control research

Many of the country's large and medium-sized foundations are initiating or renewing arms-control programs, and there are a number of grants and projects that will be of interest to people working in the natural sciences and engineering. Most of the foundation money is going to sustain well-established programs in which the focus will be almost exclusively on purely political or military questions. But a significant amount of new grant money will support programs in which scientists have a substantial role as teachers, researchers or students.

Ford Foundation President Franklin A. Thomas announced in April that the foundation was awarding \$3.7 million in new arms-control grants for 16 institutions, including \$341 000 for MIT's graduate program in arms control and \$114 000 for a master's program in science, technology and international relations run by Ian Bellany (a physics PhD) at the University of Lancaster in England. Enid Schoettle, Ford's program officer in charge of international affairs, notes that the new grants also include studies on some "hard-edged conventional weapons issues," in which scientists and engineers could make themselves useful. Schoettle mentioned Ford's \$351 000 grant to the Brookings Institution to examine the relationships between the costs of major weapons systems and military missions, and the foundation's \$250 000 grant to the Norwegian Institute of International Affairs to evaluate how the introduction of precision-

guided munitions, long-range cruise missiles and various naval technologies will affect northern European security.

From the 1950s through the 1970s, financial support for research on arms control and international security came almost exclusively from the Ford and Rockefeller Foundations. At the time President Reagan took office, combined spending by the two foundations on peace-related issues probably came to about \$4.5 million a year, according to Schoettle. Since then, she and other foundation staffers agree, total foundation funding for arms-control work has roughly tripled.

Carnegie Corporation, which is beginning to displace Ford as the biggest single source of arms-control funding, will be announcing grant awards throughout the year. A group at Harvard's Kennedy School of Government led by Albert Carnesale (nuclear engineering), Joseph Nye (politics) and Graham Allison (politics) is very likely to get a Carnegie Corporation grant to work on "avoiding nuclear war." A larger program on war avoidance could come to fruition if the Carnegie Corporation and the MacArthur Foundation of Chicago agree on a joint effort. A panel headed by McGeorge Bundy, former president of the Ford Foundation, has been exploring this possibility for MacArthur and Carnegie.

Altogether, Carnegie Corporation is spending about \$5 million this year on arms-control projects and is likely to award roughly \$5-\$7 million in similar grants next year, according to Frederic Mosher, a program officer. One of the more interesting new programs funded by Carnegie provides about \$100 000 per year for advanced training in arms control for a very select group of mid-career scientists. Particle physicist Sidney Drell will run the program at Stanford University's Center for International Security and Arms Control, and he declares himself "ecstatic" about the "number of very good applicants" and the three people selected for the first year. They are John Ernest, a mathematics professor at the University of California in Santa Barbara, Ted Postol, who is a nuclear physicist with a background in neutron scattering and statistical mechanics who has worked on MX basing studies for the Office of Technology Assessment and the Pentagon, and George Smith, a physicist (and lawyer) who does weapons work at the Lawrence Livermore Lab.

There is speculation that similar programs might be set up at other universities that have programs in science and public policy.

This year, for the second year in a row, a Cambridge group headed by Paul Doty (a biochemist) of Harvard and Jack Ruina (an electrical engineer) of MIT will run a summer program for

college teachers who want to start giving instruction in the field of arms control. Physicist Herbert York will run a similar program at the University of California for the second time. Last year, about 20 teachers participated in the California program and about 50 in Cambridge's. Roughly 15-20% of the teachers who enrolled last year were from the natural sciences, according to Arthur Singer, vice president of the Sloan Foundation, which has been funding the seminars. At some places such as Carleton College, Singer noted, the interest in establishing new courses in arms control has come primarily from the science faculty.

Another foundation stepping up its activities in arms control is the Rockefeller Brothers Fund, which is preparing guidelines for a program that will stress the connections between the distribution of global resources and security issues. The Rockefeller Fund has awarded Kosta Tsipis at MIT a \$75 000 grant to evaluate emerging weapon technologies. It also is providing \$75 000 to the International Council of Scientific Unions in Paris for studies on the long-term environmental consequences of nuclear war. Program officer Hillary Palmer says the objective is to subject recent hypotheses about a "nuclear winter" to critical scrutiny and, possibly, validate the hypotheses with additional relevant data.

Most foundations still shy away from giving grants for programs that might be interpreted as being political rather than purely research-oriented. An exception, however, is the W. Alton Jones Foundation in Charlottesville, Virginia, which committed about \$1.2 million to arms control in 1983 and probably will spend about the same amount this year. The Jones Foundation has provided \$200 000 to support Jeremy Stone's staff at the Federation of American Scientists, and it contributed funds to the Union of Concerned Scientists for a television program broadcast this April in which scientists at 12 sites around the country discussed arms control issues. The program was distributed by C-SPAN, a cable network, and was carried by many PBS stations. The Jones Foundation also has awarded a \$50 000 grant to Frank von Hippel and his colleagues at Princeton's Center for Energy and Environmental Studies to explore the question of how much nuclear arsenals could be reduced if the Soviet Union and United States agreed that the purpose of strategic weapons were to be confined strictly to deterrence. The grants will support exchanges between the Princeton group and a committee of the Soviet Academy headed by Evgeny Velikhov, the academy's vice president for physical and mathematical affairs. —ws□