The IBP funding scheme contrasts sharply with the system used for the International Geophysical Year. In the IGY, a national committee appointed by the Academy determined what projects would get support, and it was able to draw on a line item appropriation that had been made to NSF. The IBP staff explored the possibility of establishing a similar arrangement with several agencies, but gave up the effort after the agencies claimed they were legally required to control any funds entrusted to them and could not assume a mere banker's role. Thus the IBP ended up with many masters instead of one. The Daddario report warns that the IBP will be "disjointed and haphazard" unless the National Committee has the ability to implement its decisions, but the report is vague on how to give the committee such authority.

The Daddario report makes several recommendations aimed at strengthening the financial underpinnings and improving the administrative machinery of the U.S. IBP effort. Staff members of the subcommittee predict that implementing legislation will be introduced within a week or two. Daddario's interest, coupled with recent efforts of the U.S. National Committee to establish priorities and bring the American program into better focus, has made the future of the American effort look a little brighter. Bennett, for example, says he is now "quite optimistic" about the program.

But whatever the fate of the American IBP effort, some U.S. officials hope the whole experience will teach the U.S. a valuable lesson. "It illustrates the difficulty we often have in participating in international scientific endeavors," says one top science planner. "It's not just the IBP. We had problems with the International Hydrological Decade too. Maybe we'll finally learn to devise a mechanism to avoid all this agonizing in so many different agencies."

—PHILIP M. BOFFEY

Washington Outpost: More Schools Find Use for a Man in the Capital

In recent years, the growing size and complexity of federal support of university activities has led to the creation of a new kind of academic post—the university representative in Washington.

Employed by colleges and universities throughout the country, about 20 such representatives are working in the capital. Their role varies, but in general it is that of keeping tabs on government programs, assisting in the procurement of federal funds, and trying to untangle administrative snarls in government-campus relations. Some representatives are university employees working full time in Washington, while others are private entrepreneurs who work for schools on a retainer basis.

In past years universities tended to let nature take its course, or, in some cases, they set up campus-based research and development offices to gather information and seek money from federal agencies. These offices kept in touch with government programs through a combination of news releases, long-distance phone calls, and occasional plane trips to Washington. Some schools enlisted the part-time aid of Washington alumni to provide timely information on new programs and expenditures. However, as the sources of government money grew to include more than 50 agencies and over 1000 programs, many schools decided to establish offices in the capital. Now, more than 50 colleges and universities are served full or part time by representatives in Washington.

The cost to a university of maintaining a Washington office varies with the size of the office and the number of personnel. The Associated Colleges of the Midwest (ACM), an affiliation of ten midwestern undergraduate institutions, shares the expense (about $35,000 a year) of operating a small office staffed by a director and a secretary. The State University of New York (SUNY), which runs a suite of offices staffed by a director and several assistants, spends close to $120,000. Institutions that cannot afford offices of their own may contract with one of several Washington firms offering representation services. The cost for such service ranges from a few hundred dollars to several thousand, depending on the length of the contract. To meet these costs a school must draw funds from its operating budget, as federal guidelines for grant applications prohibit the use of government money for financing professional representation.

University representatives have come to their jobs from a variety of backgrounds. Rowan Wakefield, director of the State University of New York's office, has worked as a newspaper reporter, a high school teacher and administrator, and, most recently, as acting director of AID's education program. Ida Wallace, who represents the Associated Colleges of the Midwest, worked for SUNY. Prior to that, she had been a reporter for *Newsweek* magazine. Jane Odle, who directs the University of Texas office, had been an administrative assistant to a Texas congressman.

The job of the Washington representative varies according to the size and needs of the institution served. Rowan Wakefield of SUNY, a network of campuses that includes more than 12,000 teachers and administrators, calls himself "a middleman in a vast ocean of information." His office keeps a file of the special interests of SUNY's grant applicants and administrators and an index of federal programs and requirements. "Our main responsibility involves collating the information and putting the right people in touch with the right programs," said Wakefield. In addition, the SUNY office publishes a semimonthly newsletter informing the university about possible new sources of government funds.

Sometimes Washington representatives engage in "fire fighting," a term Wakefield uses to describe emergency action taken to oppose agency budget reductions. Last year when Congress threatened to cut the budget of the National Science Foundation, Wakefield urged members of his university to write letters and telegrams to the New York congressional delegation, and the SUNY Washington office drafted a letter of protest for the university chancellor. On other occasions Wakefield has urged university officials to

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come to Washington and confer directly with congressmen. Wakefield, like most Washington representatives, prefers to avoid the role of intermediary. "I can speak to Congressmen on behalf of SUNY, but it is more effective for someone from the campus to do the talking," he said.

Universities occasionally rely on the Washington representative to help evaluate a proposal before it is submitted to a federal agency. A grant applicant sends the rough draft of a proposal to a representative, who reads it and submits it to an acquaintance at a relevant agency. Recommendations are made and the draft is returned. The procedure allows the author to make appropriate revisions before submitting the proposal to an agency committee for a formal evaluation.

Some representatives contribute directly to the preparation and revision of proposals. FORE, Inc., a Washington firm that specializes in research and development contracts, offers a program in "creative grantsmanship." According to FORE president Steve Alex, FORE's staff will work "from page one to the conclusion of a proposal" with a grant applicant. Before the writing begins, FORE undertakes a study of both the needs and the capabilities of the applicant's institution and of the requirements of federal programs. FORE asks a fee of $1100 for the preliminary study. "If the applicant decides to go ahead with a proposal after our study is completed, we are prepared to assist in the writing on a man-day rate," said Alex. This rate varies from $100 to $200 per man-day.

Other firms are more reluctant to provide direct assistance in the preparation of proposals. Leo S. Tonkin & Associates, a university consulting firm where Pat Nugent, the President's youthful son-in-law, worked as an administrative assistant, offers advice to clients on federal program requirements and is willing to suggest revisions for proposals already written. However, Tonkin, who preferred not to name his clients, said his firm is not willing to write or rewrite proposals. Marjorie Bell, president of Bell Educational Services, Inc., and a one-time administrator at Indiana University, says she often calls on her former colleagues from Indiana to read proposals that are submitted to her office.

Some representatives have almost no part in the preparation and revision of proposals. "The sheer magnitude of proposals submitted by our university make it nearly impossible for me to deal with them," said SUNY's Wakefield. At the University of California, represented in Washington by Mark Feber, all proposals go directly from the home campus to the relevant federal agency. Feber said he rarely sees one in his office.

The hands-off policy is in line with the thinking of most federal agencies on the subject of research and development proposals. "We want to deal directly with the professor or the school and not with a middleman or a hired agent," said Louis Levin, associate director of research at the National Science Foundation. "There is a strong risk that such representatives will infect the understanding of a proposal with a totally irrelevant viewpoint." According to a survey taken among all federal agencies by the American Council of Education (ACE), NSF's attitude is almost universally shared. "Our survey indicated that, as far as the agencies are concerned, university representatives accomplish nothing by involving themselves with research and development proposals," said an ACE spokesman. Results of the survey will be included in a book on universities and federal programs being prepared by ACE for publication in the spring. Despite the survey, ACE is not entirely critical of the role of the Washington representative. "There is undoubtedly a need for universities, especially the larger ones, to have their own source of information in Washington," said one official.

Although university representatives are not registered lobbyists and prefer not to be regarded as such, they are interested from time to time in influencing federal education policy. During the past few weeks, FORE, in conjunction with the National Fisheries Institute, has been working to get government money to fund scholarships in commercial fishing technology at the University of Washington, Boston University, and Franklin Pierce College in

A POINT OF VIEW

John T. Wilson, deputy director of the National Science Foundation, excerpt from discussion at the University of Chicago Round Table on 10 December.

I think our best universities are slightly controlled chaotic situations and this is where intellectual ferment best takes place.

Now the problem in setting up a government agency to relate to such an institution is that a government agency can't be quite as uncontrolled and chaotic—although sometimes I think the National Science Foundation gets just a little chaotic. It can't be quite as chaotic as a university can afford to be. We're dealing with public funds and public funds are taxpayers' funds. The people who scrub the floors help support the scientist who is discovering things. In fairness to the taxpayers, one must at least have a system which makes certain that the funds are used well and honestly, when you get right down to the final point. This is not a bothersome problem. In the history of the Foundation, we are delighted that we have had as few problems as we have had. This basic problem came to the fore, of course, with the growth of research budgets in the recent past. The Foundation used to be a more comfortable place because its budget was small enough that the Congress wasn't aware that we existed. But, with the growth of research budgets, we became much more visible. Congress became much more interested when the R and D budget got to the $15 to $16 billion level—rightly so because it becomes a significant part of the President's budget at that point. In fairness, I have to compliment the appropriate committees of the Congress who interest themselves in R and D programs. They have worked hard to become acquainted with the problems. They have worked hard to try to understand what the scientists are trying to do. As I've sometimes said in making speeches to groups of scientists, I wish the scientists would work as hard trying to understand what the congressmen are trying to do.

New Hampshire. According to FORE's president Alex, the money can be obtained under the Sea Grant Act, if Congress is persuaded to give the act "a broader interpretation."

Most of the time, representatives limit their lobbying activities to federal agencies. Jane Odle of the University of Texas said part of her job is to watch for vacancies on agency-evaluating committees and, when they occur, to recommend replacements from the University of Texas. Mrs. Odle said her efforts have not paid off as yet, but her office has been operating only since September.

Occasionally, agency policy is affected by the work of a Washington representative. When several professors from midwestern colleges voiced their dissatisfaction with NSF's decisions on their proposals, Ida Wallace of the Associated Colleges of the Midwest took the complaints to NSF's director of undergraduate research, Donald McGuire. She said that all the proposals involved summer projects in field research and that their rejection seemed to indicate a pattern of response by NSF. According to McGuire, Mrs. Wallace registered the complaints at a time when NSF was considering a plan to establish a special panel on undergraduate field research. "Our final decision to set up the panel didn't come about as a result of Mrs. Wallace's influence, but she did help convince us that such a panel was necessary," said McGuire.

Contrary to the conclusions of ACE's survey, NSF's McGuire is not opposed to talking with college representatives about proposals. "Although I make sure that the author has given written permission to the representative to discuss the proposal, I am not averse to talking to representatives. If he is well informed on the subject of the proposal, a representative can provide a timely service to the people back at the campus."—FRANK CLIFFORD

German Science Policy: Bund Shifts the Balance

Bonn. Science policy in the Federal Republic of Germany has entered a postreconstruction era. In the last few years emphasis has been shifting from the postwar tasks of restoring research institutes and building up scientific manpower to a concern—shared by other major European nations—for bringing science and technology to bear on problems of economic development and social well-being.

The background to the new departure in science policy is the 30 years of political, social, and economic upheaval which began in Germany in the late 1920's. Nazi actions such as the expulsion of 2000 teachers from German universities and the setting of arbitrary priorities on research had a disruptive long-term effect on German science. And the climax of the period, of course, came with widespread destruction and defeat in the war and partition of the country afterward.

Until 1955 Germans were prohibited from building new research institutions, although recovery in the universities was well under way. Lifting of the occupation statutes in 1955 really marked the beginning of the expansion of science into postwar forms. The organization of science, however, was decisively influenced by Allied insistence that authority over key civil functions, such as police, information (radio and television), and education, be reserved to the Länder or state governments.

There are 11 Länder ministers of education but there is no federal minister of education. And because the Länder are responsible for financing universities and research institutions, science policy became a function of the Länder. Ironically, the universities, which emerged from the war as the least discredited of German institutions, proved also to be perhaps the least responsive to the needs of modern democratic industrial society. The unreformed university and the tradition of regional "self-responsibility" remain principal blocks to the making of science policy on a national basis.

The need for national science policy has been felt as strongly in Germany as elsewhere, however, and the federal role has expanded steadily by means of arrangements designed to meet the peculiarities of the German situation. The key federal-state agreement was the one obtained in 1957 through efforts of the newly constituted Science Council (Wissenschaftsrat) under which financing of large research organizations was to be shared by Bund and Länder governments.

The science council (WR) is probably the most important of the advisory bodies through which the two levels of government, the universities and research institutions, and industry maintain a modus vivendi. The WR has an administrative committee made up of six federally appointed members and representatives from the 11 Länder. A parallel science committee includes 16 scientists appointed on recommendation of the West German University Rectors Conference; the German Research Association [Deutsche Forschungsgemeinschaft (DFG)], which resembles the National Science Foundation in the United States but is more "operational"; and the Max-Planck-Gesellschaft (MPG), a private research organization which operates 48 research institutes supported by federal and Länder governments and industry. Also on the science committee are six leading public figures, some of them usually drawn from industry.

The WR is charged with developing an overall plan for the promotion of science, establishing scientific priorities in research, and coordinating Bund and Länder plans for nonindustrial science. The recipient of WR advice is the Ministry for Scientific Research, which has been a cabinet-level agency since 1962.

Because of split-level government, the science ministry's freedom of action is circumscribed. Defense research (a fast-growing item) and the R&D expenditures of other departments lie outside its control. The science ministry is responsible specifically for national nuclear and space research programs and also for the more general task of the promotion of science. It is in this latter cause that the ministry provides funds for DFG, MPG, and university research and finds some elbow room for making policy.