

colloquium who favored the establishment of either a permanent or a short-term national commission on the environment.

Although there were disparate lines of argument about how to arrive at a national policy for the environment, there seemed to be agreement that the need for comprehensive environmental management was an urgent one. In his prepared statement, Secretary Udall did not hesitate to condemn activities of his own Executive branch as he deplored "the inexorable highway construction, the obnoxious boom of supersonic aircraft, the dam building . . . [and] the pernicious concept of calculated obsolescence that fouls our countryside." Udall said that almost every federal program posed a threat to our environment.

An inevitable complaint about meetings such as the environmental colloquium is that they deal only in generalities and don't get down to the hard individual problems. Smithsonian Secretary S. Dillon Ripley commented at the meeting that it was all very pleasant for the group to sit around in their white collars and engage in "gaseous interchanges" but that what the scientists should really be doing is training

people for grass roots work in ecology, biology, and the other relevant scientific disciplines. Senator Jackson commented that incorporation of the concept of "environmental quality" into the governmental decision-making process was a growing and popular idea. "As a generalization," Jackson noted, "it has great appeal. It doesn't take much courage, for example to come out foursquare in favor of a quality life for all Americans—as long as we don't get too specific about what we mean."

Secretary Udall argued that the basic question was one of funding: "Are we willing to pay for a quality environment?" Udall said that the nation could write laws but that they would go "nowhere" if adequate appropriations were not provided. One illustration which could have been cited to back up Udall's argument was that of the International Biological Program (IBP). Several of the participants, including Senator Jackson (who quoted a June speech by the President), spoke warmly of the IBP. What the participants did not mention was that the Administration has been very hesitant about giving the requested financial support for this program (*Science*, 24

May). As Udall said at another point in his presentation, it is unrealistic to think that the nation can solve a broad range of tough policy and organizational issues "by putting the stamp of approval on some booming rhetoric."

Nonetheless, "booming rhetoric" is sometimes the first step toward action, and the fact that this congressional colloquium was held at all may be an indication that the Congress will move to grapple with environmental problems in a more comprehensive manner. A meeting which brought together relevant officials from both House and Senate, from several Executive agencies, and from the scientific community could be a promising portent. Congressman Miller said that he and Senator Jackson were so pleased by the success of the colloquium that they planned to hold a similar meeting early next year.

In summing up, Don K. Price, dean of the John Fitzgerald Kennedy School of Government at Harvard, who acted as rapporteur for the colloquium, wryly stated that the problem with the environment is that people are involved with it, and he ventured the prediction that there would be enough environmental problems to provide agenda for many years to come.—BRYCE NELSON

Research Probe: Rickover Broad-sides "Military-Scientific Complex"

"President Eisenhower mentioned the industrial-military complex . . . I have mentioned the military-scientific complex. I think this is the really dangerous one."

—ADMIRAL HYMAN G. RICKOVER

A significant number of congressmen are wary of some of the activities of the Defense Department, especially in the funding of research in the social sciences. These suspicious members recently gained further support from the ranks of the military research community when Admiral Hyman G. Rickover testified in closed session before the Senate Foreign Relations Committee a couple of months ago. (His testimony was released on 19 July.) The hearing was the second that the Foreign Relations Committee has held recently on

Defense Department-sponsored foreign affairs research. In the first meeting the committee grilled John S. Foster, Jr., director of Defense Research and Engineering (*Science*, 24 May).*

Rickover is the U.S. Navy's Deputy Commander for Nuclear Propulsion, Naval Ship Systems Command, and director of the Naval Reactors Division for the Atomic Energy Commission. He has long had the reputation of being a sharp-tongued "maverick" who shows little hesitation about publicly discussing issues outside his field of professional competence. He undoubtedly qualifies as the most outspoken witness from the Defense Department payroll to

*Copies of the transcripts of the hearings with Rickover and Foster can be obtained without charge from the Documents Room, Committee on Foreign Relations, U.S. Senate, Washington, D.C. 20501.

appear before congressional committees.

In addition to saying that "much of the DOD's social science research has been a waste of the taxpayer's money," Rickover was critical of the massive power of the DOD itself. "It may be difficult to regain control of the DOD," Rickover argued, "Yet, if its empire-building is not restrained, it may become the most powerful branch of the National Government. This surely was not intended by the Founding Fathers; nor, I feel sure, is it the will of the American people." Rickover said that the DOD had been able to gain so much power because, in a period of "cold war," the DOD could obtain vast appropriations for almost any purpose it had in mind. "Being the most richly endowed of all the executive departments," he argued, "DOD is naturally the most powerful. Even in foreign affairs, the State Department is—realistically speaking—a junior partner." Rickover noted that the State Department in its own area of responsibility—foreign affairs—received for research only a small fraction of the funds possessed by DOD. When discussing the "Witchcraft in the Congo" study

which the DOD sponsored, Rickover commented that a study on "Witchcraft in the Pentagon" might be more germane. (Since his meeting with the committee, Foster has defended the Congo witchcraft study by saying that it only cost \$522, took one week, amounted to 11 pages, and was merely organization of available information and "not research in any serious sense.")

Rickover argued that "the huge research grants given the Department of Defense by Congress" had created a "military-scientific complex" which was more dangerous than the "military-industrial complex" about which President Eisenhower had warned. Rickover asserted that a "vast interlocking directorate" controlled and profited from the nation's military research, and urged the committee to have the General Accounting Office compile a cross-indexed "Who's Who" for Defense R&D. He said that such a list might take 2 years to prepare and should include the names of all organizations engaged in Defense R&D for the last 10 years; the names of the top 25 percent of all personnel in such organizations, including all officials and directors; the positions and committee memberships of each of these people for the past 10 years; the names of academic consultants employed; and the salaries paid to each of the above, both directly and indirectly. Rickover said that both DOD and NASA should be included in such an index. Committee chairman J. William Fulbright (D-Ark.) said that he thought that the compiling of such an index was "a very good idea."

Members of the committee, including Fulbright, have expressed their view that DOD subsidy of academic research is helping create unrest at the universities, an argument with which Rickover agreed. "I believe Department of Defense research sponsorship is partly responsible for the troubles on our campuses," he argued; "Today, a good deal of teaching in our universities is done by young graduate students working for their final degrees. The professors are often off campus, traveling from one place to another under Government contract, attending panel meetings, consulting, doing research in foreign countries, all at Government expense. It is not so very surprising that the students feel they are being shortchanged by their professors. This surely is at the root of some of their unrest."

Rickover also expressed his opposition to the DOD's Project Themis, one of the aims of which is to build the

NEWS IN BRIEF

● **SONIC BOOM BILL:** An aircraft noise abatement bill, intended to help curb sonic booms and noise levels from jet planes, has been signed by President Johnson. The measure, introduced by Senator Warren G. Magnuson (D.-Wash.) and Representative Harley O. Staggers (D.-W. Va.), gives the Federal Aviation Administration (FAA) authority to prescribe aircraft noise standards and to draw up regulations for sonic boom control. Traditionally, the FAA could rule only on safety matters.

● **OCEANOGRAPHY DECADE STUDY:** The National Academy of Sciences (NAS) and the National Academy of Engineering (NAE) will collaborate on an initial study of the scientific and engineering aspects of U.S. participation in the International Decade of Ocean Exploration, which is planned for the 1970's. The academies have been asked to assist in identifying U.S. scientific and engineering goals which will enable man to use the seas more effectively.

● **NARCOTICS - DANGEROUS DRUGS UNIT:** A former police chief has been named to head the Justice Department's new bureau of narcotics and dangerous drugs. John Edward Ingersoll, a Justice Department official and former police chief of Charlotte, North Carolina, has been appointed to direct the new bureau, which is the result of a merger of the Health, Education, and Welfare Department's bureau of drug abuse control and the Treasury Department's Bureau of Narcotics under one central authority. The appointment is being interpreted as a sign that the bureau's strong emphasis on enforcement, which prevailed under the Treasury Department, will continue.

● **TOP TEN FOUNDATIONS:** The nation's top ten foundations and the assets of each have been named in figures provided by the American Association of Fund-Raising Counsel. They are: Ford Foundation, \$3.58 billion; Rockefeller Foundation, \$804 million; Duke Endowment, \$615 million; Mott Foundation, \$424 million; Lilly Endowment, \$390 million; Kellogg Foundation, \$375 million; Carnegie Corporation, \$336 million; Sloan Foundation, \$327 million; Pew Memorial Trust, \$303 million; and Hartford Foundation, \$270

million. A total of 26 foundations were reported with assets of more than \$100 million.

● **GULF COAST INFORMATION EXCHANGE:** The National Science Foundation has awarded the new Regional Communication and Information Exchange at Rice University a grant totaling \$119,250 for an information network, which will connect 18 university libraries in the Texas Gulf Coast Region. The network, directed by Richard L. O'Keeffe, will disseminate technical and scientific information to academic institutions and, on an individual fee basis, to industry.

● **AIR POLLUTION ADVISORY BOARD:** A 15-member Federal Air Quality Advisory Board has been named by President Johnson to help bring air pollution under control. The Board, chaired by Health, Education, and Welfare Secretary Wilbur J. Cohen, was formed to advise the government on effective state and community air quality control programs. Members include Lee A. Dubridge, president of California Institute of Technology; F. Pierce Linaweaver, Jr., Johns Hopkins University associate professor of environmental sciences; and Michael Ference, vice president for scientific research, Ford Motor Company.

● **NEW PUBLICATIONS:** *National Atmospheric Sciences Program—Fiscal Year 1969*, a 60-page report released by the Office of Science and Technology, documents the specific areas of the government's \$200-million investment in the atmospheric sciences and describes the roles of the ten participating federal agencies. Copies of the report are available without charge from Captain Sherman W. Betts, Executive Secretary, Interdepartmental Committee for Atmospheric Sciences, Room 5896, Department of Commerce, Washington, D.C. 20230. *Education and the Federal Laboratories*, a study recommending closer cooperation between federal laboratories and educational institutions (*Science*, 26 Jan.) has been released by the Federal Council for Science and Technology. A limited supply is available from George E. Auman, Room A1128, Administration Building, National Bureau of Standards, Washington, D.C. 20234.

Department of Defense-sponsored research in physical, biological and social sciences in academic institutions in fiscal year 1968.*

Institution	Amount
Massachusetts Institute of Technology	\$22,120,000
University of California (all campuses)	19,709,000
Berkeley	7,597,000
San Diego	5,229,000
Los Angeles	4,660,000
Other campuses (total)	2,223,000
Stanford University	18,119,000
Cornell University	12,664,000
University of Chicago	11,066,000
University of Illinois, Urbana	10,672,000
Carnegie-Mellon University	9,428,000
University of Michigan	9,268,000
Purdue University	8,074,000
Columbia University	7,711,000
Ohio State University	7,413,000
University of Dayton	6,206,000
Harvard University	5,933,000
New York University	5,413,000
University of Pennsylvania	5,253,000
University of Texas, Austin	4,964,000
Princeton University	4,594,000
Northwestern University	4,571,000
California Institute of Technology	4,377,000
Johns Hopkins University	4,008,000
Yale University	3,150,000
University of Cincinnati	2,882,000
University of Utah	2,749,000
Syracuse University	2,703,000
University of Rochester	2,370,000
University of Florida	2,315,000
University of Washington	2,315,000
Polytechnic Institute of Brooklyn	2,179,000
Northeastern University	2,120,000
Oregon State University	2,065,000
University of Miami	2,010,000
University of Southern California	2,010,000
Indiana University	2,006,000
Pennsylvania State University	1,899,000
George Washington University	1,801,000
University of Tennessee	1,760,000
Texas A & M University	1,718,000
University of Colorado	1,695,000
Case Institute of Technology	1,673,000
Brown University	1,657,000
Louisiana State University	1,626,000
University of Pittsburgh	1,620,000
University of Virginia	1,522,000
Iowa State University of Science and Technology	1,469,000
Rice University	1,430,000
University of Oregon	1,397,000
Lehigh University	1,334,000
Wentworth Institute	1,293,000
University of New Mexico	1,245,000
Denver Research Institute	1,235,000
University of Wisconsin, Madison	1,212,000
Stevens Institute of Technology	1,192,000
Georgetown University	1,168,000
University of Notre Dame	1,158,000
University of Arizona, Tucson	1,147,000
Michigan State University	1,128,000
University of Maryland, Baltimore	1,116,000
University of Kansas	1,093,000
State University of New York, Albany	1,081,000
Rensselaer Polytechnic Institute	1,075,000
University of Alaska	1,041,000
Yeshiva University	1,021,000

*Only institutions receiving more than \$1 million are included in this list. Source: Defense Department information supplied to the Senate Committee on Foreign Relations.

research capability of universities. He said that he opposed it for two reasons: "One, it gets the hand of the Department of Defense into our universities; and, two, it draws the people who should be teaching away from their proper work." He speculated that one of the advantages which people derived from Themis was the possibility of "very interesting travel." He cited the seminars of the Lincoln Project at M.I.T. which are usually held "in pleasant places where the climate and the living conditions are good."

Rickover expressed some skepticism about all social science research ("social science is very vague") and about the work done by the DOD-sponsored Federal Contract Research Centers (sometimes called "think tanks"). Rickover argued that the DOD should not sponsor social science research abroad, and said that, if it was necessary to do research in foreign countries, then it should be done by civilian agencies. He also said he thought that no social science research should be classified.

The Senators seemed sympathetic to Rickover's opinions. At one point, Fulbright said he thought that military sponsorship of research in foreign universities was "inexcusable."

One of the DOD-sponsored foreign research projects most discussed in the committee meeting was originally entitled "Pax Americana" and was done by the Douglas Aircraft Company. For several months in late 1967 and early 1968, Fulbright tried to obtain a copy of this study from the Defense Department. He was told that the title had been changed to "Strategic Alignments and Military Objectives" and that the study was classified and that he could not have a copy. In April, he wrote DOD saying that he had learned that, during all the months he had been corresponding with the Defense Department, the Douglas Aircraft Company had been circulating the study outside the Defense Department under a different title. Fulbright was miffed and so were some of the other senators when they read the ideas that had been purchased with the taxpayers' money. Karl Mundt (R-S.D.) asked Rickover what he thought of one conclusion of the study: "Probably the most important future role of the Army will be the role of nation-building and keeping secure the frontiers of the U.S. imperium . . ." Rickover replied that it may have explained why the Army did not want the study published—"because it might create a bad Army 'image.'"

The people in charge of Defense R&D are obviously smarting under some of the congressional criticism directed against them. For instance, on 1 July the DOD's Foster used his appearance before the Senate Subcommittees on Department of Defense Appropriations to answer some of his critics' charges. He pointed out that 95 percent of the \$8.031 billion requested by his division was for development, evaluation, and testing and that only 5 percent was for research.

Foster urged the Congress not to take reprisal against the universities for campus disturbance and dissent. He pointed out that "universities provide a group of experts whose independent advice on critical defense problems is one of our most remarkable national assets." He said the Project Themis had been "enthusiastically received" by both the academic community and the Congress and would be expanded in fiscal year 1969.

Much of the country's R&D effort, Foster said, is of direct benefit in "increasing the effectiveness of our forces in Southeast Asia." He pointed out that R&D expenditures in the past decade had helped produce several items that were highly useful in Vietnam, including the faster and more heavily armed Huey Cobra helicopter, the A-7A attack bomber, and the Walleye TV-guided bomb. Foster said that his division was continuing to do significant research on Vietnam-type situations, and that counterinsurgency appears to be "an appropriate, high potential pay-off area" for increased future effort. Foster defended the work of the "think tanks" which he said provided a necessary independent judgment for the DOD, cautioned congressmen not to judge research projects by their often misleading titles, and warned that cutting the Defense R&D budget would help shift the efforts of many research scientists and engineers toward other areas.

It is impossible to determine with certainty what the effect of the critical congressional attention given to DOD-sponsored R&D will ultimately be. A likely guess is that the DOD may eventually decide that some of its research, especially that in the social sciences, is hardly worth the trouble required to defend it against continuing congressional probing. Research which may have seemed useful to DOD's directors when it was unpublicized will seem less essential when it serves as fuel for congressional derision.—BRYCE NELSON