the universities find it difficult to make coherent, well-coordinated plans of their own. In January, W. N. Hubbard, Jr., dean of the University of Michigan's medical school and president of the Association of American Medical Colleges, wrote Secretary Gardner suggesting that a single entity within HEW should receive applications from universities for their health-related programs and see that the policies under which support is granted are coordinated.

This proposal is consistent with Shannon's desire to have NIH, which has long been supporting training at the post-M.D. level, take over, from the Bureau of Health Manpower, responsibility for supporting the training of candidates for the primary professional degrees in medicine, dentistry, and veterinary medicine. The proposal was not intended, however, as an argument for putting greater distance between the administration of research and education programs, on the one hand, and programs for delivery of health services, on the other.

Shannon feels that, unless the question of where NIH fits in the government health structure is soon resolved, it will be hard to get a suitable person to replace him as NIH director. The question of how to go about recruiting a successor is, in fact, one of the major points of disagreement between Shannon and Stewart. Shannon thinks that a blue-ribbon committee, made up principally of people from the medical and academic communities, should be given the task of recommending a candidate to Secretary Gardner. Stewart, on the other hand, feels that, while suggestions from NIH, the medical colleges, and other appropriate sources are very much in order, the responsibility for screening the candidates and for recommending one of them to Gardner is his alone.

In an editorial last December, Irvine H. Page, editor of *Modern Medicine*, indicated his support for the Shannon view. The loss of Shannon to the medical community, he said, "will be so great that each of us must take on some of the responsibility of seeing that a worthy successor is appointed. This is no trivial matter and should not be left to concealed maneuvers so often miscalled 'politics.' Let me insist that this job and the man in it are our responsibility if only because, for good or for evil, this person will be spending vast amounts of our tax money. It is none too soon to consider a replacement."

Shannon's hope is that there will be a "substantial overlap" between the appointment of his successor and his own departure. Stewart thinks the overlap should be small, perhaps only a few months. The Surgeon General quite obviously does not want the new man to undergo a long indoctrination at Shannon's knee.

The considerations involved in seeking the best possible relationships for the various elements within the governmental health structure are too subtle and complex to be easily judged. The one certain thing is that great care must be taken to assure NIH's continued effectiveness in support of basic medical research. As the pattern of federal support of scientific research has evolved during the postwar years, NIH has assumed so dominant a role in the medical field that, if it should ever falter, neither the National Science Foundation nor any other agency could readily step into the breach.

—LUTHER J. CARTER

Themis: DOD Plan to Spread the Wealth Raises Questions in Academe

The spectacle of a university rejecting of even contemplating rejection of federal research funds is about as rare as that old newspaper cliché, "man bites dog." But a group of faculty members at the University of Montana is trying to persuade colleagues, both on their campus and across the country, to reject participation in Project Themis, a Defense Department program to spread federal research dollars to relatively underdeveloped academic institutions (*Science*, 3 February 1967). Themis, which is just getting under way, is more the occasion for the unrest than the object. The underlying issue, as the Montana professors see it, is the general phenomenon of heavy military involvement in the nation's universities.

Project Themis is the Defense Department's response to a presidential directive issued in September 1965 calling for federal agencies supporting research and development to find ways of including the have-not institutions in their benefactions. But geographical distribution is only one of the purposes of Themis, and the Department of Defense (DOD) is not really in the business of giving away something for nothing. A closely related purpose, Donald M. MacArthur, deputy director of the Directorate of Defense Research and Engineering which is running Themis, told a congressional committee last summer, is to develop centers of excellence "capable of improved assistance to the Department of Defense in the years ahead."

DOD's emphasis on practical objectives is to a certain extent contrived to meet the political fact of life that it is easier to get Congressional appropriations for defense-related tasks than for "basic research." But there is no reason to doubt the sincerity of the Department's frequent protestations that, in dispensing the $290 million that annually flows from the Pentagon into colleges and universities, it is interested first in defense-related results, however remote, and only secondarily in supporting science or education.

In Themis, there is a frank fusion of two sets of goals, one having to do with the universities, one having to do with DOD. The Pentagon designed Themis with considerable sensitivity to the universities' problems. It believes that a "critical mass" of 8 to 10 faculty members and 16 to 20 graduate students working in related areas is necessary if a center with any impact on the general quality of the institution is to be developed. It plans to give a small number of large awards rather than a large number of small ones, and it proposes to give each institution a large amount of autonomy in running its projects. Themis will not support research projects that are not already within the long-range goals of the university, and it requires an explicit endorsement to this effect from top university officials.

At the same time, however, a major emphasis is on "coupling" the program to defense problems. According to

MacArthur, "the scientific content of these programs must be oriented toward areas of science and technology in which a strong mutual interest is shared by the Department of Defense and the university. Special efforts will be required to achieve good coupling between these programs and the technological needs of the Department of Defense. Thus, a further objective of these programs will be to foster closer relationships between the university scientists concerned and the defense scientists and engineers who are in daily contact with real military problems."

DOD Brochure

The 16-page brochure distributed by DOD to the universities is equally explicit. Themis's basic aim, the brochure states, is to "establish university-administered programs in specialized areas relevant to the defense mission. These programs should develop the potential of groups and individuals, including young faculty members, for research of high quality leading to results of significant value to Defense agencies and departments." Another aim is to "facilitate the two-way flow of scientific information in fields of mutual interest between participants in the university programs and personnel of the in-house Defense laboratories." Among the criteria for eligibility is "the willingness . . . to assist in (a) coupling the output of the research program to the potential users of such knowledge by publishing suitable reports, data and handbooks; (b) providing occasional advisory assistance to the Department of Defense and its agencies; and (c) participating in joint seminars and symposia." In spelling out areas of research eligible for support under Themis, DOD lists several problems of special interest to the Department and says to the universities, in effect: if you can fit into our interests, fine. It is anticipated that most of the research under Themis will be freely publishable; however, DOD can step in and classify a project if it seems about to affect national security.

Thus, whatever else can be said about Themis, it can hardly be said that its aims—unlike the aims of another federal agency, some of whose connections with universities have recently been exposed—are in the least covert. The issue being debated at Montana is whether or not the aims are compatible with the aims of a university. The concern seems to fall into two categories—the specific effects of Themis on the internal financing and priorities of a university accepting a contract, and the propriety of military involvement in basic research.

According to a memorandum from the local chapter of the American Association of University Professors (AAUP) to the faculty senate and university administration, Themis is a "trap to divert uncommitted university research funds to defense-related projects." This charge is based on the planned method of financing Themis projects, with the Pentagon paying 100 percent the first year, 67 percent the second year, and 33 percent the third year. "In accepting a Project Themis grant," the AAUP memo argues, "the University obligates itself to provide the balance during the second and third years. Further, the DOD proposes to award new grants each year on the same percentage continuum. How long before all University research funds are committed to defense-related projects?"

Perhaps more important is the argument that between the university and the military establishment there is simply an innate conflict of objectives. The memo says, "The Department of Defense has a vital concern in national defense." It continues,

> Our academic institutions have a vital but different concern in the free development and criticism of scientific knowledge, social institutions, and artistic expression. Our different concerns perforce direct our energies toward different goals and dictate the use of different means to achieve our basic goals. Military activities have traditionally been shrouded in secrecy and half truths. The tradition of academia is just the opposite. Universities have always been the one free agent in society.
>
> For academic institutions to achieve their goals it is essential that they function in an atmosphere of independence as complete as is humanly possible. Ideally a university should be financially independent. Ideally all funds would be allocated without external directives or control. Scholarly pursuits should ever be free in a democratic state. If a university faculty is competent to complete research projects it should be assumed competent to freely select research projects and their administration.
>
> We are seriously concerned at the encroachment by the Department of Defense and other military agencies in financing academic research, and the proposed expansion of this activity. The military would seem to be the worst possible source of funds for academic research—the source most inimical to the academic goal of free and independent research. Consider the recent example at the University of Pennsylvania.

What the local AAUP chapter would like to see is the transfer of basic research funds from the military to a civilian agency and the support of departmental or institutional centers of excellence by civilian agencies alone. This objective does not take account of the Pentagon position that, while research supported by other agencies adds considerably to the national pool of knowledge on which defense systems, like everything else, ultimately rest, to get needed concrete results it is necessary to buy research that is consciously directed at fulfilling a military purpose.

AAUP Campaign

Admitting that trying to reverse the long-established pattern of Defense support of basic research leaves him feeling "like Don Quixote," one official of the Montana branch of AAUP told *Science* that his chapter is hoping to organize a national campaign through the AAUP, as well as through traditional Congressional lobbying, to redirect federal research and educational policy into more exclusive reliance on civilian channels. Nationally, there has not yet been any formal response. but preliminary canvassing of a sample of AAUP chapters across the nation has evidently revealed considerable tentative support for this effort. At the same time, however, Themis itself appears to be drawing an extremely positive response. The Pentagon reports that it has received 479 applications from 171 institutions—proposals that add up to about $400 million. Since DOD has only $20 million to spend this year and plans to make only about 50 awards, it is obvious that a great many institutions are going to be disappointed.

At Montana, both the AAUP and the local branch of the American Federation of Teachers have endorsed a recommendation calling for nonparticipation in Project Themis, and the faculty as a whole will soon consider a resolution directed not simply at Themis but at the general issue of the freedom of faculty members to publish the results of their research. The university administration has also prepared a statement of its position—referred to, somewhat cynically, by one university official as the administration's "motherhood statement"—which states that "the University of Montana cannot be partisan to any special position other than the discovery of truth, and its professors, while fulfilling their obligations to the institution, can represent no more nar-

row interests than the interests of humanity."

While there is reported to be considerable sympathy in both the faculty and the administration for these general positions, and considerable alertness to the threat of possible restrictions on publication, the difficulty is that the relationship of these principles to specific cases such as Themis is not always clear. Publishable or not, much of the proposed research—such as a project for improving "the detection of small military targets"—is directed at exclusively military applications. On the other hand, research in information-processing systems, for example—another area in which DOD will support studies, may be put to both military and non-military uses.

The present overall disposition at Montana seems to be, in the words of one official, that "the project is innocent until proved guilty." Three groups of faculty members have submitted contract proposals to the Pentagon, and, according to administration officials, the difficult questions will arise later when, if the proposals are accepted, the terms of the research will have to be worked out. But the details are one thing; the long-term implications, with which the AAUP is concerned, are another.

The unseen presence in the debate over military involvement in the universities is obviously Viet Nam. When the country is at peace, the military establishment is somewhat shadowy. It has been viewed in academic circles as just another source of funds; its commitment to basic research, education, and the other values of academe have been rather easily taken for granted. While many institutions and individuals have had their disagreements with DOD, many others have a long history of honorable and satisfactory dealings, and there is some reluctance, as one Montana official said, "to set the DOD apart and treat it differently from other federal agencies." But when the country is fighting a war—and a war that seems to be unpopular with the intellectuals—the Pentagon no longer seems benign, and the fact that its mission involves killing people is hard to ignore. As long as the war goes on, the issue, in one fashion or another, is certain to continue to come to the surface. Researchers frequently complain about the cumbersomeness of federal granting procedures, and they have their differences on a variety of matters with NSF and NIH. But while these institutions may have their faults, war, at least, is not their job. If the movement at Montana can be taken as symptomatic, academic researchers these days are finding the civilian agencies very attractive indeed.

—ELINOR LANGER

White House Science Office: Report Urges Expanded Role

Critics of the Office of Science and Technology (OST) generally split into two camps: those who argue that the organization exerts too much influence over federal science affairs and those who argue that it exerts too little. The clear thrust of a recent report issued by the Holifield subcommittee of the House Government Operations Committee is that OST should exert more influence.

The OST, founded in President Kennedy's administration, is nearly 5 years old. During its initial period of existence, OST seemed to play a highly constructive role, mostly attributable to the close relationship between President Kennedy and Jerome B. Wiesner, presidential science adviser and first director of OST. Wiesner and his staff took an important part in providing advice on national security issues and in achieving the nuclear test ban treaty of 1963. But, as the report indicates, the circumstances surrounding OST have changed in the intervening years: "The Nation has a different President. In turn, he has a different man in charge of the White House science establishment. The problems confronting the President have changed." The report argues that some Congressmen wish that OST would show the kind of creativity in the civilian field that it previously displayed in military affairs.

The report itself is an indication of the growing concern which Congress is exhibiting about science policy. The study was commissioned by the House Military Operations subcommittee, a group which has jurisdiction over OST and other science-related agencies, as well as fulfilling its primary job of looking at Defense Department operations. Although he made no specific recommendations, chairman Chet Holifield (D-Calif.) said that the report would serve as background for possible hearings or "the development of new legislation." The study was made by the Science Policy Research Division of the Library of Congress, a group which is becoming increasingly important in providing advice for the legislative branch. It was prepared under the general supervision of division chief Edward Wenk, Jr., who is now on leave to serve as executive secretary of the Marine Sciences Council. Wenk, a former member of the OST staff, wrote the first chapter, the report's most analytical and controversial section. Holifield called the 326-page document* the "most comprehensive account of OST activities ever presented," a judgment which will not be disputed. OST officials admit that the report is more detailed and better-organized than anything OST itself has ever compiled to describe itself.

The authors of the report, who relied on written sources for their study, found some difficulty in answering the question—what does OST do? The authors cite Donald Hornig's statement that the White House scientific advisory network is "too complicated to describe." The report indicates that the advisory role that OST plays to the President implies a host of unpublicized activities—"Like an iceberg, only a relatively small tip is visible."

Part of the complexity is due to the fact that the White House science chief has four jobs: special assistant to the President for science and technology, director of OST, head of the Federal Council for Science and Technology (FCST), and chairman of the President's Science Advisory Committee (PSAC).

*The report is available from the Military Operations Subcommittee, House of Representatives, B 373 Rayburn Building, Washington, D.C. 20025. In addition to Wenk, others who played a major part in preparing the report included Warren H. Donnelly and Dorothy M. Bates.