

jected to a program review no less than 13 times in the last 6 years of its life. People familiar with the program in this period say these studies tended to turn into reviews of earlier reviews and to produce recommendations which were not put into effect.

GAO's major recommendation for future projects like ANP is for one agency to obtain congressional authorization for the cost of the project, since this would eliminate the problems inherent in dual control and "facilitate Congressional review and strengthen Congressional control."

Though many persons in Congress and the agencies remained convinced of the feasibility and value of the ANP—Congressman Mel Price (Democrat of Illinois) is perhaps the best known of its advocates—the absence of visible results lost the project many supporters in Congress, and in March 1961, shortly after President Kennedy took office, he asked Congress to terminate the ANP program because he said "the possibility of achieving a militarily useful aircraft in the foreseeable future is still very remote."

Congress complied with the President's request, the project disappeared from the budget, and the work was transferred to the AEC budget as a non-defense research item.

AEC officials say that many of the lessons learned in the work on ANP, particularly in reactor development and materials research, have proved valuable in the joint AEC-NASA work on the nuclear space program, which has a budget of about \$400 million for fiscal year 1963. No agency now is working on a nuclear-powered aircraft project.

The GAO study centers on the administrative aspects of the ANP program and does not delve deeply into matters of policy, which is quite natural in an organization concerned with Executive agency fiscal operations and scrupulous never to intrude in areas where its employers, Congress, may be directly involved.

The review does, however, make the essential point that the ANP project was in competition with other defense systems, including missiles, and that over the past 15 years the project had suffered the common fate of manned aircraft—the shift in emphasis to missiles.

The project's ultimately fatal flaw was the failure to solve the central problem of developing a small, light, high-powered, adequately shielded reactor, and Secretary of Defense Robert

McNamara last week underlined the point when he told the defense procurement subcommittee of the Joint Economic Committee that too much time and money was spent on an airplane and not enough on a reactor.

In retrospect, the ANP decision seems to have been an early example, and perhaps a classic one, of the application of Secretary McNamara's "cost effectiveness" analysis of major research and development programs—that combination of technological, strategic, and budgetary considerations which Congress and the defense contractors are now suspiciously appraising.—JOHN WALSH

AEC: Energetic Bargaining Brings Agreement on University Contract Clauses on Security, Information

Inherent in the patron-protégé relationship created by government sponsorship of university research is the possibility that a sponsoring agency's conception of national security will conflict with a university's idea of academic freedom. Such a conflict seems to have been reconciled recently in protracted negotiations between the Atomic Energy Commission and certain universities which operate big research installations financed and supported by the AEC but at which only nonsecret research is carried on.

Focus of the disagreement, in which Harvard University emerged as the AEC's chief antagonist, was the small print in AEC contracts which set regulations on employment and visits of aliens and Soviet bloc nationals and on exchanges of data between those employed at the AEC-supported installations and Soviet bloc scientists.

The matter came to public notice last month in newspaper stories describing differences which delayed negotiation of a new contract to operate the \$12 million Cambridge Electron Accelerator located at Harvard and operated jointly by Harvard and M.I.T. However, other universities, notably Princeton, which operates major AEC-supported labs, and Stanford, which is building a 2-mile-long linear accelerator under a \$114 million AEC contract, also raised objections to AEC proposals to standardize and refine its security regulations on foreign personnel and on information exchanges.

There is a feeling, not uncommon within the universities, that the AEC,

which has responsibility for development of both military and peaceful uses of nuclear energy, is conditioned to a secrecy-mindedness that sometimes extends to areas of research where secrecy is unnecessary.

The AEC's concern for security is obviously proper where weapons research and development is going on, as at the national laboratories at Livermore and Los Alamos, and it also appears true that the agency has been striving over the years to work out policies appropriate to its split personality. An increasing proportion of the AEC budget is going into civilian applications, and a systematic attempt is made to declassify research information which cannot be construed as containing military secrets. The AEC also supports a large nonmilitary research program in which universities and other nonprofit institutions, as well as industry, participate as contractors.

The fiscal 1963 budget calls for \$183 million for research in the physical sciences and \$69 million in biology and medicine. A great many of these projects have no more strings attached than do grants and contracts for similar projects from, say, the National Science Foundation or the National Institutes of Health. In the case of large AEC-financed installations like the Cambridge accelerator, however, the AEC appears to feel the need of more formal safeguards against the loss of security-sensitive information about either research equipment or techniques or in the form of data.

Harvard, for its part, has been among the most militant in resisting contractual arrangements with federal agencies which, in Harvard's view, would compromise the universities' financial independence or allow the intrusion of federal control in peacetime. Harvard, for example, follows a rule of not accepting classified research projects. It was prominent among the universities and colleges which stayed out of the undergraduate loan program of the National Defense Education Act until the loyalty disclaimer affidavit was repealed. And Harvard has also made it a policy not to pay any portion of permanent faculty salaries out of federal project funds, a practice in which many universities less richly endowed than Harvard are compelled to indulge.

The difficulties over the Cambridge accelerator contract arose more than a year ago while the AEC was in the process of standardizing contract reg-

ulations and of centralizing responsibility for seeing that regulations were applied uniformly. Previously, AEC regional offices had had a fair degree of latitude in negotiating contracts.

In the process of amending its regulations on research contractors the AEC clarified its controls on installations where it owns or substantially controls the land and where unclassified research is carried out. At this, several universities bridled, arguing that the AEC's proposed regulations significantly changed conditions which had been negotiated in earlier contracts. Harvard took the position that the proposed changes represented, as one university official put it, "an encroachment on freedom of inquiry."

The major points at issue were these.

The proposed regulations required prior AEC approval for employment of Soviet bloc aliens and for all visits of Soviet bloc nationals to the AEC-financed installations. In the case of other aliens employed at the installations, the filing of personal-background information was to be required.

Harvard objected to clauses which would have permitted the AEC unilaterally to change the list of Soviet bloc countries and to limit the number of casual visits to the accelerator (visits not planned in advance of the visitor's arrival in Cambridge) made by Soviet bloc nationals.

The controls on information, as proposed in the AEC draft regulations, would have required a scientist employed at the accelerator, before sending any published or unpublished data to a Soviet bloc scientist, to enter into a formal exchange agreement with his correspondent which guaranteed, in return, information of similar value. Harvard argued that, as contractor, it would be legally responsible for policing the agreements and that it regarded this as an impossible position.

The AEC's interest in controlling the export and import of scientific information between the United States and the Soviet bloc follows the tit-for-tat policy laid down by the State Department for the whole program of scientific and cultural exchanges between the United States and Communist countries. This is based on the thesis that the Soviets and their associates follow the policy on scientific information that it is better to receive than to give.

As a result of long negotiations, restrictions on the exchange of published work were lifted. In the case of

unpublished work, there is now no requirement for a formal exchange agreement, but an employee of the installation who sends data to a Soviet bloc opposite number is expected to do his best to secure reciprocity. He is also required to provide the laboratory director with a copy of the material sent to insure that it will be available to American researchers.

Harvard had no objection to obtaining AEC approval if it decides to employ a Soviet bloc national—there are none now on the accelerator staff—and that change was included in the new contract. Standard biographical information on alien employees is required, but the period of personal history to be covered was reduced from 26 to 15 years.

Prior AEC approval for visits of Soviet bloc nationals is required, but genuine spur-of-the-moment visits are permitted without AEC authorization. In the matter of international conferences, where AEC money or personnel are involved, the AEC insists on retaining the right to clear Soviet bloc participation, just as the agency insists on approving the itineraries of Americans who travel on AEC funds.

On the matter of AEC unilateral rights to change the list of Soviet bloc countries and to limit casual visits, the Harvard-M.I.T. joint committee secured the option of terminating the contract on 90 days' notice in response to such action.

Should classified work develop at any time, the contractors have the option of allowing the project to continue under full security regulations for classified work or asking the AEC to transfer the project in question elsewhere.

As it now stands, the modified security sections are viewed in Cambridge as "reasonable," according to Harvard's vice president for administration, and presumably the contract will be signed when a snarl in the interpretation of labor legislation is straightened out.

It would be misleading to ascribe the compromise contract simply to the lively negotiations between the Cambridge group and the AEC legal section. The dispute arose during a reorganization of the AEC when the agency was engaged in an attempt to adapt itself to changing conditions, and it is known that the AEC commissioners and the agency's General Advisory Committee, made up of scientists from outside government, were concerned with the

security provisions and actively favored a liberalization of rules on unclassified research where possible.

It is worth noting that the AEC must deal not only with the universities, which perform much of its research, but with Congress, which appropriates its money. And Congress regards practically anything related to nuclear research as highly sensitive and would be unsympathetic to a laissez-faire policy on aliens and especially on Soviet-bloc nationals around an AEC-supported installation, particularly an expensive one like the Cambridge accelerator, which cost \$12 million to build and gets about \$5 million in federal funds annually for operating costs.—J. W.

Space: U.S. and Soviet Scientists Get Along on Detailed Planning for Two Cooperative Projects

The working plans for a modest program of cooperation in outer space were agreed on last month by a group of Soviet and American scientists meeting in Rome. Success came, as Hugh Dryden, NASA deputy administrator and chief of the U.S. delegation pointed out, through "the realization on both sides that the only hope at the present time is to stay in areas that are not at the apex of the cold war."

Not only blessed but actually invented by the political chiefs of the two countries, the plans detailed at Rome mark a path that, by comparison with other attempts at Soviet-American cooperation, has been lined with roses all the way. Within a few months of John Glenn's orbital flight last February, and after an exchange of letters between Khrushchev and Kennedy, Soviet and American scientists met at Geneva and formulated the outlines of a world geomagnetic survey, a cooperative system of meteorological satellites, and joint experimentation with the passive communications satellite, Echo II. The bilateral proposals were approved speedily by both governments and announced at the United Nations in December, and at Rome the scientists worked in joint groups to fill in the specific details. These are to be withheld from the public until late in May, pending final review by both sides. Arrangements for one of the three projects—the geomagnetic survey—have not yet been completed, but the American delegation views the obstacles as temporary and believes they