there were questions from the floor. Afterward the audience was asked to stand if it disapproved of Goldberg's position; about 7000 people silently rose. Only a handful indicated support.

Another example of the kind of tactical escalation that directly affects the university was the VDC's proposal to use classroom time at the opening of the semester for discussion and protest of the U.S. resumption of bombing. According to most reports, the effort fizzled. But several hundred people apparently did participate, and the idea had the public support of more than a dozen faculty members, who argued that it was a good way of showing that the university cared enough about the war to be willing to interrupt its routine activities to register concern. The administration's failure to discipline the few faculty members who did devote class time to Vietnam is resented by a number of campus conservatives, and it played a prominent role in the recent senate attack on Clark Kerr.

A Forum for Commitment?

Relatively few members of the Berkeley faculty share the idea of the radical minority that the university should be a forum for commitment as well as for scholarship, that education and political responsibility are not divisible. Nonetheless, that idea is very much in the air. It was implicit in the teach-ins that drew heavy faculty support across the country last year, and it is a theme underlying developing faculty support for the current wave of student protests against university cooperation with the Selective Service. At Berkeley the idea hovers like a small cloud.

In this sense, when Berkeley's conservatives (a relatively small number of men whose most consistent spokesmen are scientists associated with the university's specialized laboratories) cry out that the radicals want to politicize the university, they are by no means wrong. If the conservatives exaggerate when they say a Latin American–style university is just around the corner, it is still true that the radicals are trying to use the university in ways rather new to the American tradition. It is perfectly true, as administration spokesmen point out, that out of a campus community of around 30,000, not much more than a third have ever taken part in protest activities, and the number of persons devoting more than a fraction of their time to the cause is probably less than a thousand. It is also true that political zeal and energy are not limited to the extreme left—in which category most observers would place the VDC—or even to the left. As *Sports Illustrated* pointed out in a recent article the administration is fond of circulating, thousands more people still go to football games than to rallies. The students 2 weeks ago voted down a proposed new constitution that actually implied fully autonomous student government in something like the Latin-American style, and the majority have shown little inclination to support the radicals in their repeated challenges of the administration's new rules. But there are different degrees of radicalism, and there is no doubt that at Berkeley it is the left that is dominant.

The emphasis on politics is itself partly the result of the Free Speech Movement. "Last year was the first significant political experience of my life," said one researcher currently involved, along with sizable numbers of students and faculty members, in the congressional campaign of (peace candidate) Robert Scheer. The volume of faculty activity sometimes distresses even professors who are friendly to the cause. "I hate the war too," said one department chairman discussing a colleague who is spending much of his time with the Scheer committee. "But I hate it more when I have to do his administrative work as well as my own." To members of the faculty who support the war, the gravitation of their colleagues to politics seems, at best, a breach of contract with the university; at worst it is apt to seem like subversion.

Somehow in the midst of all this it is perhaps a tribute to its diversity —Berkeley has devoted a substantial amount of its time this year to proposals for reforms in undergraduate education. Those efforts will be discussed in a second article in this space.—ELINOR LANGER

Demand for Institutional Support Attains the Form of Legislation

The postwar "partnership" between the federal government and the universities, like many associations in which one partner has the talent and the other the money, has been troubled by the way the money has been handled. The special rub is the mechanism of federal support—the system of grants by which most of the federal research funds are allocated to individual investigators for specific research projects.

A bill (H.R. 13786) recently introduced by Representative George P. Miller (D–Calif.), chairman of the House Science and Astronautics Committee, would provide a sizable sum for research ($150 million a year to start with), over which the institutions themselves would have control. These funds, the sponsors insist, should be, not an alternative, but a supplement to grant and contract funds.

Chances for enactment of the Miller bill in this session of Congress, however, are miniscule. Substantial new expenditures are involved, and most such proposals have been left out of the budget this year because of Vietnam. Furthermore, the leveling off of funds for research grants and contracts in the last few years guarantees that there would be stiff resistance to any attempt to cut up the existing research pie differently. Miller himself, while interested in the problem of institutional support, appears to have introduced the legislation in part, at least, as a courtesy to a college president from his home state. Hearings could be scheduled for late

in the session, but Miller apparently is waiting for comments on the bill from executive agencies before he makes a decision.

Despite its poor immediate prospects, however, the bill is significant as the most concrete expression to date of a growing demand for a major modification of the prevailing system.

The argument for "institutional support," as it has come to be called, is based generally on the assertion that what has been good for science has not necessarily been good for the universities. The most familiar complaints are that federal funds have flowed into scientific research and education to the detriment of other disciplines, particularly the humanities; that research has been emphasized at the expense of teaching; and that a small group of institutions have benefited disproportionately.

Prime movers in the campaign for institutional support have been the university administrators—particularly presidents and deans—who are responsible for the total development and well-being of their institutions and who also, in some cases, have resented seeing their traditional prerogatives infringed. Scientists, on the other hand, who have been both architects and inhabitants of the house that federal science built, seem generally satisfied with things as they are.

Allies in Congress

Advocates of institutional support programs have gained useful allies in Congress in recent years as concentration of research funds in a relatively few institutions and the effects of this concentration have attracted increasing attention. The aims of the proponents of "geographical distribution" of research funds and of institutional support programs are not necessarily identical, but their interest in changing the status quo leads them to make common cause.

In draftsmanship, the Miller bill is, in fact, the work of a member of the staff of the National Association of State Universities and Land Grant Colleges. The association is the most influential organization representing public institutions of higher education, and these institutions have been the strongest advocates of institutional support. The land-grant colleges and state universities have a long experience of receiving federal funds for agricultural research on a basis which approximates institutional grants. And the idea of institutional support was championed unsuccessfully by the big public universities during the period of government-university give and take which produced the National Science Foundation.

The heart of the new bill is the formula by which support funds would be allocated. This formula, which is a precisely calculated compromise designed to appeal to institutions large and small, public and private, developed and underdeveloped, has three sections.

1) A third of the funds would be allocated to institutions as a percentage of the total sum awarded them during the preceding year in project grants from NSF, the National Institutes of Health, and the Office of Education. No institution would receive more than $300,000 a year in institutional support.

2) A third of the funds would be divided among the states according to the relative number of high school graduates they produce and then would be distributed to institutions of higher education on the basis of the relative number of undergraduate semester credit hours taught in the sciences, social sciences, engineering, and mathematics.

3) A third of the funds would be allocated among institutions of higher education on the basis of the relative number of advanced degrees (both master's and doctor's) they give in the sciences, social sciences, engineering, and mathematics.

By taking into account undergraduates, graduate students, and volume of research, the theory is, the formula would provide something for nearly everybody. The bill provides that the program be administered by the director of NSF and that an advisory council be formed, with the major higher education organizations providing most of the members.

While the Miller bill would give it legislative status, institutional support as a principle is already embodied in the programs of several agencies.

Perhaps the first overt attempt to counter the gravitation of research funds and able graduate students to a limited number of institutions came in 1958 when the National Defense Education Act passed in that year created fellowships which were to be awarded by institutions to graduate students working in new or expanding science graduate programs. Both NSF and NIH now offer traineeships on a similar basis.

The Health Professions Educational Assistance Act, as amended last year, provides institutional grants on a formula similar to those already operating for programs in agriculture and public health education.

The National Aeronautics and Space Administration, which was late arriving on the university research scene and was anxious to establish a sizable research beachhead, has pleased the partisans of institutional support. NASA's performance in providing fellowships and facilities for space research and education is regarded as generous, and its policy of providing "step funding," according to a spokesman for the state universities, has given NASA programs a welcome measure of stability.

NIH, with its close ties to individual researchers in the medical and health fields, has the reputation of being the agency which is most cautious about committing itself to broad institutional-support programs. But it has certainly not been immovable on the subject, as its program of institutional grants to nonmedical components of universities indicates.

NSF Initiative

The major and most publicized example of institutional support so far is to be found in NSF's science development program. The program, which grew as a result of internal and external pressures to encourage "new centers of excellence," provides for sizable grants to universities with a potential for sound growth in the sciences. Since 1964, some 13 grants totaling $47 million have been made, and the awards are expected to continue at the rate of 10 or 12 grants a year.

In addition, NSF since 1961 has operated a program of "institutional grants for science." To be eligible, an institution must have been awarded an NSF grant for basic research or for selected programs in science education during the past year. The amount of the institutional grant is determined by the total sum in applicable grants from the foundation, and based on a percentage formula. The money can be used only for science.

If a hearing should be held on a broader program of institutional grants it is certain that the NSF-type formula, which bases institutional grants on the total of research funds received, would come under attack on the grounds that it perpetuates the inequities of the grant system.

The only specific opposition to the bill among educational organizations so far was voiced last month in a federal-affairs newsletter sent out by the American Association of Junior Colleges. The

Miller bill, it was suggested, "would discriminate against junior colleges and many four year colleges." The junior colleges would prefer a program of general aid on a straight per-student basis.

Without hearings on a bill, it will be impossible to see with clarity how lines are drawn on the issue. Unquestionably, however, much of the groundwork for a move to strengthen institutional support has been laid.

The report on the Daddario subcommittee's investigation on the operations and the future of NSF had this to say, from the congressional viewpoint, on the subject.

> Three issues emerge from the Foundation's present programs for fostering the growth of new centers of scientific excellence at academic institutions. First, NSF institutional support appears delayed and still too small for national needs, particularly to assure a substantially greater number of centers of excellence widely dispersed among the States. Second, institutional support can offset the possible decrease of freedom of action of college and university administrators in determining the overall institutional pattern of development and growth. Dr. Haworth observed that this pattern may have been unduly influenced by the nature of programs finding most ready acceptance in Washington. Third, institutional support may offer a way to reduce costs of academic research administration and to keep responsibility for business administration aspects of research on the campus where it belongs.
>
> It is evident that the NSF has made a start in institutional support and is doing what it can within its means. The subcommittee would encourage the Foundation to push ahead with its institutional programs, to open them to more than the top colleges and universities in the country, and to seek out these smaller institutions whose own energy and initiative indicate that with encouragement and support they can become genuine centers of excellence in research and science education.

A Presidential order of last September gave comfort, if not aid, to advocates of institutional support when it ordered research-supporting agencies to be sure that "all practical measures are taken to strengthen the institutions where research now goes on and to help additional institutions to become more effective centers for teaching and research."

Certainly there are those who will have misgivings about modifying a system which operates—in theory at least—on the principle of merit alone, but it appears that all the ingredients are present for the expansion of institutional support in science except for one essential—money.—JOHN WALSH

U.S. Naval Academy: Faculty Unrest

Annapolis, Maryland. The official seal of the U.S. Naval Academy shows a galley under way, its sails full and its oars sweeping. "The trouble here has been that the Academy has wanted its new faculty members to do only one thing—to come aboard and row," a young civilian Ph.D., who has an excellent record as a scholar, told *Science* recently. This highly qualified young professor—an academic type increasingly in demand at the Naval Academy—noted that the galley's oarsmen face the stern as they row, propelling the vessel forward but not knowing where it is going.

His remarks simply point up a truth which now must be clear to all: the Naval Academy has failed to make the accommodations necessary for the comfortable assimilation of the kind of civilian faculty it is trying to build. This failure seems to underlie the Academy's recent crisis of bad publicity, the immediate cause of which was the disclosure, in early April, of some dubious grading practices which were bitterly resented by many members of the civilian faculty, particularly those in the junior ranks.

The Academy is unlikely to find a lasting solution to its faculty problem until it discovers a way to give civilian professors—all of them, not just the most senior—a larger voice in shaping academic policy. "The Navy can't have it both ways—exploiting our scholarship and, at the same time, telling us we are only here to row," said the young professor. "We want to be represented up on the bridge where we can be heard."

The Academy has yet to demonstrate convincingly that a military institution can and will encourage, in a large measure, the kind of freedom and responsibility for its academic professionals that is found in many strong civilian colleges and universities. Alone among the three service academies, however, the Naval Academy has had, by long tradition, many civilians teaching in its classrooms. Recently, the civilian professors have come to outnumber the military instructors.

The Academy has had a few distinguished civilian scholars (for example, in naval history), but until a few years ago little emphasis was placed on research and productive scholarship. The Ph.D. degree was thought desirable, but promotions were possible without it and the Academy still has a number of full professors who lack the Ph.D. Now the Ph.D. is a prerequisite for promotion to full professor, and promotion to the rank of associate professor is difficult without it.

New recruits to the faculty usually have their Ph.D. or are well on the way to earning it. The civilian faculty numbers 287 members today and eventually will grow to 320. Six years ago there were 57 Ph.D.'s; now there are about 90; next fall, if current plans are realized, there will be 114. The officer faculty has been upgraded, too. More than half the 281 officer-instructors now hold the master's degree, as compared with only 15 percent in 1962.

The Academy has made other major improvements in its academic program since the late 1950's (*Science*, 19 November 1965). For example, instead of the 40 courses which all midshipmen took under the old lockstep curriculum, 200 courses are now offered. The achieving of these gains had given the Academy a special sense of virtue, a fact which has imparted a certain poignancy to its sudden fall into a not wholly deserved opprobrium.

The Academy has suffered acute embarrassment from the disclosures of its grading practices and of the discontent