

PHYSICS COMMUNITY

Technological Challenges Let Congressional Fellows Showcase Their Knowledge and Skills

The Congressional Fellows program of the American Association for the Advancement of Science continues to send enthusiastic PhD scientists to Washington, DC, where they make use not only of their technical sophistication but also of their interpersonal skills. The current three fellows with physics backgrounds, who began their terms in late 1994 (see *PHYSICS TODAY*, March, page 84), all discovered a considerable demand for their prowess and presence on Capitol Hill. In fact, both Laura Philips, sponsored by the American Institute of Physics, and J. David Applegate, sponsored by the American Geophysical Union, were hired by their respective offices to work for several weeks beyond their 1 September anniversary, to follow through on their work during Capitol Hill's prime budget season. John Morgan, sponsored by the American Physical Society, also will be there during that time; he will complete his term at the beginning of December.

On 6 September four new physics fellows began their appointments, starting with a two-week orientation. They are Kelly Kirkpatrick, the first fellow jointly sponsored by the Optical Society of America and the Materials Research Society; Kevin Bieg, sponsored by AIP; Timothy Cohn, sponsored by AGU; and Kevin Aylesworth, sponsored by APS.

Research, development, commerce

Working in the office of Senator Joseph Lieberman (D-Conn.), Philips dealt with research funding in general and telecommunications issues specifically. She told *PHYSICS TODAY* that since the telecommunications revolution has been fueled by technological advances, policy battles are often based on promised technological capabilities. Because of her ability to gauge the extent of the R&D needed to realize such new capabilities, Philips was in a position to understand and judge the arguments being presented. She wrote speeches for Lieberman on these issues. She also wrote an amendment that Lieberman sponsored on the cable deregulation bill (the amendment did not pass) and was on the senate floor to provide information "at the elbow of the

As problems (and solutions) with scientific underpinnings pervade government discourse, Congressional Fellows make an impact on issues ranging from telecommunications to nuclear waste.

Senator." With digital television ready to become a reality, Philips stayed on the staff to continue her work on spectrum allocation issues; she called the electromagnetic spectrum "a valuable public resource" akin to Yellowstone National Park.

Philips also assisted Lieberman in his attempts to save the Department of Commerce and the National Institute of Standards and Technology's Advanced Technology Program and Manufacturing Extension Program, as well as the Technology Reinvestment Project of the Department of Defense's Advanced Research Projects Agency. She provided background information, prepared briefing books and helped coordinate Lieberman's efforts with those of other offices and with the Administration.

The fellowship experience "surpassed my expectations," said Philips. She had expected to learn much (which she did), but was surprised to discover the extent of her role and the impact she could make. She gave credit to Bill Bonvillian, Lieberman's legislative director. She said Bonvillian acted more as a mentor than as a boss and encouraged her to take on added responsibility. Philips, who had already decided to leave academic science when she left her Cornell University faculty position last year, said that the fellowship had "opened up new possibilities." This month she begins a one-year position in the White House Office of Science and Technology Policy.

'The helium guy'

David Applegate was on the minority staff of the Senate Energy and Natural Resources Committee, whose ranking minority member is J. Bennett Johnston (D-La.). Like previous AGU fellows, Applegate was able to apply his specific scientific knowledge in the study of nuclear repositories. When *PHYSICS TODAY* spoke with Ap-

plegate, he had just returned from the Waste Isolation Pilot Plant, a salt mine in southeastern New Mexico, 30 miles east of Carlsbad Caverns (see photo on page 56). There the Department of Energy has hoped to store transuranic waste. According to Applegate, this material includes "basically anything contaminated with plutonium" other than the "high-level" nuclear waste slated for the proposed Yucca Mountain, Nevada, repository, on which he also has worked. Construction of the mine began in 1979 and continued through the 1980s, but it has remained empty because DOE has not formally applied for its license, being unable to meet the changing standards of the Environmental Protection Agency.

Applegate said he became known as "the helium guy" on staff because of his work on the privatization of the Federal helium reserve. One of the committee's charges was to effect that privatization while saving money and preserving the availability of the resource for agencies that need it, such as the National Aeronautics and Space Administration.

The committee also has responsibility for the US Geological Survey. After Republican talk of eliminating the agency, Applegate said that the geology community has realized that "you have to explain what you do to the people who pay the bills," and so he saw part of his role as "interpreter and explainer." That role will continue when he leaves the committee's staff in the middle of this month to become—in what he called a big change in his career plans—the director of government affairs at the American Geological Institute, in Alexandria, Virginia.

Patents

John Morgan worked for Representative Dana Rohrabacher (R-Calif.), the head of the House subcommittee on energy and environment. Morgan assisted with subcommittee hearings and found that he became involved with "just about anything that had a scientific tinge," including nuclear fusion, global warming and an EPA review of the health effects of dioxin.

Patent issues occupied most of Morgan's attention. As part of the agree-

ment on GATT (the General Agreement on Tariffs and Trade), US patent protection changed from a 17-year period after the granting of the patent to a 20-year period that begins with the application for the patent. Bill H.R. 359 would once again begin the US clock at the granting of the patent, not the filing. In addition to providing a scientific perspective, Morgan has been assisting in the political work of helping Rohrabacher garner support for the bill. He sees it as protecting the "small, independent inventor," and he said his background helps in "appreciating what these people go through."

Morgan formally began his fellowship in December last year, but he spent much of the first three months of the year in Annapolis as a state delegate to Maryland's general assembly. Comparing the two environments, he characterized the state assembly as having a much more "collegial" atmosphere than the Federal government. At the state level, he said, the debate is not as political, and when it is, the politics bear more of a relationship to the substance of the matter than they do at the Federal level. In spite of these concerns, he plans to attempt a large career change: He has been approached about running for a seat in Congress as a representative from Maryland, and he intends to accept the challenge.

As for improving the Congressional Fellows program, Applegate suggested building in an extension of up to three months, which Philips heartily endorses. And, as has been mentioned by one or two fellows in prior years, Philips also thought that the orientation period could be reduced, because so much of the needed training is "on the job." Morgan "most definitely" has high praise for the program, but wishes that more members of the House and Senate were aware of the program and better appreciated its potential.

A mix of experience

The new physics fellows show a broad range of experience. Kelly Kirkpatrick has just completed her PhD in materials science and engineering at Northwestern University, in Evanston, Illinois. She obtained a BS in chemistry, with a business option, from the University of Richmond, in Virginia, in 1988. She did her doctoral research in an applied superconductivity research group at Argonne National Laboratory and became, she told *PHYSICS TODAY*, "very curious about the political, social and environmental impacts of technological changes." This curiosity, combined



CONGRESSIONAL STAFF, including AGU Fellow David Applegate, tour DOE's Waste Isolation Pilot Plant in New Mexico.

with her interest in what she calls "technology exchange" (rather than just technology transfer) led her to apply to the program. She sees her future career as being in science policy.

Since receiving his PhD in chemical engineering from the University of Illinois at Urbana-Champaign in 1976, Kevin Bieg has had a long career at Sandia National Laboratories, first as a polymer chemist and then as a project leader in lithium ion diode research and inertial confinement fusion target fabrication. He has already served as a scientific adviser to DOE, in the ICF office, and most recently has been a program manager in technology transfer and commercialization. In addition to his two 1972 bachelor's degrees in chemical engineering and mechanical engineering from Iowa State University of Science and Technology, Bieg has an MBA, earned at George Washington University in 1993. In recent years his interest in science and technology has turned toward more near-term, applied work, and he entered the Congressional Fellows program because, he said, "I'd like to be able to show my kids something on a grocery-store shelf that I had an influence on."

Timothy Cohn has been at the USGS since receiving his PhD in water resources and systems engineering from Cornell University in 1986. He also has a master's in the same subject, obtained in 1984, but his

1979 BA from Swarthmore College is in mathematics. Cohn applied to the program to "understand better the interconnections between science and public policy," but now from the legislative side. As a hydrologist, he has been called upon before to provide scientific information with policy implications. Sometimes, he told us, the information was used responsibly to inform policy, but other times it was not.

Kevin Aylesworth is known to many in the scientific community as one of the founders of the Young Scientists Network (see *PHYSICS TODAY*, May 1993, page 57). In 1983 he obtained his BS in physics and chemistry from the University of Wisconsin-Stevens Point. Doing research on materials characterization and production, he received his MS in physics in 1986 and his PhD in physics in 1989 from the University of Nebraska. Aylesworth said that he joined the program because he would like to learn firsthand how Congress works. He expects to pursue his interest in issues of basic research funding and jobs, but he also wants to broaden his expertise by possibly getting involved in energy and security issues. As for his career, he considers it now two-pronged, and although this fellowship points toward science policy again, he can also see continuing the computer consulting business that has supported him for the last couple of years.

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Latest AIP Survey Confirms Physicists' Job Fears

At July's Congressional hearing on the National Academy of Sciences' report on graduate education, Representative Sherwood Boehlert (R-N.Y.) expressed amazement at employment concerns in light of the supposed 1.6-percent unemployment rate for PhDs.

An analysis of the job market for recent degree recipients confirms a weakening correlation between a degree in physics and satisfying employment.