

tial ingredient the involvement of good faculty—scientists with a mature perspective of their field, some vision about its role in society, effective teaching skills, and an interest in education. But, since neither universities nor the scientific community offer any particular recognition or other rewards for such educational activities, how realistic is it to hope that first-rate talent

can be enlisted to further the goal of making nonexperts more cognizant about contemporary science?

References and Notes

1. Among the exceptions might be mentioned a recent project, rather different in approach from ours, undertaken at Rensselaer Polytechnic Institute under the direction of V. L. Parsegian.
2. After the earlier part of the course has acquainted the students with a background of

basic scientific concepts, it is also possible to use as a theme some particular problem, such as photosynthesis or the physiology of vision, whose understanding requires the application of several scientific disciplines in conjunction. Greater exploitation of such problem-centered discussion might well be useful in enhancing the interest of the course.

3. A small grant from the National Science Foundation was helpful in initiating the course and was used predominantly for setting up the demonstration laboratories.
4. Persons involved in the later stages of the course have been Professors W. D. Knight and R. H. Haynes.

NEWS AND COMMENT

Defense Research: Pressure on Social Sciences

Pentagon, under Criticism from Congress, Cuts Back Its Support of Controversial Fieldwork Overseas

The Department of Defense (DOD)—yielding to pressure from a mixed bag of liberals, conservatives, and congressmen eager to curb the “gold flow”—has sharply curtailed its support of social science research overseas. A major goal of the cutback is to avoid further international incidents such as have occurred in recent years because of foreign sensitivities to research sponsored by American military or intelligence agencies.

Over the past several months DOD has taken at least four major steps to withdraw from the controversial overseas research. It has reduced its planned expenditures for such research by more than two-thirds from the level of fiscal year 1968. It has adopted new guidelines intended to restrict the kinds of overseas projects it is willing to support. It has tried to persuade the State Department to assume greater responsibility for foreign area research by offering State \$400,000 to get such a program started. And it has proposed the establishment of an interagency committee to determine what foreign area research should be performed and which government agency should support it.

These moves were prompted by increasing, and widespread, criticism of DOD's research effort in the social and behavioral sciences. The Pentagon plans to spend some \$48.6 million on such research in fiscal year 1970, up

from about \$45.4 million in the current fiscal year. Most of this money, which constitutes a relatively small part of the Pentagon's total \$8 billion research and development budget, supports research on training techniques, job performance, manpower selection, and other personnel problems of a relatively noncontroversial nature. But a significant portion of the total—about \$13.7 million in the current fiscal year—supports research aimed at understanding foreign nations and policy planning studies aimed at developing strategies for dealing with political and military developments around the world. It is these studies with foreign policy implications that have provoked the most controversy, particularly when the studies have involved fieldwork overseas. Most of the foreign area research is actually performed in this country, but somewhat more than \$1 million will be spent on data collection abroad in the current fiscal year.

Liberals in Congress, particularly J. William Fulbright, chairman of the Senate Foreign Relations Committee, have criticized Pentagon support of foreign area research on the grounds that DOD has no business meddling in foreign policy and that DOD financing of research overseas has created friction with such countries as Chile, India, and Japan in recent years. On 1 May, Fulbright charged on the Senate floor that Pentagon planners “are busily en-

gaged in blueprinting strategies where our military will play the key role in trying to maintain order in a disordered world.” He said many of the research studies “are more likely to lead to additional Vietnams than to a realistic assessment of our proper role in the world.”

Conservatives in Congress oppose much of the research on the grounds that it is vague and useless, with little practical application to international problems of defense. Last year Senator John Stennis (D-Miss.), a ranking member of the Armed Services Committee, surprised his colleagues by calling social sciences “the softest spot in all the research and development program.” And the Senate Appropriations Committee urged DOD to reduce its social science and foreign area research.

Additional pressures have been exerted on overseas research as a result of efforts, both by the executive branch and by Congress, to curb overseas expenditures in order to stem the flow of gold from this country. There have also been student protests directed at the Pentagon's social science research (see article on page 1039). Moreover, within the defense establishment, many top military men have long derided the social science vogue which swept into the defense department in the early 1960's in line with the late President Kennedy's emphasis on “counter-insurgency” warfare. Admiral Hyman G. Rickover, when asked his opinion of DOD's foreign social science research by the Fulbright committee last year, replied: “No harm would have been

NEWS IN BRIEF

● HEW APPROVES ANTIOCH BLACK STUDIES:

The Department of Health, Education, and Welfare (HEW) has ruled that Antioch College may operate its all-Negro Afro-American studies only as long as students are not excluded solely because of race, color, or national origin. The HEW ruling, however, does not prevent the director of Antioch's black studies program from excluding non-blacks on the grounds that their background is not "relevant" to the courses offered. The Antioch decision is the first HEW ruling on possible sensitive civil rights violations in black studies courses in the nation's universities. HEW officials have made it clear, however, that the new ruling applies only to Antioch and that black studies programs at other universities would be judged separately. Antioch has also been asked to file regular reports with HEW showing that its housing facilities do not violate the 1964 Civil Rights Act. Kenneth B. Clark, a noted social psychologist and antisegregationist, announced his resignation as a trustee of Antioch College on grounds that the Antioch program is "racially exclusionary."

● KISTIAKOWSKY HEADS NAS STUDY ON ARMY GAS DISPOSAL:

George Kistiakowsky, Harvard professor of chemistry and National Academy of Sciences (NAS) vice president, will head the NAS committee named to investigate the Army's plan to dump chemical gases into the Atlantic Ocean.

● TRIBUS NAMED COMMERCE SCIENCE ADVISER:

Myron Tribus, dean of the Thayer School of Engineering at Dartmouth College, has taken over his duties as Assistant Secretary of Commerce for Science and Technology. In his new position, he advises the Secretary of Commerce on scientific and engineering matters which concern the National Bureau of Standards, the Environmental Science Services Administration, the U.S. Patent Office, and the Office of State Technical Service. Tribus, who has served at Dartmouth since 1961, was a professor of engineering at University of California at Los Angeles from 1946 to 1961. He is a President's Science Advisory Council member and Commerce Technical Advisory Board chairman.

done to the Republic if none of it had ever been done."

As a result of these combined pressures, the Pentagon has reduced its expenditures for social science fieldwork overseas by about 70 percent over a 2-year period. The Pentagon spent about \$3.3 million for such fieldwork in fiscal 1968, but reduced this amount to about \$1.2 million in the current fiscal year, and plans to reduce it still further, to less than \$1 million, in fiscal 1970, which begins on 1 July.

Similarly, the Pentagon's total expenditures for research on foreign nations, including research which is done solely in this country, will drop from \$8.3 million in fiscal 1968 to about \$6.9 million in fiscal 1970.

But expenditures on the sometimes controversial policy planning studies will hold essentially level next year at \$6.4 million. Pentagon social scientists say the policy studies generally involve analysis of existing data and seldom require original research or fieldwork overseas. The studies are primarily prepared by such "think tanks" as the RAND Corporation and the Institute for Defense Analyses.

The dollar cutbacks for foreign area research have been accompanied by the adoption of new guidelines governing DOD support of social science research overseas. The guidelines, which were set forth in a memorandum from John S. Foster, Jr., director of defense research and engineering, dated 25 October 1968, provide that DOD will support fieldwork by American social scientists in other countries only when the work meets at least one of the following criteria: (i) it is related to specific operational needs in countries where we have substantial forces at the time of the study; (ii) it is requested by U.S. military officials in the country and concurred in by the host government; (iii) it involves contact only with U.S. personnel and not with foreign nationals; (iv) it is requested by the government of the country in which it is to be carried out; (v) it is personally approved by the Secretary of Defense because of its "extreme interest." The guidelines do not apply to travel abroad to attend professional conferences, to meet with professional colleagues, or to use overseas library materials.

The guidelines have already resulted in the canceling, or revising, of several research projects. The Pentagon's Advanced Research Projects Agency

(ARPA) is in the process of terminating a project headed by Frederick Frey, of MIT, which was originally planned as a study of foreign peasant societies undergoing modernization and development. The study was part way through its initial phase, involving library research and the design of fieldwork, when ARPA told the investigators it would not support the fieldwork which constituted the heart of the project. Similarly, the Air Force required that fieldwork be curtailed in a study of the role of foreign military forces in the stabilization of the Middle East, which is being conducted by A. Perlmutter, of Operations and Policy Research Inc., in Washington, D.C.

The Pentagon is also trying to transfer four ARPA-funded projects, which don't meet the guidelines, to the State Department. The projects, which seek to "determine the most effective uses of DOD aid to developing nations so that conflict between traditional cultural values and pressures toward modernization are minimized," are under the direction of Stillman Bradfield of Kalamazoo College, George Guthrie of Pennsylvania State University, Harry Eckstein of Princeton, and William McCord of Rice. If State declines to take on the projects, they will be canceled, according to Pentagon officials.

Offer to State Department

As an inducement to get the State Department more involved in foreign area research, DOD has offered to transfer \$400,000 of its own funds to State on a one-shot basis so that State would have enough money to get a substantial program started. State's current budget for research contracts is an anemic \$125,000. The Pentagon's offer is not contingent on State's accepting the four projects that ARPA is trying to unload, and the transfer of funds would not continue in subsequent years. State would have to seek funds to continue the expanded research effort through its own budget process.

One State Department official told *Science* he regards the Pentagon's offer as a "serious effort" to get out of controversial research areas that could be better handled by civilian agencies. The proposal is currently under consideration at State.

The Pentagon has also proposed the establishment of a new interagency planning and coordinating committee, under non-DOD leadership, to decide what foreign area research is needed,

which agency should do it, and where the money would come from. The committee would include agencies with foreign interests, such as DOD, State, the Agency for International Development, the National Security Council, the Arms Control and Disarmament Agency, and the U.S. Information Agency, among others. Such a committee has been suggested previously by the Defense Science Board and a National Academy of Sciences committee. Pentagon officials hope the committee would be given "real power" to allocate research responsibilities, in contrast to the existing Foreign Area Research Coordination Group (FAR), a voluntary group of some 20 agencies which has no binding authority and serves mainly as an information exchange.

The Defense Department's new guidelines—and the proposed inter-agency committee—are the latest additions to an ever-growing list of "safeguards" that have been established in the wake of the controversy caused in 1965 by the Army-funded Project Camelot, a study of the potential for internal conflict in Chile and other nations. After Camelot, research approval mechanisms were tightened up in the Defense Department; all research projects with foreign policy implications were required to be reviewed for "sensi-

tivity" by the State Department; and FAR, in 1968, issued guidelines for the conduct of foreign area research. A report by the State Department's reviewing council indicates that the council, in its first 3 years of operation (1965 to 1968), reviewed 377 projects—half were cleared; 44 percent were cleared subject to classification of the results or other conditions; and 6 percent were denied clearance or were withdrawn by the sponsoring agency.

Implications of Pentagon Action

The probable impact of the Pentagon's latest retreat from foreign area research is a matter of disagreement. Some disgruntled Pentagon social scientists believe valuable work is being abandoned because "no one in a key position over here fundamentally believes social science is important—the minute you get trouble with Congress they back off." However, other Pentagon officials believe any work that is truly important to defense planning can still be carried out through the loophole in the guidelines which allows the Secretary of Defense to approve crucial projects.

The Pentagon's withdrawal may spur civilian agencies to boost their niggardly support of foreign area research, and it may further reduce the likelihood of international incidents in-

volving military research abroad. But some Pentagon officials claim there may be an adverse effect on the Pentagon itself. Though much of the criticism of Pentagon social science stems from the current drive in Congress to curb the power of the military, these officials suggest the new guidelines may actually increase the "militarization" of the Pentagon by depriving Pentagon planners of the allegedly "restraining" influence of civilian social scientists.

Whatever the impact of the guidelines may be, it seems likely that these latest steps by the Pentagon will not be enough to satisfy the opponents. Senator Fulbright has criticized the Pentagon's policy planning studies and its support of research in the natural and social sciences by foreign institutions. Neither of these categories of projects seems to be directly affected by the new guidelines. Moreover, Fulbright has urged a much more drastic cut in Pentagon financing of social science. In fact, he has asked the Senate Armed Services Committee to reduce by at least half the Pentagon's proposed \$48.6 million budget for social and behavioral sciences. The Armed Services Committee is not apt to go along with this suggestion. But there will almost certainly be further controversy over Pentagon research in the days ahead.—PHILIP M. BOFFEY

University Contractors Cut Ties with CRESS, HumRRO, Army's Two Main Centers of Social, Behavioral Research

While Pentagon officials were recently assuring Congress that campus protests against military research were having little effect on that research, two universities based in the nation's capital quietly announced that they will divest themselves of their Army-sponsored research offices. American University said it will spin off its Center for Research in Social Systems (CRESS), an organization which, under a different name, conducted the ill-fated Project Camelot that provoked an international controversy in 1965. And George Washington University said it will sever relations with its Human Resources Research Office (HumRRO), an organization that conducts work of various kinds in the behavioral sciences. Both research centers have their headquarters off campus.

The full implications of the divestiture are not clear, but the move seems potentially significant. CRESS and HumRRO are the Army's largest contractors in social and behavioral science research. In the past, much has been made of the usefulness of their university connections.

Both research centers grew out of the Army's use of social science research during World War II, and both were established in the 1950's at the request of the Army. The two universities, being neither rich nor eminent, and being naturally oriented toward government by virtue of geography, welcomed, at least originally, the offer of Army money to set up the research operations.

HumRRO, which was first funded at George Washington in 1951, grew out

of the Army's wartime use of university psychologists to design training programs and psychological tests for military personnel. The laboratory expanded rapidly in the mid-1950's when it undertook psychological studies of Chinese, North Korean, and American prisoners of war. It currently has an annual budget of about \$4 million and a staff of 273 researchers.

HumRRO's early work on the performance of soldiers in combat and on brainwashing in Korea has expanded into a major research effort on motivation, morale, and the performance of soldiers under stress. This kind of research is called "human factors engineering" and involves study of the problems individuals have in adjusting to certain conditions. One project, for example, called "Desert Rock," studies the reactions of troops participating in maneuvers involving nuclear weapons. Researchers at HumRRO's Alexandria headquarters and at HumRRO offices on five Army bases have developed