when granted success, tremble in fear of future failure? And what of those intelligent and able seekers on whom fortune has not yet smiled? It is easy to recognize in given instances how luck favored the prepared mind. But the prepared mind is not always favored and no one knows how often the constellation of preparedness and luck occurs.

It is not surprising that many researchers fall by the wayside, some who were not given the revelation of discovery and others who did experience it. There are great artists whose spring of creativity became dry too early and who spent a lifetime of being living fossils. There are investigators of renown who outlived by decades the period of their accomplishments. Courageously, some men will by an act of decision terminate early or in middle age their search as investigators. They may weigh the unknown prospects of gain against the certain sacrifices of leisure, breadth, and peace of mind. Coolly, they will compute the probability of future research gains and, judging this probability to be low, devote themsleves to teaching alone or to administrative tasks. Often their former colleagues or their younger successors look down on them. "He doesn't do any work any more" is a familiar, cruel comment. But why not permit the honesty of the insight that to create is a hazardous undertaking? He who has tried it has also the right to choose a task where, as a teacher, he can recreate knowledge and attitudes, or where, as an administrator, he can apply his thoughts to the prerequisites of research and teaching. Perhaps he will be able to enjoy the leisure, breadth, and peace of mind whose lack he regretted in his research days. Perhaps he will continue to miss them.

Of course, different men leave research for different reasons. Some give it up reluctantly, but in the knowledge that they can at times be particularly useful in some other capacity. They may fulfill their new duties for a period of time, and then, having carried them to success, return gladly to their original pursuits. Others may even be able to be administrative leaders as well as, simultaneously, investigators. But for these too, it is valid to say: Carrying out research begifts and deprives.

We tend to admire the man who once having elected a field of study remains with it throughout life. We call him faithful, speak admiringly of his patience, and say that he devoted a lifetime to his specialty. However, what distinguishes his faithfulness from that of a lifelong bookkeeper, his patience from that of a housewife, and his devotion from that of a philatelist? It may be true that the social significance of the scholar's work is greater than that of many other individuals, but is his own personal significance exalted?

Let us therefore be candid with those who want to become investigators. Do not be blinded, we must tell them, by the glamour which is only one aspect of a research career. Be prepared for disappointments and the feelings of failure. But also do not imagine that your own periods of distress are unique. Few of those who seem to have sailed serenely on favorable breezes have not experienced their wind-still periods.

The scientific career has been called a carnivorous god. Perhaps more appropriately it may at times appear a soul-devouring god. However, by no means does it need to take on this aspect. Whatever dangers personal weaknesses and social pressures may present to the investigator, he can rise above them. He can retain the enthusiasm of youth which led him to contemplate the mysteries of the universe. He can remain grateful for the extraordinary privilege of participating in their exploration. He can incessantly find delight in the discoveries made by other men, those of the past and those of his own times. And he can learn the difficult lesson that the journey itself and not only the great conquest is a fulfillment of human life.

News and Comment

Security Practices: Nonmilitary Agencies Still Hold to Vestiges of Procedures Developed in 1950's

During the past few years, federal agencies have modified or eliminated many of the security regulations that grew out of Senator McCarthy's allegations about Communist infiltration of government activities. But vestiges of the old-time regulations still remain, even in such benign agencies as the National Science Foundation and the Department of Health, Education and Welfare. And although it is not generally realized, the security regulations apply not only to full-time employees of the agencies but also to persons who are invited to serve a few days each year on the panels and study sections that evaluate research applications.

The current regulations and the spirit with which they are applied are considerably less stringent than they were in the 1950's, when federal agencies tended to protect their political flanks by playing it safe in doubtful cases. But the policy of imposing security procedures in nonmilitary areas still grates on many persons, especially when they learn that all consultants must sign a loyalty oath and a disclaimer of disloyalty which states, in part, "I am not a Communist or Fascist," and that many of them must undergo what is called a National Agency Check, which involves a search for information about them in the files of the FBI, the Civil Service Commission (CSC), and the House Un-American Activities Committee. (If they are veterans, the search extends to military intelligence files.) Until recently, all HEW consultants were fingerprinted; many still must submit to this requirement, but the Department is attempting to work out procedures that would exempt most of its consultants from fingerprinting and from the National Agency Check.

On a few occasions—rare in proportion to the numbers of persons involved—investigation has led to a decision against appointing a prospective consultant or study-section member, even though he had been selected on the basis of professional merit. And there have also been occasions when nominees, repelled by the security practices, have declined to serve, on the grounds that their personal and political backgrounds have nothing to do with their professional qualifications. In both cases, the number of persons appears to be miniscule, but their wrath is not, and the very existence of security regulations in an area where selection is supposed to depend purely on scientific merit is probably more of a source of discord than is generally realized.

No Enthusiasm for Rules

Officials of NSF and HEW make it clear that they are not happy about having to subject their consultants to security procedures. And the agencies involved seem to apply the procedures in a minimum and discreet fashion, with no evident enthusiasm. But by act of Congress, civil service regulations, and an executive order issued in 1953, the agencies are required to employ security measures of one sort or another. The executive order, No. 10450, provides the basis for security procedures by stipulating that "the appointment of each civilian officer or employee in any department or agency of the Government shall be made subject to investigation." And Congress, in 1955, voted that any person employed by the federal government must sign an affidavit "to the effect" that he does not advocate overthrow of the government and is not a member of an organization with such intentions. The Civil Service Commission, which regulates personnel policy for federal agencies, incorporated the executive order and the legislation into government-wide policies, and though the individual agencies are allowed some discretion, the CSC still requires them to heed the rules in one way or another.

NSF, which currently has about 560 consultants, employs the following security procedures, according to Calvin Jones, NSF's personnel officer. Prospective panelists are told that, prior to their appointment, they will be required to sign the loyalty oath and disclaimer. They are also told that if they hold consultant status for more than a year—which is actually the case for most NSF consultants—they will have to undergo a National Agency Check. There is no clear explanation of the first year's exemption from the National Agency Check, but it appears that NSF views security regulations with a good deal of distaste and minimizes them as much as it can.

If "derogatory information" results from the National Agency Check, Jones explained, the case is brought to the attention of the NSF director's office, where the decision is made on whether to extend the invitation to serve. During the 6 years he has served in the NSF personnel post, Jones said, "less than half a dozen have been rejected." There can be various grounds for rejection, including "arrests, morals, bad debt, or alcoholism." The decision not to extend an appointment, he said, "is not denial of a security clearance." NSF, he added, "may make a notation that we didn't reappoint the man," but the rejection "means nothing beyond the fact that NSF considered the nominee unsuitable for panel membership." Jones said he cannot recall anyone's refusing to serve because of the security regulations.

Fingerprinting

Until about 5 or 6 years ago, NSF consultants were fingerprinted, but this was dropped with the permission of the CSC.

In HEW, where the Public Health Service and the National Institutes of Health account for 90 percent of the department's consultants, the security regulations are somewhat different, and, furthermore, are now in the process of being revised.

HEW consultants must undergo a "pre-appointment" name check prior to being invited to serve. According to Rufus E. Miles, Jr., administrative assistant to the HEW Secretary, the check is similar to a National Agency Check, but apparently not as detailed. Miles said the prospective consultant is unaware of the fact that he is being investigated, and if he is rejected, "there is no embarrassment." Between 1960 and 1964, Miles said, 2250 persons were considered and 36 were not selected because of "unfavorable information." Miles declined to discuss what was meant by this term. He explained that each case involving "unfavorable information" is examined by the Department security office, but the final decision is made by the head of the agency that recommended the appointment.

Those who are found acceptable are required to sign the standard loyalty oath and disclaimer. At present some must also be fingerprinted and undergo a National Agency Check, which, Miles explained, simply rounds out the pre-appointment check. He said that there have been cases in which people who were offended by the security requirements have refused to serve, but that numbers were not available. As to why NSF and HEW have for years differed on requiring fingerprinting, the answer at HEW was: "NSF worked it out with the Civil Service Commission, and we're just getting around to it." An additional reason may be that NIH, which is the single largest employer of consultants within the HEW Department, frequently finds it difficult to get its views across to the Department's policy makers. NSF, as an independent agency, looks after its own interests with the CSC and the rest of the federal hierarchy, but NIH, as a subsidiary of the Public Health Service, has to work through many layers of administration to register its views.

In consultation with the CSC, HEW is currently working on measures designed to simplify its security practices. Until recently, the National Agency Check and fingerprinting were required for all persons who held consultant appointments for more than 90 days in 1 year, regardless of how many days they actually served as consultants. Under changes approved last month by the CSC, name checks and fingerprinting are required for consultants only if they actually serve more than 30 days a year, which very few do. The revised regulations, however, are applicable only on a case-by-case basis, and HEW is seeking permission to apply them on a categorical basis. Miles said no decision has been made on whether the new regulations will eliminate pre-appointment investigations.

HEW is also changing the loyalty statement requirements that apply to many of its fellowships, principally those awarded by NIH. When the National Defense Education Act was passed in 1958, it specified that NDEA fellowship recipients must sign an oath and disclaimer. At the same time, Congress imposed a similar requirement on NSF fellowships. Within HEW, the requirement applied only to NDEA fellowships, but since NDEA was administered by an HEW agency—the Office of Education—the requirement was made department-wide as a matter of policy. In 1962 Congress voted to

eliminate the NDEA and NSF disclaimers, following charges that it was an insult to require a disavowal of disloyalty. HEW, however, retained the disclaimer for all non-NDEA fellowships, although it had imposed it at its own discretion and could have removed it at any time. This week HEW announced that, henceforth, the disclaimer will no longer be required. As to why it waited this long, the answer was, "We just didn't get around to it."

—D. S. GREENBERG

News in Brief: Hearings on NSF, Other Federal Programs, Announced; NAS to Study Accelerator Site

The National Science Foundation is soon to receive its first comprehensive congressional review. While no federal agency enjoys being scrutinized by a congressional committee, it is clear that the review is to be conducted in a friendly atmosphere, and is not motivated by suspicions that anything major is amiss at the Foundation.

NSF, of course, meets annually with House and Senate appropriations subcommittees to discuss budgets and closely related subjects. But throughout the Foundation's 15 years, no congressional committee has conducted a detailed study of NSF's programs and policies or of the role the Foundation plays in the grand scheme of federal support for research and education. Such a study, it was announced last week, is now in the works, under the auspices of the Subcommittee on Science, Research, and Development, chaired by Representative Emilio Q. Daddario (D–Conn.). Daddario's subcommittee, which comes under the House Science and Astronautics Committee, has authority over the legislation governing the Foundation's organization, policies, and objectives. During the past few weeks, subcommittee staff members have been collecting information about the Foundation, and it is expected that about 10 days of public hearings will be held toward the end of June.

The decision to hold the hearings seems to arise from a number of factors. First of all, it is customary for legislative committees to take a look now and then at the federal activities under their jurisdiction. When annual approval of legislative authority is required, as is the case at present with foreign aid, for example, a review automatically takes place. NSF, however, operates under a continuing statutory authority, which requires only annual approval of its budget. As a consequence, there has been no necessity for the Foundation's law-writing committee to review its activities. Another reason for the study is that Daddario's subcommittee is seeking to enlarge its prestige and scope of activities, and it is a natural step for it to take a look at the one federal agency that is responsible for across-the-board support of basic research.

The fact that friendliness prevails between Daddario and the Foundation does not necessarily mean, however, that NSF will emerge unscathed. Lots of people have been critical of the way the Foundation dispenses its limited resources, and they can be expected to make their views known. In addition, there has been some dissatisfaction with the Foundation's performance in the difficult task of collecting and analyzing statistics on research and education. These statistics have become increasingly important for regions that feel they are not getting their share of federal support of research.

The latest congressional-committee arrival on the research scene also disclosed last week that it is conducting a study. This group is the Research and Technical Programs Subcommittee of the House Government Operations Committee, chaired by Representative Henry S. Reuss (D–Wis.). The subcommittee was created at the beginning of this Congress upon the recommendation of the now-defunct Elliott Committee.

Reuss's group is going to look into the question of "whether federal research programs carried out by institutions of higher learning may be adversely affecting the nation's goals for higher learning." Some 200 faculty members, administrators, and other persons associated with higher education have been asked to write answers to a series of questions. These cover a broad range of subjects, including whether undergraduates are being short-changed by emphasis on research, and whether federal research programs are benefiting large universities at the expense of smaller institutions. Reuss's subcommittee is also planning hearings toward the end of June.

In another development concerning federal support of research it was announced that the Atomic Energy Commission has engaged the National Academy of Sciences to evaluate sites for the 200-bev accelerator now under design at the Lawrence Radiation Laboratory (*Science*, 19 March). A lot of high-energy politicking is already under way among regions that would like to be chosen for the gigantic installation, which is expected to be 1 mile (1.6 km) in diameter and cost $280 million. The Academy has not yet announced the names of the committee that will handle the AEC assignment, but it is understood that the group will be chaired by Emanuel R. Piore, vice president and chief scientist of IBM. Piore, a longtime government adviser, has logged many committee hours on sticky scientific-political problems, including chairmanship of the study which helped extricate Project Mohole from its congressional difficulties.

Accelerator Site Criteria

In specifying the criteria that the Academy should employ, the AEC announcement stated that "a desirable site would (1) contain at least 3000 acres owned by, or reasonably available to, the U.S. Government; (2) have the potential of delivering a firm power load of several hundred megawatts and a minimum of 2000 gallons a minute of high quality water; (3) be reasonably close to a commercial and industrial center which includes research and development activities; and (4) be reasonably close to communities having adequate housing, cultural and educational facilities for some 2000 scientific and technical personnel and their families. Also, the site should be close to adequate surface transportation systems and a major airport with frequent service to major U.S. cities."

Whatever the final verdict may be, it is probably inevitable that this great facility will be the subject of a noisy political row, especially if it lands in an area already rich in federally supported R&D activities—which, as might be expected, tend more than the have-nots to meet the criteria.

Among government people associated with the siting problem, there seems to be general agreement that the employment of the Academy offers the best available hope for getting a politically uncontaminated recommendation. The Joint Committee on Atomic Energy will, of course, have its say, but since that 18-member body has representatives from 15 different states, it might be hard to enlist a majority in a decision motivated purely by pork-barrel considerations. The AEC said it